Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

JUL 2 8 2006

GROUND WATER

JUL 3 1 2006

BUREAU

Mr. Clint Marshall
Groundwater Quality Bureau
New Mexico Environment Department
P.O. Box 26110
Santa Fe, NM 87502

Subject: Semi-Annual DP-831Discharge Monitoring Report for January 1, 2006, Through June 30, 2006

Dear Mr. Marshall:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Discharge Monitoring Report for the period of January 1, 2006, through June 30, 2006. This report is required by Discharge Plan 831.

If you have any questions about this report or require any additional information, please contact Mr. H. L. Plum at (505) 234-7462.

Sincerely,

David C. Moody
Manager

Enclosure

cc: w/enclosure
S. Zappe, NMED
CBFO M & RC

cc: w/o enclosure
J. Bearzi, NMED *ED
J. Kieling, NMED ED
*ED denotes electronic distribution

CBFO:AMO:HLP:KJB:06-0572:UFC5486

WASTE ISOLATION PILOT PLANT (WIPP) SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PLAN DP-831

REPORT NUMBER 45: January 1, 2006 through June 30, 2006

GROUND WATER

JUL 3 1 2006

BUREAU

SPECIFIC REQUIREMENTS OF DP-831

1.0 DISCHARGE VOLUMES:

Facultative Lagoon System	
Month	Volume (gallons)
January	165,148
February	113,404
March	102,590
April*	31,860
May*	48,729
June	60,380

*Flow meter was providing sporadic and abnormal readings on the following dates: April 15, 18, 21-23, 26-27, 29-30 and May 19, 28, 29, 16 and 17 of 2006. The meter had to be re-calibrated (reinstalled the distance parameter) to reset the depth of the weir.

H-19 Evaporation Pond	
Month	Volume (gallons)
January	1,820
February	0
March	3,000
April	2,600
May	2,530
June	1,535

Miscellaneous Water Discharged to the Facultative Lagoon System: None

Facultative Lagoon System Evaporation Pond B: 900 gallons

2.0 FACULTATIVE LAGOON AND H-19 EVAPORATION POND MONITORING AND REPORTING

Table 1 contains the analytical results for the Facultative Sewage Lagoon System. The H-19 Evaporation Pond was not sampled due to an insufficient amount of water being present in the pond following several months of drought conditions. The laboratory data sheets are included in Attachment 1. All miscellaneous non-hazardous water disposed of in the H-19 Evaporation Pond was Exhaust Shaft Fan Condensate, purged water from groundwater monitoring activities and observation borehole water from the underground. The Exhaust Shaft Catch Basin which has historically been a source of wastewater removed from the underground has been replaced with a series of boreholes that intercept the water in the south 400 drift between the Exhaust

Shaft and the Waste Shaft. The boreholes have automatic pumps installed in them that pump the water to 500 gallon containers for collection.

Other miscellaneous wastewaters generated include; 495 gallons of water from observation boreholes in the underground, 110 gallons of waste shaft ring water, 500 gallons of water from borehole drilling boreholes for the collection of Exhaust Shaft water, 110 gallons of water containing mortar generated during the construction of the block wall for the closure of Panel 2, 55 gallons of water used to rinse lead bricks (lead concentration was undetectable upon analysis) used in the installation of shielding for SEGA and MEGA detectors used in the Majorana Experiment and 5 gallons of equipment rinse water from cleaning sampling equipment. All miscellaneous non-hazardous water was analyzed to determine that it was not a hazardous waste regulated under the Resource Conservation and Recovery Act.

During this reporting period the following activities were conducted as required by your letter dated December 22, 2005, *Conditional Approval of the Corrective Action Plan based on the Sewage Lagoon Leak Testing Results and Liner Integrity Evaluation.*

- The single leak detected in the H-19 Evaporation Pond by LLSI during the leak tests performed in June 2005 was repaired. The perimeter of the H-19 Evaporation Pond was graded to facilitate the run-off of precipitation away from the pond.
- Settling Pond 2A and Polishing Pond 2B of the south sewage lagoon train have been allowed to dry and the sludge was sampled and determined to be nonhazardous. A contract has been established and materials procured to begin work on the replacement of the liners in July 2006.

3.0 INFILTRATION CONTROL ACTIVITIES (DECEMBER 22, 2003, MODIFICATION)

The following maintenance and erosion control enhancements that were proposed to the Ground Water Quality Bureau in a letter dated September 12, 2005 have been accomplished during this reporting period:

- A new haul road was constructed around the east side of the salt pile into the Salt Storage Area.
- A berm was constructed on the top of the salt pile, one on the north and south portion of the salt pile to divert run-off to discharge chutes protected with rip-rap. The berms are being covered with turf reinforcement mats, the installation of which was 80 percent complete as of June 30, 2006.
- Repairs of the erosion of the salt pile side slopes were 90 percent complete as of June 30, 2006.

Remaining maintenance and erosion control work includes the construction of the discharge chute on the north east side of the salt pile and the discharge chute in the center of the south side of the salt pile and the establishment of vegetation on the salt pile.

4.0 SUMMARY OF ACTIVITIES RELATED TO THE SHALLOW SUBSURFACE WATER (SSW) MONITORING AND SAMPLING PROGRAM

Water levels in the shallow wells (PZ-1 through PZ-12, C-2505, C-2506, and C-2507) were obtained on March 9 and June 14, 2006, and are included in Table 2. These were taken on the quarterly milestones outlined in Table 2 of the Ground Water Monitoring Schedule, in the December 22, 2003, DP-831 Modification.

WQSP-6A was sampled in October 2005 and May 2006 as part of the WIPP Hazardous Waste Facility Permit Detection Monitoring Program.

Only WQSP-6A data for the October sampling event are provided in this report because the results for the May event were not available at the time of submittal. The May WQSP-6A analytical data will be provided in the January 31, 2007, Semi-annual Discharge Monitoring Report. The signed laboratory reports for WQSP-6A are included in Attachment 2.

Concentrations for selenium and chromium in the WQSP-6A sample were below the method detection limits of 0.0250 mg/l. Nitrate concentrations for WQSP-6A were below method detection limit of 0.0100 mg/l. Sulfate, chloride, and total dissolved solids (TDS) concentrations were detected at concentrations exceeding standards of 20.6.2.3103 NMAC, *Standards for Ground Water of 10,000 mg/l TDS Concentration or Less* for Human Health and Domestic Water Supply. Although the concentrations were higher than the standards, they are less than background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285).

The shallow wells were sampled for field and general chemistry parameters in May 2006 as required by the December 22, 2003, modification to DP-831. Five wells were sampled on May 15, 2006, while the remaining wells were sampled on May 16, 2006. Results for the field sampling parameters and laboratory analyses are presented in Table 2. Laboratory reports for all shallow well analyses are included in Attachment 3. Chloride concentrations exceeded values listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply in all shallow wells sampled. The maximum concentration was 84,700 mg/l in PZ-9, while the minimum concentration was 460 mg/l in PZ-10. Total dissolved solids concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in all shallow wells sampled with the maximum concentration of 153,000 mg/l in PZ-9. Nitrate concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in one well with a concentration of 20.6 mg/l in PZ-12. Sulfate concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in eight of ten wells sampled with a maximum concentration of 4,350 mg/l in PZ-9. Chromium concentrations were all below limits and below 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply. Selenium was detected in eight of ten shallow wells sampled. Three of these wells exceeded concentrations identified in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply.

Total rainfall in the area of WIPP for this reporting period was 2.8 inches compared to 8.08 inches for the same period in 1004, a difference of 5.28 inches less in 2006. Comparing water levels taken on 3/9/06 and 6/14/06, a decrease across all wells was observed. However, the change in water levels for the wells and piezometers monitored between 12/7/06 and 6/14/06 shows a net increase of 0.75 feet over the entire site. The largest decrease in water level was 1.06 feet, identified in PZ-10, adjacent to Pond A. The highest increase in water levels over this period was 0.63 feet in PZ-03, located in the northeast corner of the WIPP controlled area.

Table 1: Sewage Lagoon and H-19 Semi-Annual Analytical Results								
Analyte	**Influent to Facultative Lagoon System**		**Evaporation Pond B**		**Evaporation Pond C**		**H-19 Evaporation Pond**	
Nitrate (mg/l)	<1.00		<0.10		NA		NA	
TKN (mg/l)	119		19		NA		NA	
TDS (mg/l)	716.0		**19,700**		**4700**		NS	
	Activity	TPU 2 σ	Activity	TPU 2 σ	Activity	TPU 2 σ	Activity	TPU 2 σ
$U^{233/234}$ (Bq/l)	6.44E-02	7.07E-03	1.74E-02	3.11E-03	1.39E-02	2.53E-03	NS	NS
U^{235} (Bq/l)	1.44E-03	1.14E-03	4.38E-04	6.02E-04	-2.92E-05	1.26E-04	NS	NS
U^{238} (Bq/l)	2.92E-02	4.58E-03	7.29E-03	1.99E-03	5.29E-03	1.55E-03	NS	NS
Pu^{238} (Bq/l)	-1.52E-04	7.08E-04	1.73E-04	7.06E-04	3.15E-04	6.87E-04	NS	NS
$Pu^{239/240}$ (Bq/l)	-1.75E-04	3.84E-04	8.38E-05	3.87E-04	-8.50E-05	2.18E-04	NS	NS
Am^{241} (Bq/l)	-7.91E-05	2.45E-04	6.57E-05	3.42E-04	-4.75E-05	1.47E-04	NS	NS
Sr^{90} (Bq/l)	-1.53E-03	2.20E-02	2.89E-03	2.55-02	-9.52E-03	2.51E-02	NS	NS
TPU 2 σ = total propagated uncertainty at 2-sigma (95% confidence interval)								
NA: The analytical parameter is not required.								
NS: Not Sampled								
TKN: Total Kjeldahl Nitrate								
TDS: Total Dissolved Solids								
Bq/l: Becquerel per liter								
"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply								

Table 2
SUMMARY OF SHALLOW SUBSURFACE WATER LEVELS, FIELD PARAMETERS, AND ANALYTICAL RESULTS

	Water Level Monitoring (Ft AMSL)		Field Parameters			General Chemistry Parameters					Trace Metals	
Monitoring Site	03/09/06	06/14/06	pH (SU)	Temp. (°C)	Electrical Conductivity @25 °C (µS/cm)	Sample Date	Nitrate (mg/l)	Sulfate (mg/l)	Chloride (mg/l)	TDS (mg/l)	Selenium (mg/l)	Chromium (mg/l)
PZ-1	3373.41	3373.26	6.30	22.3	119,600	5/16/06	<2.50	**2490**	**62400**	**113000**	**0.0510**	<0.0100
PZ-2	3373.24	3372.79	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
PZ-3	3374.41	3374.19	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
PZ-4	3368.29	3367.97	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
PZ-5	3375.94	3375.55	6.64	21.7	45,870	5/16/06	2.56	**1520**	**18300**	**32600**	**0.0710**	<0.0100
PZ-6	3372.20	3371.83	6.20	21.7	137,600	5/16/06	7.69	**3050**	**68800**	**115000**	<0.0100	<0.0100
PZ-7	3379.06	3378.49	6.31	19.7	104,000	5/15/06	<5.3	**3190**	**54100**	**139000**	**0.0680**	<0.0100
PZ-8	DRY	DRY	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
PZ-9	3366.19	3365.62	6.02	19.4	154,900	5/16/06	3.01	**4350**	**84700**	**153000**	0.0230	<0.0100
PZ-10	3371.57	3370.70	7.02	20.0	2,712	5/15/06	3.42	539	460	**1830**	0.0140	<0.0100
PZ-11	3375.83	3375.46	6.28	21.5	132,500	5/15/06	<5.3	**3090**	**71000**	**133000**	<0.0100	<0.0100
PZ-12	3359.31	3358.53	6.77	20.5	13,030	5/15/06	**20.6**	**866**	**4510**	**8790**	0.0190	<0.0100
C-2811	3345.10	3344.54	7.07	20.4	5,380	5/15/06	6.94	511		**3740**	0.0310	<0.0100
C-2505	3369.92	3369.55	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
C-2506	3370.34	3369.94	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
C-2507	3366.94	3366.50	6.79	19.7	6,790	5/16/06	7.37	**1040**	**1930**	**1800**	**0.0510**	<0.0100
WQSP-6a	3197.06 [1]	3196.84 [2]	7.25	21.8	3,930	10/19/05	<0.0100	**1940**	360	**3430**	<0.0250	<0.0250

Explanation: [1] Water Level Measurement Taken on 03/07/06

[2] Water Level Measurement Taken on 06/13/06

NS: Not Sampled as per permit conditions

"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply

Attachment 1

Laboratory Data Summary Sheets for the Sewage Lagoon System and the H-19 Evaporation Pond

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

J. Siegel
WRES
P.O.Box 2078
Carlsbad, NM, 88221-2078

Report Date: June 26, 2006

Work Order: 6042618

Project Number: Env Monit-DP-831

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
88697	EC-SWL-2006-0425-1.14	water	2006-04-25	12:45	2006-04-26
88698	EC-SWL-2006-0425-2.14	water	2006-04-25	12:50	2006-04-26
88699	EC-SWL-2006-0425-3.14	water	2006-04-25	12:50	2006-04-26
88700	EC-SWL-2006-0425-4.14	water	2006-04-25	12:35	2006-04-26
88701	EC-SWL-2006-0425-5.14	water	2006-04-25	12:15	2006-04-26
88702	EC-SWL-2006-0425-6.14	water	2006-04-25	12:25	2006-04-26
88703	EC-SWL-2006-0425-7.14	water	2006-04-25	12:45	2006-04-26
88704	EC-SWL-2006-0425-8.14	water	2006-04-25	13:00	2006-04-26

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 8 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Analytical Report

Sample: 88697 - EC-SWL-2006-0425-1.14

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26126	Date Analyzed:	2006-04-26	Analyzed By:	WB
Prep Batch:	22945	Sample Preparation:	2006-04-26	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		<1.00		mg/L	5	0.200

Sample: 88698 - EC-SWL-2006-0425-2.14

Analysis:	TKN	Analytical Method:	E 351.3	Prep Method:	N/A
QC Batch:	26164	Date Analyzed:	2006-05-01	Analyzed By:	SM
Prep Batch:	22979	Sample Preparation:	2006-04-28	Prepared By:	SM

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Kjeldahl Nitrogen - N		119		mg/L	1	4.00

Sample: 88699 - EC-SWL-2006-0425-3.14

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	26142	Date Analyzed:	2006-04-27	Analyzed By:	WB
Prep Batch:	22950	Sample Preparation:	2006-04-26	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		716.0		mg/L	2	10.00

Sample: 88700 - EC-SWL-2006-0425-4.14

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	26142	Date Analyzed:	2006-04-27	Analyzed By:	WB
Prep Batch:	22950	Sample Preparation:	2006-04-26	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		39400		mg/L	50	10.00

Sample: 88701 - EC-SWL-2006-0425-5.14

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	26142	Date Analyzed:	2006-04-27	Analyzed By:	WB
Prep Batch:	22950	Sample Preparation:	2006-04-26	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		19700	mg/L	10	10.00

Sample: 88702 - EC-SWL-2006-0425-6.14

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	26142	Date Analyzed:	2006-04-27	Analyzed By:	WB
Prep Batch:	22950	Sample Preparation:	2006-04-26	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		4700	mg/L	5	10.00

Sample: 88703 - EC-SWL-2006-0425-7.14

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26126	Date Analyzed:	2006-04-26	Analyzed By:	WB
Prep Batch:	22945	Sample Preparation:	2006-04-26	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Nitrate-N		<1.00	mg/L	5	0.200

Sample: 88704 - EC-SWL-2006-0425-8.14

Analysis:	TKN	Analytical Method:	E 351.3	Prep Method:	N/A
QC Batch:	26164	Date Analyzed:	2006-05-01	Analyzed By:	SM
Prep Batch:	22979	Sample Preparation:	2006-04-28	Prepared By:	SM

Parameter	Flag	RL Result	Units	Dilution	RL
Total Kjeldahl Nitrogen - N		<4.00	mg/L	1	4.00

Method Blank (1) QC Batch: 26126

QC Batch:	26126	Date Analyzed:	2006-04-26	Analyzed By:	WB
Prep Batch:	22945	QC Preparation:	2006-04-26	Prepared By:	WB

Parameter	Flag	MDL Result	Units	RL
Nitrate-N		<0.0106	mg/L	0.2

Method Blank (1) QC Batch: 26142

QC Batch:	26142	Date Analyzed:	2006-04-27	Analyzed By:	WB
Prep Batch:	22950	QC Preparation:	2006-04-26	Prepared By:	WB

Parameter	Flag	MDL Result	Units	RL
Total Dissolved Solids		<5.000	mg/L	10

Method Blank (1) QC Batch: 26164

QC Batch: 26164 Date Analyzed: 2006-05-01 Analyzed By: SM
Prep Batch: 22979 QC Preparation: 2006-04-28 Prepared By: SM

Parameter	Flag	MDL Result	Units	RL
Total Kjeldahl Nitrogen - N		<1.77	mg/L	4

Duplicates (1)

QC Batch: 26142 Date Analyzed: 2006-04-27 Analyzed By: WB
Prep Batch: 22950 QC Preparation: 2006-04-26 Prepared By: WB

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	1420	1400	mg/L	2	1	14.4

Laboratory Control Spike (LCS-1)

QC Batch: 26126 Date Analyzed: 2006-04-26 Analyzed By: WB
Prep Batch: 22945 QC Preparation: 2006-04-26 Prepared By: WB

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	2.61	2.57	mg/L	1	2.50	<0.0106	104	2	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 26164 Date Analyzed: 2006-05-01 Analyzed By: SM
Prep Batch: 22979 QC Preparation: 2006-04-28 Prepared By: SM

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Kjeldahl Nitrogen - N	44.0	45.9	mg/L	1	50.0	<1.77	88	4	64.6 - 118	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 88651

QC Batch: 26126 Date Analyzed: 2006-04-26 Analyzed By: WB
Prep Batch: 22945 QC Preparation: 2006-04-26 Prepared By: WB

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	136	137	mg/L	50	2.50	11.9	99	1	77.3 - 128	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 88565

QC Batch: 26164 Date Analyzed: 2006-05-01 Analyzed By: SM
Prep Batch: 22979 QC Preparation: 2006-04-28 Prepared By: SM

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Kjeldahl Nitrogen - N	45.4	53.5	mg/L	1	50.0	<1.77	91	16	58.2 - 121	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1)

QC Batch: 26126 Date Analyzed: 2006-04-26 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.59	104	90 - 110	2006-04-26

Standard (CCV-1)

QC Batch: 26126 Date Analyzed: 2006-04-26 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.60	104	90 - 110	2006-04-26

Standard (ICV-1)

QC Batch: 26142 Date Analyzed: 2006-04-27 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1035	104	90 - 110	2006-04-27

Standard (CCV-1)

QC Batch: 26142 Date Analyzed: 2006-04-27 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1033	103	90 - 110	2006-04-27

Standard (ICV-1)

QC Batch: 26164 Date Analyzed: 2006-05-01 Analyzed By: SM

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Kjeldahl Nitrogen - N		mg/L	5.00	5.04	101	85 - 115	2006-05-01

Standard (CCV-1)

QC Batch: 26164 Date Analyzed: 2006-05-01 Analyzed By: SM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Kjeldahl Nitrogen - N		mg/L	5.00	5.15	103	85 - 115	2006-05-01

REQUEST FOR ANALYSIS

6042618

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED 4-26-06
RFA Control No 6215
LAB DESTINATION TRACE Analysis
LABORATORY CONTACT Megan McCord
SEND LAB REPORT TO WTS
P.O. Box 2078 MS 486-5
CARLSBAD, NM 88221
C of C Control No 6215
DATE REPORT REQUIRED Per S.O.W.
PROJECT CONTACT C/o Siegel
PROJECT CONTACT PHONE NO. (505) 234-8313

SAMPLING PROGRAM ENV. MONIT - DP831

PURCHASE ORDER NO. n/a

Sample Number	Sample Type	Sample Quantity	Preservative	Req't. Testing Program	Special Instructions
EC-SWL-20060425-1.14	SEWAGE	1 LITER	<4°C	NO_3	98497
2.14		500 mL	H_2SO_4 pH<2, <4°C	TKN	98
3.14			<4°C	TDS	99
4.14					100
5.14					01
6.14					02
7.14		1 LITER		NO_3	03
8.14	BLANK	500 mL	H_2SO_4 pH<2, <4°C	TKN	04
		n/a	4-25-06 RMS		

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL ✓ RUSH _____ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NONHAZARD _____ FLAMMABLE _____ SKIN IRRITANT _____ HIGHLY TOXIC _____ BIOLOGICAL ✓ OTHER _____ (Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT _____ DISPOSAL BY LAB ✓

FOR LAB USE ONLY

RECEIVED BY Megan McCord DATE/TIME 4-26-06 1010

4° carry in

WP 02-EM3001

WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

Report Date: June 26, 2006
Env Monit-DP-831
Work Order: 6042618
Page Number: 7 of 8

CHAIN-OF-CUSTODY RECORD

6042618

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

C of C Control № 6215

SAMPLING PROGRAM ENV. MONIT - DP831

RFA Control № 6215

SAMPLE TEAM MEMBERS R. Simmons, R. Stockwell (ENV. TECHS)

LAB DESTINATION TRACE Analysis

CARRIER/WAYBILL NO. Hand Carry

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
EC-SWL-20060425-1.14	POND 1A	4-25-06 1245	SEWAGE	1 LITER PLASTIC	4° good MM 4-26-06	98147
2.14	POND 1A	1250		500 mL PLASTIC		98
3.14	POND 1A	1250				99
4.14	POND A	1235				100
5.14	POND B	1215				01
6.14	POND C	1225				02
7.14	POND 1A	1245		1 LITER PLASTIC		03
8.14	BLANK	1300	BLANK	500 mL PLASTIC		04

n/a 4-25-06 1605

Special Instructions: n/a

Possible Sample Hazards: BIOHAZARD

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: RSimmons WTS 4-26-06 1010
   Received By: Megan McCord 4-26-06 1010
2. Relinquished By: _____
   Received By: _____
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: _____

WP 02-EM3001

WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

Report Date: June 26, 2006
Env Monit-DP-831

Work Order: 6042618

Page Number: 8 of 8

03462

MK 6-6-06
Narrative Entered by Date

J. Whitefoot 6-6-06
Approved by Date

SECTION 3

Case Narrative

SDG: **2006-235** Client: **Environmental Monitoring**

SAMPLE ID			Chain of Custody #	Sample Description	Matrix	Collection		Date Received
Lab		Client				Date	Time	
C1322	EC	-SWL-20060425-9.14	6216	Pond 1A	Sewage Lagoon	04/25/06	12:55	04/27/06
C1323	EC	-SWL-20060425-10.14	6216	Pond A	Sewage Lagoon	04/25/06	12:35	04/27/06
C1324	EC	-SWL-20060425-11.14	6216	Pond B	Sewage Lagoon	04/25/06	12:15	04/27/06
C1325	EC	-SWL-20060425-12.14	6216	Pond C	Sewage Lagoon	04/25/06	12:25	04/27/06
C1326	EC	-SWL-20060425-13.14	6216	Pond 1A	Sewage Lagoon	04/25/06	12:55	04/27/06
C1327	EC	-SWL-20060425-14.14	6216	Blank	Sewage Lagoon	04/25/06	13:00	04/27/06

Data presented herein is validated and verified in compliance with Management Control Procedures WP 12-RL3002, Data Validation and Verification and WP 12-RL3003,"Data Reduction and Reporting".

Procedure Number	Revision
WP 12-RL3002	5
WP 12-RL3003	5

Sample Prep Summary

All sample preparation performed in accordance with WP 12-RL1010, "Sample Preparation".

Procedure Number	Revision
WP 12-RL1010	7

Measuring Instrumentation

Alpha Spectrometers

System Name	Instrument ID	Procedure Number	Revision	Used for these samples
Canberra Alpha Analyst	ALP-001	WP 12-RL1015	10	YES

Gas Proportional Counters

System Name	Instrument ID	Procedure Number	Revision	Used for these samples
Tennelec LB 4100	GAB-002	WP 12-RL1340	8	YES

Gamma Spectrometers

System Name	Instrument ID	Procedure Number	Revision	Used for these samples
Canberra	GAM-002-1	WP 12-RL1332	4	YES
Canberra	GAM-002-2	WP 12-RL1332	4	YES

COPY

0003

MK 6-6-06
Narrative Entered by Date

J H Whiteford 6-6-06
Approved by Date

SECTION 4

Sample Results Summary

Summary of sample analysis results and respective qualifiers are included in this section.

Qualifier Codes

U	Nuclide considered not detected above the reported MDC and 2σ counting uncertainty.
J	Nuclide identified; the associated numerical value is approximated.
UJ	Nuclide not detected above the reported MDC or 2σ counting uncertainty and a quality deficiency affects the data making the reported data more uncertain.
NJ	Nuclide present at an estimated quantity.
R	Result is not usable for its intended purpose.
=	No qualifier is necessary.

Uranium Analysis Summary

WP 12 RL 1012, Revision 0

All samples were analyzed in accordance with the above procedure.

Batch #	Samples
SP06-6-1	C1322, C1323, C1324, C1325, C1326, & C1327

Batch #: SP06-6-1

^{234}U was detected in all samples.

^{235}U was detected in sample C1322, but not in samples C1323, C1324, C1325, C1326, and C1327.

^{238}U was detected in all samples.

Plutonium Analysis Summary

WP 12 RL 1012, Revision 0

All samples were analyzed in accordance with the above procedure.

Batch #	Samples
SP06-6-1	C1322, C1323, C1324, C1325, C1326, & C1327

Batch #: SP06-6-1

^{238}Pu was not detected in these samples.

$^{239/240}$Pu was not detected in these samples.

Americium Analysis Summary

WP 12 RL 1012, Revision 0

All samples were analyzed in accordance with the above procedure.

Batch #	Samples
SP06-6-1	C1322, C1323, C1324, C1325, C1326, & C1327
SP06-6-15	C1322, C1323, C1324, C1325, C1326, & C1327

Batch #: SP06-6-1

The entire batch was reprocessed due to the low recovery of the Blank.

Batch #: SP06-6-15

This is the reprocess of batch SP06-6-1.

^{241}Am was not detected in these samples.

0004

MK 6-6-06
Narrative Entered by Date

/rnwhiteford 6-6-06
Approved by Date

Strontium Analysis Summary
WP 12-RL4011 revision 8

All samples were analyzed in accordance with the above procedure.

Batch #	Samples
SP06-6-1	C1322, C1323, C1324, C1325, C1326, & C1327

Batch #: SP06-6-1

^{90}Sr was not detected in these samples.

Gamma Analysis Summary
WP 12-RL1332 revision 4

All samples were analyzed in accordance with the above procedure.

Samples
C1322, C1323, C1324, C1325, C1326, & C1327

^{40}K was detected in samples C1323, C1325, and C1326, but not in samples C1322, C1324, and C1326.

^{60}Co was not detected in these samples.

^{137}Cs was notdetected in these samples.

SECTION 5

Quality Control Summary

The RLCS, RBLK, MLCS, and MBLK Control Chart result Summaries are included in this section (as well as RER and Matrix Spike Summaries, and Nonconformance and Variance Reports, if applicable).

SECTION 6

Chain of Custody

Client Chain of Custody and Request for Analysis (if provided), Sample Tracking Sheets and copies of Sample Tracking Logbook pages are included in this section.

SECTION 7

Raw Data

Copies of the Sample Prep Logbook and the Daily Lab Work Logbook pages, a Definition of Terms and Limits, client correspondence, calculation spreadsheets and hand calculations, all supporting documentation for calculations and preparation of the samples, client correspondence and instrument printouts are included in this section.

COPY

0005

SECTION 4

SAMPLE RESULTS SUMMARY

COPY

0006

MK 6-6-06
Data Input by Date

MRWhiteford 6-6-06
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: 2006-235
Batch: SP06-6-1
Client: Environmental Monitoring
Lab Id: C1324
Client Id: EC -SWL-20060425-11.14
Matrix: Sewage Lagoon
Collect Date: 4/25/2006
Collect Time: 12:15

* = ID Confidence <90%

ISOTOPE	Activity	2 sigma TPU	TPU (k=1)	MDC	Units	Qualifier
$^{233/234}U$	1.74E-02	3.11E-03	1.59E-03	1.28E-03	Bq/L	=
^{235}U	4.38E-04	6.02E-04	3.07E-04	5.77E-04	Bq/L	U
^{238}U	7.29E-03	1.99E-03	1.02E-03	9.60E-04	Bq/L	=
^{238}Pu	1.73E-04	7.06E-04	3.60E-04	5.14E-04	Bq/L	U
$^{239/240}Pu$	8.38E-05	3.87E-04	1.97E-04	5.01E-04	Bq/L	U
^{241}Am	6.57E-05	3.42E-04	1.74E-04	6.91E-04	Bq/L	U
^{90}Sr	2.89E-03	2.55E-02	1.30E-02	2.22E-03	Bq/L	U
^{40}K *	3.56E+01	6.24E+00	3.18E+00	7.14E+00	Bq/L	U
^{60}Co	-1.60E-01	3.35E-01	1.71E-01	3.58E-01	Bq/L	U
^{137}Cs *	3.16E-01	2.48E-01	1.27E-01	3.10E-01	Bq/L	U

ISOTOPE	2σ TPU	2σ CL	1.96	TPU (k=1)
^{40}K	6.24E+00	/	1.96	3.18E+00
^{60}Co	3.35E-01	/	1.96	1.71E-01
^{137}Cs	2.48E-01	/	1.96	1.27E-01

COPY

0009

MK 6-6-06
Data Input by Date

MWhiteford 6-6-06
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: 2006-235
Batch: SP06-6-1
Client: Environmental Monitoring
Lab Id: C1325
Client Id: EC -SWL-20060425-12.14
Matrix: Sewage Lagoon
Collect Date: 4/25/2006
Collect Time: 12:25

ISOTOPE	Activity	2sTPU	TPU	MDC	Units	Qualifier
$^{233/234}U$	1.39E-02	2.53E-03	1.29E-03	1.23E-03	Bq/L	=
^{235}U	-2.92E-05	1.26E-04	6.42E-05	5.06E-04	Bq/L	U
^{238}U	5.29E-03	1.55E-03	7.91E-04	9.03E-04	Bq/L	=
^{238}Pu	3.15E-04	6.87E-04	3.50E-04	4.68E-04	Bq/L	U
$^{239/240}Pu$	-8.50E-05	2.18E-04	1.11E-04	4.55E-04	Bq/L	U
^{241}Am	-4.75E-05	1.47E-04	7.51E-05	6.31E-04	Bq/L	U
^{90}Sr	-9.52E-03	2.51E-02	1.28E-02	2.30E-03	Bq/L	U
^{40}K	9.01E+00	4.76E+00	2.43E+00	7.18E+00	Bq/L	=
^{60}Co	4.36E-01	5.08E-01	2.59E-01	5.88E-01	Bq/L	U
^{137}Cs	-4.31E-02	5.59E-01	2.85E-01	6.25E-01	Bq/L	U

ISOTOPE	TPU2S	/	1.96	TPU
^{40}K	4.76E+00	/	1.96	2.43E+00
^{60}Co	5.08E-01	/	1.96	2.59E-01
^{137}Cs	5.59E-01	/	1.96	2.85E-01

COPY

0010

NK 6-6-06
Data Input by Date

M.W.Whiteford 6-6-06
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: **2006-235**
Batch: **SP06-6-1**
Client: **Environmental Monitoring**
Lab Id: **C1322**
Client Id: **EC -SWL-20060425-9.14**
Matrix: **Sewage Lagoon**
Collect Date: **4/25/2006**
Collect Time: **12:55**

ISOTOPE	Activity	TPU 2s	TPU 1s	MDC	RDL	Units	Qualifier
$^{233/234}U$	6.44E-02	7.07E-03	3.61E-03	1.39E-03	NA	Bq/L	=
^{235}U	1.44E-03	1.14E-03	5.84E-04	7.09E-04	NA	Bq/L	=
^{238}U	2.92E-02	4.58E-03	2.34E-03	1.07E-03	NA	Bq/L	=
^{238}Pu	-1.52E-04	7.08E-04	3.61E-04	6.71E-04	NA	Bq/L	U
$^{239/240}Pu$	-1.75E-04	3.84E-04	1.96E-04	6.59E-04	NA	Bq/L	U
^{241}Am	-7.91E-05	2.45E-04	1.25E-04	8.45E-04	NA	Bq/L	U
^{90}Sr	-1.53E-03	2.20E-02	1.12E-02	1.87E-03	NA	Bq/L	U
^{40}K	2.37E+00	2.81E+00	1.43E+00	3.47E+00	NA	Bq/L	U
^{60}Co	4.98E-03	3.02E-01	1.54E-01	3.45E-01	NA	Bq/L	U
^{137}Cs	-1.74E-02	2.35E-01	1.20E-01	2.76E-01	NA	Bq/L	U

ISOTOPE	TPU 2s	KD	Y	TPU 1s
^{40}K	2.81E+00	/	1.96	1.43E+00
^{60}Co	3.02E-01	/	1.96	1.54E-01
^{137}Cs	2.35E-01	/	1.96	1.20E-01

COPY

0007

MK 6-6-06
Data Input by Date

MRWhitford 6-6-06
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: 2006-235
Batch: SP06-6-1
Client: Environmental Monitoring
Lab Id: C1323
Client Id: EC -SWL-20060425-10.14
Matrix: Sewage Lagoon
Collect Date: 4/25/2006
Collect Time: 12:35

ISOTOPE	Activity	Total U 2σ	Total U 1σ	MDC	Units	Qualifier
$^{233/234}U$	1.04E-02	2.42E-03	1.24E-03	1.30E-03	Bq/L	=
^{235}U	-6.98E-05	2.16E-04	1.10E-04	5.97E-04	Bq/L	U
^{236}U	3.88E-03	1.48E-03	7.56E-04	9.76E-04	Bq/L	=
^{238}Pu	3.16E-04	5.78E-04	2.95E-04	3.74E-04	Bq/L	U
$^{239/240}Pu$	4.18E-05	2.75E-04	1.41E-04	3.61E-04	Bq/L	U
^{241}Am	-4.59E-05	1.56E-04	7.96E-05	6.83E-04	Bq/L	U
^{90}Sr	-1.65E-02	2.58E-02	1.32E-02	2.39E-03	Bq/L	U
^{40}K	7.27E+01	1.09E+01	5.56E+00	6.45E+00	Bq/L	=
^{60}Co	1.74E-01	5.19E-01	2.65E-01	5.90E-01	Bq/L	U
^{137}Cs	-9.38E-02	5.62E-01	2.87E-01	6.25E-01	Bq/L	U

ISOTOPE	Total U 2σ	Coverage	1.96	Total U 1σ
^{40}K	1.09E+01	/	1.96	5.56E+00
^{60}Co	5.19E-01	/	1.96	2.65E-01
^{137}Cs	5.62E-01	/	1.96	2.87E-01

COPY

0008

MK 6-6-06
Data Input by Date

MRWhiteford 6-6-06
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: **2006-235**
Batch: **SP06-6-1**
Client: **Environmental Monitoring**
Lab Id: **C1326**
Client Id: **EC -SWL-20060425-13.14**
Matrix: **Sewage Lagoon**
Collect Date: **4/25/2006**
Collect Time: **12:55**

* = ID Confidence <90%

ISOTOPE	ACTIVITY	TPU 2 SIGMA	DET+PU 1 SIGMA	MDC	Units	Qualifier
$^{233/234}U$	7.38E-02	7.96E-03	4.06E-03	1.43E-03	Bq/L	=
^{235}U	2.07E-03	1.40E-03	7.15E-04	7.61E-04	Bq/L	=
^{238}U	3.18E-02	5.00E-03	2.55E-03	1.11E-03	Bq/L	=
^{238}Pu	-2.61E-04	7.77E-04	3.96E-04	6.77E-04	Bq/L	U
$^{239/240}Pu$	-1.99E-04	4.13E-04	2.11E-04	6.64E-04	Bq/L	U
^{241}Am	6.15E-04	7.03E-04	3.59E-04	7.72E-04	Bq/L	U
^{90}Sr	-4.55E-04	2.44E-02	1.25E-02	2.13E-03	Bq/L	U
^{40}K	3.15E+00	1.68E+00	8.57E-01	2.38E+00	Bq/L	=
^{60}Co	1.50E-02	3.03E-01	1.55E-01	3.47E-01	Bq/L	U
^{137}Cs *	2.98E-01	2.32E-01	1.18E-01	2.92E-01	Bq/L	U

ISOTOPE	TPU 2 SIGMA		1.96	TPU 1 SIGMA
^{40}K	1.68E+00	/	1.96	8.57E-01
^{60}Co	3.03E-01	/	1.96	1.55E-01
^{137}Cs	2.32E-01	/	1.96	1.18E-01

0011

MK 6-6-06
Data Input by Date

MRWhitford 6-6-06
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: 2006-235
Batch: SP06-6-1
Client: Environmental Monitoring
Lab Id: C1327
Client Id: EC -SWL-20060425-14.14
Matrix: Sewage Lagoon
Collect Date: 4/25/2006
Collect Time: 13:00

ISOTOPE	Activity	TPU 2 S	TPU	MDC	Units	Qualifier
$^{233/234}U$	6.16E-04	5.48E-04	2.80E-04	1.21E-03	Bq/L	U
^{235}U	-2.34E-05	1.11E-04	5.65E-05	4.93E-04	Bq/L	U
^{238}U	1.63E-04	3.42E-04	1.74E-04	8.92E-04	Bq/L	U
^{238}Pu	2.25E-04	5.32E-04	2.72E-04	4.30E-04	Bq/L	U
$^{239/240}Pu$	7.48E-05	3.07E-04	1.57E-04	4.17E-04	Bq/L	U
^{241}Am	2.20E-04	3.96E-04	2.02E-04	6.67E-04	Bq/L	U
^{90}Sr	-1.18E-02	2.20E-02	1.12E-02	1.94E-03	Bq/L	U
^{40}K	3.28E-01	3.04E+00	1.55E+00	3.51E+00	Bq/L	U
^{60}Co	7.74E-02	2.93E-01	1.49E-01	3.43E-01	Bq/L	U
^{137}Cs	-3.81E-02	2.42E-01	1.23E-01	2.81E-01	Bq/L	U

ISOTOPE	TPU 2 S	/	96	TPU
^{40}K	3.04E+00	/	1.96	1.55E+00
^{60}Co	2.93E-01	/	1.96	1.49E-01
^{137}Cs	2.42E-01	/	1.96	1.23E-01

COPY

0012

Attachment 2

Laboratory Data Summary Sheets for WQSP 6a

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

Lab Name: TraceAnalysis, Inc.

SDG No.: 5101915

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 10/19/05

WIPP Round No.	21
WIPP Well No.	6A

Concentration Units (mg/L or mg/Kg dry weight): mg/L

WIPP Sample No.	Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
WQ6ADLR21N8	T76085		Alkalinity	106		10/24/2005	SM 2320 B	4.0
WQ6ADLR21N8	T76085	7782-50-5	Chloride	360		10/19/2005	300.0	2.0
WQ6ADLR21N8	T76085		Density	1.00		10/19/2005	ASTM D 854-92	N/A
WQ6ADLR21N8	T76085	7727-37-9	Nitrate (as N)	0.01	U	10/20/2005	353.3	0.10
WQ6ADLR21N8	T76085		pH	7.57		10/19/2005	150.1	4-10
WQ6ADLR21N8	T76085		Conductivity	3710		10/19/2005	SM2510B	
WQ6ADLR21N8	T76085		Sulfate	1940		10/19/2005	300.0	2
WQ6ADLR21N8	T76085		Total Dissolved Solids (TDS)	3430		10/24/2005	160.1	10
WQ6ADLR21N5	T76079		Total Organic Carbon (TOC)	1.00	U	10/23/2005	415.1	1.0
WQ6ADLR21N4	T76077		Total Organic Halogen (TOX)	0.06	U	11/13/2005	5320B/9020B	0.005
WQ6ADLR21N8	T76085		Total Suspended Solids (TSS)	1.00	U	10/21/2005	160.2	1.0

(Density reported in g/mL, pH reported in s.u., Conductivity reported in uMHOs/cm, all other analytes reported in mg/L)
(pH ran as soon as received in laboratory)

Comments:
TOX ran by STL
pH received out of hold time.

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WQ6ADLR21N7

Lab Name: TraceAnalysis, Inc.

SDG No.: 5101915

Matrix (soil/water): Water

Lab Sample ID: T76083

Date Received: 10/19/05

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Analysis Date	Q	RL	M
7440-36-0	Antimony	0.013	U	10/25/05		0.013	P
7440-38-2	Arsenic	0.1	U	10/25/05		0.1	P
7440-39-3	Barium	0.02	U	10/25/05		0.02	P
7440-41-7	Beryllium	0.010	U	10/25/05		0.010	P
7440-43-9	Cadmium	0.010	U	10/25/05		0.010	P
7440-47-3	Chromium	0.025	U	10/25/05		0.025	P
7439-89-6	Iron	0.500	U	10/25/05		0.500	P
7439-92-1	Lead	0.02	U	10/25/05		0.02	P
7439-97-6	Mercury	0.0002	U	10/25/05		0.0002	CV
7440-02-0	Nickel	0.025	U	10/25/05		0.025	P
7782-49-2	Selenium	0.025	U	10/25/05		0.025	P
7440-22-4	Silver	0.013	U	10/25/05		0.013	P
7440-28-0	Thallium	0.025	U	10/25/05		0.025	P
7440-62-2	Vanadium	0.05	U	10/25/05		0.05	P

Correct Date = 10/28/05 MT

Comments:

FORM I - IN

Attachment 3

Laboratory Data Summary Sheets for Subsurface Shallow Water Wells

Summary Report

R. Salness
WRES
P.O.Box 2078
Carlsbad, NM, 88221-2078

Report Date: June 6, 2006

Work Order: 6051606

Project Name: WIPP/SSWMP

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
90430	SSWC2811R5N1	water	2006-05-15	07:30	2006-05-16
90431	SSWC2811R5N2	water	2006-05-15	07:32	2006-05-16
90432	SSWPZ12R5N1	water	2006-05-15	08:47	2006-05-16
90433	SSWPZ12R5N2	water	2006-05-15	08:49	2006-05-16
90434	SSWPZ10R5N1	water	2006-05-15	09:37	2006-05-16
90435	SSWPZ10R5N2	water	2006-05-15	09:39	2006-05-16
90436	SSWPZ7R5N1	water	2006-05-15	10:33	2006-05-16
90437	SSWPZ7R5N2	water	2006-05-15	10:35	2006-05-16
90438	SSWPZ11R5N1	water	2006-05-15	11:30	2006-05-16
90439	SSWPZ11R5N2	water	2006-05-15	11:32	2006-05-16
90440	SSWPZ11R5N1EB	water	2006-05-15	11:45	2006-05-16
90441	SSWPZ11R5N12EB	water	2006-05-15	11:47	2006-05-16

Sample: 90430 - SSWC2811R5N1

Param	Flag	Result	Units	RL
Chloride		1760	mg/L	0.500
Sulfate		511	mg/L	0.500
Total Dissolved Solids		3740	mg/L	10.0

Sample: 90431 - SSWC2811R5N2

Param	Flag	Result	Units	RL
Total Chromium		<0.0100	mg/L	0.0100
Total Selenium		0.0310	mg/L	0.0100

Sample: 90432 - SSWPZ12R5N1

Param	Flag	Result	Units	RL
Chloride		4510	mg/L	0.500
Sulfate		866	mg/L	0.500

continued ...

UNCONTROLLED COPY

sample 90432 continued ...

Param	Flag	Result	Units	RL
Total Dissolved Solids		8790	mg/L	10.0

Sample: 90433 - SSWPZ12R5N2

Param	Flag	Result	Units	RL
Total Chromium		<0.0100	mg/L	0.0100
Total Selenium		0.0190	mg/L	0.0100

Sample: 90434 - SSWPZ10R5N1

Param	Flag	Result	Units	RL
Chloride		460	mg/L	0.500
Sulfate		539	mg/L	0.500
Total Dissolved Solids		1830	mg/L	10.0

Sample: 90435 - SSWPZ10R5N2

Param	Flag	Result	Units	RL
Total Chromium		<0.0100	mg/L	0.0100
Total Selenium		0.0140	mg/L	0.0100

Sample: 90436 - SSWPZ7R5N1

Param	Flag	Result	Units	RL
Chloride		54100	mg/L	0.500
Sulfate		3190	mg/L	0.500
Total Dissolved Solids		139000	mg/L	10.0

Sample: 90437 - SSWPZ7R5N2

Param	Flag	Result	Units	RL
Total Chromium		<0.0100	mg/L	0.0100
Total Selenium		0.0680	mg/L	0.0100

Sample: 90438 - SSWPZ11R5N1

Param	Flag	Result	Units	RL
Chloride		71000	mg/L	0.500
Sulfate		3090	mg/L	0.500
Total Dissolved Solids		133000	mg/L	10.0

Sample: 90439 - SSWPZ11R5N2

Param	Flag	Result	Units	RL
Total Chromium		<0.0100	mg/L	0.0100
Total Selenium		<0.0100	mg/L	0.0100

Sample: 90440 - SSWPZ11R5N1EB

Param	Flag	Result	Units	RL
Chloride		39.1	mg/L	0.500
Sulfate		7.12	mg/L	0.500
Total Dissolved Solids		159	mg/L	10.0

Sample: 90441 - SSWPZ11R5N12EB

Param	Flag	Result	Units	RL
Total Chromium		<0.0100	mg/L	0.0100
Total Selenium		<0.0100	mg/L	0.0100

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

R. Salness
WRES
P.O.Box 2078
Carlsbad, NM, 88221-2078

Report Date: June 6, 2006

Work Order: 6051606

Project Name: WIPP/SSWMP
Project Number: WIPP/SSWMP

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
90430	SSWC2811R5N1	water	2006-05-15	07:30	2006-05-16
90431	SSWC2811R5N2	water	2006-05-15	07:32	2006-05-16
90432	SSWPZ12R5N1	water	2006-05-15	08:47	2006-05-16
90433	SSWPZ12R5N2	water	2006-05-15	08:49	2006-05-16
90434	SSWPZ10R5N1	water	2006-05-15	09:37	2006-05-16
90435	SSWPZ10R5N2	water	2006-05-15	09:39	2006-05-16
90436	SSWPZ7R5N1	water	2006-05-15	10:33	2006-05-16
90437	SSWPZ7R5N2	water	2006-05-15	10:35	2006-05-16
90438	SSWPZ11R5N1	water	2006-05-15	11:30	2006-05-16
90439	SSWPZ11R5N2	water	2006-05-15	11:32	2006-05-16
90440	SSWPZ11R5N1EB	water	2006-05-15	11:45	2006-05-16
90441	SSWPZ11R5N12EB	water	2006-05-15	11:47	2006-05-16

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 18 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Analytical Report

Sample: 90430 - SSWC2811R5N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26747	Date Analyzed:	2006-05-22	Analyzed By:	WB
Prep Batch:	23487	Sample Preparation:	2006-05-22	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		1760		mg/L	100	0.500

Sample: 90430 - SSWC2811R5N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26747	Date Analyzed:	2006-05-22	Analyzed By:	WB
Prep Batch:	23487	Sample Preparation:	2006-05-22	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		511		mg/L	10	0.500

Sample: 90430 - SSWC2811R5N1

Analysis:	TDS	Analytical Method:	E 160.1	Prep Method:	N/A
QC Batch:	26761	Date Analyzed:	2006-05-19	Analyzed By:	WB
Prep Batch:	23495	Sample Preparation:	2006-05-18	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		3740		mg/L	5	10.0

Sample: 90431 - SSWC2811R5N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	26736	Date Analyzed:	2006-05-23	Analyzed By:	RR
Prep Batch:	23464	Sample Preparation:	2006-05-22	Prepared By:	DS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.0100		mg/L	1	0.0100

Sample: 90431 - SSWC2811R5N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	26736	Date Analyzed:	2006-05-23	Analyzed By:	RR
Prep Batch:	23464	Sample Preparation:	2006-05-22	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
Total Selenium		0.0310	mg/L	1	0.0100

Sample: 90432 - SSWPZ12R5N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26939	Date Analyzed:	2006-05-26	Analyzed By:	WB
Prep Batch:	23640	Sample Preparation:	2006-05-25	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		4510	mg/L	500	0.500

Sample: 90432 - SSWPZ12R5N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26939	Date Analyzed:	2006-05-26	Analyzed By:	WB
Prep Batch:	23640	Sample Preparation:	2006-05-25	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		866	mg/L	50	0.500

Sample: 90432 - SSWPZ12R5N1

Analysis:	TDS	Analytical Method:	E 160.1	Prep Method:	N/A
QC Batch:	26761	Date Analyzed:	2006-05-19	Analyzed By:	WB
Prep Batch:	23495	Sample Preparation:	2006-05-18	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		8790	mg/L	10	10.0

Sample: 90433 - SSWPZ12R5N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	26736	Date Analyzed:	2006-05-23	Analyzed By:	RR
Prep Batch:	23464	Sample Preparation:	2006-05-22	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
Total Chromium		<0.0100	mg/L	1	0.0100

Sample: 90433 - SSWPZ12R5N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	26736	Date Analyzed:	2006-05-23	Analyzed By:	RR
Prep Batch:	23464	Sample Preparation:	2006-05-22	Prepared By:	DS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		0.0190		mg/L	1	0.0100

Sample: 90434 - SSWPZ10R5N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26747	Date Analyzed:	2006-05-22	Analyzed By:	WB
Prep Batch:	23487	Sample Preparation:	2006-05-22	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		460		mg/L	50	0.500

Sample: 90434 - SSWPZ10R5N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26747	Date Analyzed:	2006-05-22	Analyzed By:	WB
Prep Batch:	23487	Sample Preparation:	2006-05-22	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		539		mg/L	50	0.500

Sample: 90434 - SSWPZ10R5N1

Analysis:	TDS	Analytical Method:	E 160.1	Prep Method:	N/A
QC Batch:	26761	Date Analyzed:	2006-05-19	Analyzed By:	WB
Prep Batch:	23495	Sample Preparation:	2006-05-18	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		1830		mg/L	2	10.0

Sample: 90435 - SSWPZ10R5N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	26736	Date Analyzed:	2006-05-23	Analyzed By:	RR
Prep Batch:	23464	Sample Preparation:	2006-05-22	Prepared By:	DS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.0100		mg/L	1	0.0100

Sample: 90435 - SSWPZ10R5N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	26736	Date Analyzed:	2006-05-23	Analyzed By:	RR
Prep Batch:	23464	Sample Preparation:	2006-05-22	Prepared By:	DS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		0.0140		mg/L	1	0.0100

Sample: 90436 - SSWPZ7R5N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26939	Date Analyzed:	2006-05-26	Analyzed By:	WB
Prep Batch:	23640	Sample Preparation:	2006-05-25	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		54100		mg/L	5000	0.500

Sample: 90436 - SSWPZ7R5N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26939	Date Analyzed:	2006-05-26	Analyzed By:	WB
Prep Batch:	23640	Sample Preparation:	2006-05-25	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		3190		mg/L	500	0.500

Sample: 90436 - SSWPZ7R5N1

Analysis:	TDS	Analytical Method:	E 160.1	Prep Method:	N/A
QC Batch:	26761	Date Analyzed:	2006-05-19	Analyzed By:	WB
Prep Batch:	23495	Sample Preparation:	2006-05-18	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		139000		mg/L	200	10.0

Sample: 90437 - SSWPZ7R5N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	26736	Date Analyzed:	2006-05-23	Analyzed By:	RR
Prep Batch:	23464	Sample Preparation:	2006-05-22	Prepared By:	DS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.0100		mg/L	1	0.0100

Sample: 90437 - SSWPZ7R5N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	26736	Date Analyzed:	2006-05-23	Analyzed By:	RR
Prep Batch:	23464	Sample Preparation:	2006-05-22	Prepared By:	DS

Parameter	Flag	Result	RL Units	Dilution	RL
Total Selenium		0.0680	mg/L	1	0.0100

Sample: 90438 - SSWPZ11R5N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26940	Date Analyzed:	2006-05-26	Analyzed By:	WB
Prep Batch:	23641	Sample Preparation:	2006-05-25	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		71000	mg/L	5000	0.500

Sample: 90438 - SSWPZ11R5N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26940	Date Analyzed:	2006-05-26	Analyzed By:	WB
Prep Batch:	23641	Sample Preparation:	2006-05-25	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Sulfate		3090	mg/L	500	0.500

Sample: 90438 - SSWPZ11R5N1

Analysis:	TDS	Analytical Method:	E 160.1	Prep Method:	N/A
QC Batch:	26761	Date Analyzed:	2006-05-19	Analyzed By:	WB
Prep Batch:	23495	Sample Preparation:	2006-05-18	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Total Dissolved Solids		133000	mg/L	200	10.0

Sample: 90439 - SSWPZ11R5N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	26736	Date Analyzed:	2006-05-23	Analyzed By:	RR
Prep Batch:	23464	Sample Preparation:	2006-05-22	Prepared By:	DS

Parameter	Flag	Result	RL Units	Dilution	RL
Total Chromium		<0.0100	mg/L	1	0.0100

Sample: 90439 - SSWPZ11R5N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	26736	Date Analyzed:	2006-05-23	Analyzed By:	RR
Prep Batch:	23464	Sample Preparation:	2006-05-22	Prepared By:	DS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		<0.0100		mg/L	1	0.0100

Sample: 90440 - SSWPZ11R5N1EB

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26939	Date Analyzed:	2006-05-26	Analyzed By:	WB
Prep Batch:	23640	Sample Preparation:	2006-05-25	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		39.1		mg/L	5	0.500

Sample: 90440 - SSWPZ11R5N1EB

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26939	Date Analyzed:	2006-05-26	Analyzed By:	WB
Prep Batch:	23640	Sample Preparation:	2006-05-25	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		7.12		mg/L	5	0.500

Sample: 90440 - SSWPZ11R5N1EB

Analysis:	TDS	Analytical Method:	E 160.1	Prep Method:	N/A
QC Batch:	26761	Date Analyzed:	2006-05-19	Analyzed By:	WB
Prep Batch:	23495	Sample Preparation:	2006-05-18	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		159		mg/L	1	10.0

Sample: 90441 - SSWPZ11R5N12EB

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	26736	Date Analyzed:	2006-05-23	Analyzed By:	RR
Prep Batch:	23464	Sample Preparation:	2006-05-22	Prepared By:	DS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.0100		mg/L	1	0.0100

Sample: 90441 - SSWPZ11R5N12EB

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	26736	Date Analyzed:	2006-05-23	Analyzed By:	RR.
Prep Batch:	23464	Sample Preparation:	2006-05-22	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
Total Selenium		<0.0100	mg/L	1	0.0100

Method Blank (1)

QC Batch:	26736	Date Analyzed:	2006-05-23	Analyzed By:	RR
Prep Batch:	23464	QC Preparation:	2006-05-22	Prepared By:	DS

Parameter	Flag	MDL Result	Units	RL
Total Chromium		<0.00140	mg/L	0.01

Method Blank (1)

QC Batch:	26736	Date Analyzed:	2006-05-23	Analyzed By:	RR
Prep Batch:	23464	QC Preparation:	2006-05-22	Prepared By:	DS

Parameter	Flag	MDL Result	Units	RL
Total Selenium		<0.00163	mg/L	0.01

Method Blank (1)

QC Batch:	26747	Date Analyzed:	2006-05-22	Analyzed By:	WB
Prep Batch:	23487	QC Preparation:	2006-05-22	Prepared By:	WB

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.0552	mg/L	0.5

Method Blank (1)

QC Batch:	26747	Date Analyzed:	2006-05-22	Analyzed By:	WB
Prep Batch:	23487	QC Preparation:	2006-05-22	Prepared By:	WB

Parameter	Flag	MDL Result	Units	RL
Sulfate		<0.0485	mg/L	0.5

Method Blank (1)

QC Batch: 26761 | Date Analyzed: 2006-05-19 | Analyzed By: WB
Prep Batch: 23495 | QC Preparation: 2006-05-18 | Prepared By: WB

Parameter	Flag	MDL Result	Units	RL
Total Dissolved Solids		<10.0	mg/L	10

Method Blank (1)

QC Batch: 26939 | Date Analyzed: 2006-05-26 | Analyzed By: WB
Prep Batch: 23640 | QC Preparation: 2006-05-25 | Prepared By: WB

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.0552	mg/L	0.5

Method Blank (1)

QC Batch: 26939 | Date Analyzed: 2006-05-26 | Analyzed By: WB
Prep Batch: 23640 | QC Preparation: 2006-05-25 | Prepared By: WB

Parameter	Flag	MDL Result	Units	RL
Sulfate		<0.0485	mg/L	0.5

Method Blank (1)

QC Batch: 26940 | Date Analyzed: 2006-05-26 | Analyzed By: WB
Prep Batch: 23641 | QC Preparation: 2006-05-25 | Prepared By: WB

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.0552	mg/L	0.5

Method Blank (1)

QC Batch: 26940 | Date Analyzed: 2006-05-26 | Analyzed By: WB
Prep Batch: 23641 | QC Preparation: 2006-05-25 | Prepared By: WB

Parameter	Flag	MDL Result	Units	RL
Sulfate		<0.0485	mg/L	0.5

Duplicates (1)

QC Batch: 26761 | Date Analyzed: 2006-05-19 | Analyzed By: WB
Prep Batch: 23495 | QC Preparation: 2006-05-18 | Prepared By: WB

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	1900	1830	mg/L	2	4	144

Laboratory Control Spike (LCS-1)

QC Batch: 26736 | Date Analyzed: 2006-05-23 | Analyzed By: RR
Prep Batch: 23464 | QC Preparation: 2006-05-22 | Prepared By: DS

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Chromium	0.106	0.109	mg/L	1	0.100	<0.00140	106	3	89.8 - 114	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 26736 | Date Analyzed: 2006-05-23 | Analyzed By: RR
Prep Batch: 23464 | QC Preparation: 2006-05-22 | Prepared By: DS

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Selenium	0.435	0.445	mg/L	1	0.500	<0.00163	87	2	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 26747 | Date Analyzed: 2006-05-22 | Analyzed By: WB
Prep Batch: 23487 | QC Preparation: 2006-05-22 | Prepared By: WB

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.3	12.3	mg/L	1	12.5	<0.0552	98	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 26747 | Date Analyzed: 2006-05-22 | Analyzed By: WB
Prep Batch: 23487 | QC Preparation: 2006-05-22 | Prepared By: WB

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	12.5	12.5	mg/L	1	12.5	<0.0485	100	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 26939 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23640 QC Preparation: 2006-05-25 Prepared By: WB

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.1	11.9	mg/L	1	12.5	<0.0552	97	2	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 26939 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23640 QC Preparation: 2006-05-25 Prepared By: WB

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	12.4	12.4	mg/L	1	12.5	<0.0485	99	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 26940 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23641 QC Preparation: 2006-05-25 Prepared By: WB

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.2	12.0	mg/L	1	12.5	<0.0552	97	2	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 26940 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23641 QC Preparation: 2006-05-25 Prepared By: WB

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	12.6	12.6	mg/L	1	12.5	<0.0485	101	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

QC Batch: 26736 Date Analyzed: 2006-05-23 Analyzed By: RR
Prep Batch: 23464 QC Preparation: 2006-05-22 Prepared By: DS

continued ...

matrix spikes continued ...

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Chromium	0.103	0.104	mg/L	1	0.100	0.002	101	1	68.4 - 131	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

QC Batch: 26736 Date Analyzed: 2006-05-23 Analyzed By: RR
Prep Batch: 23464 QC Preparation: 2006-05-22 Prepared By: DS

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Selenium	0.473	0.481	mg/L	1	0.500	0.031	88	2	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

QC Batch: 26747 Date Analyzed: 2006-05-22 Analyzed By: WB
Prep Batch: 23487 QC Preparation: 2006-05-22 Prepared By: WB

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	1620	1660	mg/L	100	12.5	440	94	2	25.4 - 171	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

QC Batch: 26747 Date Analyzed: 2006-05-22 Analyzed By: WB
Prep Batch: 23487 QC Preparation: 2006-05-22 Prepared By: WB

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	2000	2030	mg/L	100	12.5	760	99	2	0 - 677	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

QC Batch: 26939 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23640 QC Preparation: 2006-05-25 Prepared By: WB

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	115000	115000	mg/L	5000	12.5	54125	97	0	25.4 - 171	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

QC Batch: 26939 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23640 QC Preparation: 2006-05-25 Prepared By: WB

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	69200	69200	mg/L	5000	12.5	8440	97	0	0 - 677	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

QC Batch: 26940 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23641 QC Preparation: 2006-05-25 Prepared By: WB

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	132000	135000	mg/L	5000	12.5	68847	101	2	25.4 - 171	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

QC Batch: 26940 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23641 QC Preparation: 2006-05-25 Prepared By: WB

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	69400	68200	mg/L	5000	12.5	8035	98	2	0 - 677	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1)

QC Batch: 26736 Date Analyzed: 2006-05-23 Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		mg/L	1.00	0.994	99	90 - 110	2006-05-23

Standard (ICV-1)

QC Batch: 26736 Date Analyzed: 2006-05-23 Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1.00	0.984	98	90 - 110	2006-05-23

Standard (CCV-1)

QC Batch: 26736 Date Analyzed: 2006-05-23 Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		mg/L	1.00	0.986	99	90 - 110	2006-05-23

Standard (CCV-1)

QC Batch: 26736 Date Analyzed: 2006-05-23 Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1.00	0.966	97	90 - 110	2006-05-23

Standard (ICV-1)

QC Batch: 26747 Date Analyzed: 2006-05-22 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.0	96	90 - 110	2006-05-22

Standard (ICV-1)

QC Batch: 26747 Date Analyzed: 2006-05-22 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.2	98	90 - 110	2006-05-22

Standard (CCV-1)

QC Batch: 26747 Date Analyzed: 2006-05-22 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.3	98	90 - 110	2006-05-22

Standard (CCV-1)

QC Batch: 26747 Date Analyzed: 2006-05-22 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.4	99	90 - 110	2006-05-22

Standard (ICV-1)

QC Batch: 26761 Date Analyzed: 2006-05-19 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	958	96	90 - 110	2006-05-19

Standard (CCV-1)

QC Batch: 26761 Date Analyzed: 2006-05-19 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	981	98	90 - 110	2006-05-19

Standard (ICV-1)

QC Batch: 26939 Date Analyzed: 2006-05-26 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.3	98	90 - 110	2006-05-26

Standard (ICV-1)

QC Batch: 26939 Date Analyzed: 2006-05-26 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.6	101	90 - 110	2006-05-26

Standard (CCV-1)

QC Batch: 26939 Date Analyzed: 2006-05-26 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.0	96	90 - 110	2006-05-26

Standard (CCV-1)

QC Batch: 26939 Date Analyzed: 2006-05-26 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.6	101	90 - 110	2006-05-26

Standard (ICV-1)

QC Batch: 26940 Date Analyzed: 2006-05-26 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.0	96	90 - 110	2006-05-26

Standard (ICV-1)

QC Batch: 26940 Date Analyzed: 2006-05-26 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.6	101	90 - 110	2006-05-26

Standard (CCV-1)

QC Batch: 26940 Date Analyzed: 2006-05-26 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.2	97	90 - 110	2006-05-26

Standard (CCV-1)

QC Batch: 26940 Date Analyzed: 2006-05-26 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.6	101	90 - 110	2006-05-26

6051606

REQUEST FOR ANALYSIS

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED 5/15/06 RFA Control No 641
LAB DESTINATION Trace Analysis
LABORATORY CONTACT Mike Abel
SEND LAB REPORT TO Judy Lanier C of C Control No 641
P.O. Box 2078
Carlsbad, N.M. 88221
DATE REPORT REQUIRED 6/15/06
PROJECT CONTACT R. Salness
PROJECT CONTACT PHONE NO. 505 234-8966

SAMPLING PROGRAM WIPP/SSWMP
PURCHASE ORDER NO. 403426-3 Line 3

Sample Number	Sample Type	Sample Quantity	Preservative	A Req't. Testing Program	Special Instructions
SSW C2811RSN1	Ground Water	1 liter x 1	NONE	General Chemistry	EPA 160.1, 300
SSW C2811RSN2			HNO_3 pH<2	Selenium/Chromium	Method 6010 B
SSW PZ12 RSN1			NONE	General Chemistry	EPA 160.1, 300
SSW PZ12RSN2			HNO_3 pH<2	Selenium/Chromium	Method 6010 B
SSW PZ10RSN1			NONE	General Chemistry	EPA 160.1, 300
SSW PZ10RSN2			HNO_3 pH<2	Selenium/Chromium	Method 6010 B
SSW PZ7RSN1			NONE	General Chemistry	EPA 160.1, 300
SSW PZ7RSN2			HNO_3 pH<2	Selenium/Chromium	Method 6010 B
SSW PZ11RSN1			NONE	General Chemistry	EPA 160.1, 300
SSW PZ11RSN2	Ground Water		HNO_3 pH<2	Selenium/Chromium	Method 6010 B
SSW PZ11RSN1EB	EB		NONE	General Chemistry	EPA 160.1, 300
SSW PZ11RSN2EB	EB	1 liter x 1	HNO_3 pH<2	Selenium/Chromium	Method 6010 B

A General Chemistry EPA 160.1 = TDS only EPA 300 = Chloride, Sulfate, and Nitrate only

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL X RUSH _____ (Subject to rush surcharg

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NONHAZARD X FLAMMABLE _____ SKIN IRRITANT _____ HIGHLY TOXIC _____ BIOLOGICAL _____ OTHER _____ (Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT _____ DISPOSAL BY LAB X

FOR LAB USE ONLY

RECEIVED BY Megan McCord DATE/TIME 5-16-06 1005

WP 02-EM3001 WHITE - Original to accompany samples YELLOW - Field copy PINK - Oth

110 Rec'd 11 1168 781 8825

Report Date: June 6, 2006 WIPP/SSWMP
Work Order: 6051606 WIPP/SSWMP
Page Number: 17 of 18

03498

6051606

CHAIN-OF-CUSTODY RECORD

C of C Control № 6410

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

RFA Control № 6410

SAMPLING PROGRAM WIPP/SSWMP LAB DESTINATION Trace Analysis

SAMPLE TEAM MEMBERS B. Foster, J. Weatherling, R. Salness CARRIER/WAYBILL NO. GL 168 781 8825

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
SSWC2811R5N1	C-2811, SSW	5/15/06 0730	Groundwater	1 liter plastic x1	Good 4° mm5-16-06	904,30
SSWC2811R5N2	C-2811, SSW	0732				431
SSWPZ12R5N1	PZ-12, SSW	08:47				432
SSWPZ12R5N2	PZ-12, SSW	08:49				433
SSWPZ10R5N1	PZ-10, SSW	09:37				434
SSWPZ10R5N2	PZ-10, SSW	09:39				435
SSWPZ7R5N1	PZ-7, SSW	10:33				436
SSWPZ7R5N2	PZ-7, SSW	10:35				437
SSWPZ11R5N1	PZ-11, SSW	11:30				438
SSWPZ11R5N2	PZ-11, SSW	11:32	Groundwater			439
SSWPZ11R5N1EB	PZ-11, EB	11:45	EB			440
SSWPZ11R5N2EB	PZ-11, EB	5/15/06 11:47	EB	1 liter plastic x1		441

Special Instructions: NONE

Possible Sample Hazards: NONE

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Bill Foster, NRES, 5/15/06, 13:00
   Received By: Megan McCord, Trace Analysis, 5/16/06 1005
2. Relinquished By: _____
   Received By: _____
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: _____

WP 02-EM3001 WHITE - Original to accompany samples YELLOW - Field copy PINK - Oth

Bill GL 168 781 8825

Report Date: June 6, 2006 WIPP/SSWMP

Work Order: 6051606 WIPP/SSWMP

Page Number: 18 of 18

REQUEST FOR ANALYSIS

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED 5/15/06 RFA Control № 6410

LAB DESTINATION Trace Analysis

LABORATORY CONTACT Mike Abel

SEND LAB REPORT TO Judy Lanier C of C Control № 6410
P.O. Box 2078
Carlsbad, N.M. 88221

DATE REPORT REQUIRED 6/15/06

PROJECT CONTACT R. Salness

PROJECT CONTACT PHONE NO. 505 234-8966

SAMPLING PROGRAM WIPP/SSWMP

PURCHASE ORDER NO. 403426-3 Line 3

Sample Number	Sample Type	Sample Quantity	Preservative	*Req't. Testing Program	Special Instructions	
SSW C2811RSN1	Ground Water	1 liter x 1	NONE	General Chemistry	EPA 160.1, 300	90430
SSW C2811RSN2	↕	↕	HNO_3 pH<2	Selenium/Chromium	Method 6010 B	431
SSW PZ12 RSN1			NONE	General Chemistry	EPA 160.1, 300	432
SSW PZ12 RSN2			HNO_3 pH<2	Selenium/Chromium	Method 6010 B	433
SSW PZ10 RSN1			NONE	General Chemistry	EPA 160.1, 300	434
SSW PZ10 RSN2			HNO_3 pH<2	Selenium/Chromium	Method 6010 B	435
SSW PZ7 RSN1			NONE	General Chemistry	EPA 160.1, 300	436
SSW PZ7 RSN2			HNO_3 pH<2	Selenium/Chromium	Method 6010 B	437
SSW PZ11 RSN1			NONE	General Chemistry	EPA 160.1, 300	438
SSW PZ11 RSN2	Ground Water		HNO_3 pH<2	Selenium/Chromium	Method 6010 B	439
SSW PZ11 RSN1EB	EB		NONE	General Chemistry	EPA 160.1, 300	440
SSW PZ11 RSN2EB	EB	1 liter x 1	HNO_3 pH<2	Selenium/Chromium	Method 6010 B	441

*General Chemistry EPA 160.1 = TDS only EPA 300 = Chloride, Sulfate, and Nitrate only

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL X RUSH _____ (Subject in rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NONHAZARD X FLAMMABLE _____ SKIN IRRITANT _____ HIGHLY TOXIC _____ BIOLOGICAL _____ OTHER _____ (Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT _____ DISPOSAL BY LAB X

FOR LAB USE ONLY

RECEIVED BY Megan McCord DATE/TIME 5-16-06 | 1005

WP 02-EM3001 WHITE - Original to accompany samples YELLOW - Field copy PINK - Other
NICHOLS PRINTING INC.

110 Bus Cell 1168 781 8825

03500

CHAIN-OF-CUSTODY RECORD

C of C Control № 6410

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

RFA Control № 6410

SAMPLING PROGRAM WIPP/SSWMP LAB DESTINATION Trace Analysis

SAMPLE TEAM MEMBERS B. Foster, J. Weatherly, R. Salness CARRIER/WAYBILL NO. GL 168 781 8825

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
SSWC2811R5N1	C-2811, SSW	5/15/06 0730	Ground Water	1 liter plastic x1	Good 4° mm 5-16-06	90430
SSWC2811R5N2	C-2811, SSW	0732				432
SSWPZ12R5N1	PZ-12, SSW	08:47				433
SSWPZ12R5N2	PZ-12, SSW	08:49				434
SSWPZ10R5N1	PZ-10, SSW	09:37				435
SSWPZ10R5N2	PZ-10, SSW	09:39				436
SSWPZ7R5N1	PZ-7, SSW	10:33				437
SSWPZ7R5N2	PZ-7, SSW	10:35				438
SSWPZ11R5N1	PZ-11, SSW	11:30				439
SSWPZ11R5N2	PZ-11, SSW	11:32	Ground Water			440
SSWPZ11R5N1EB	PZ-11, EB	11:45	EB			441
SSWPZ11R5N2EB	PZ-11, EB	5/15/06 11:47	EB	1 liter plastic x1		

Special Instructions: NONE

Possible Sample Hazards: NONE

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Bill Foster, WRES, 5/15/06, 13:00
   Received By: Megan McCord, Trace Analysis, 5/16/06 1005
2. Relinquished By: _____
   Received By: _____
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: _____

WP 02-EM3001 WHITE - Original to accompany samples YELLOW - Field copy PINK - Other NICHOLS PRINTING INC.

Bus GL 168 781 8825

03501

Summary Report

Judy Lanier
WRES
P.O.Box 2078
Carlsbad, NM, 88221-2078

Report Date: June 6, 2006

Work Order: 6051718

Project Number: 403426-3 Lines 3

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
90519	SSWPZ9R5N1	water	2006-05-16	07:30	2006-05-17
90520	SSWPZ9R5N2	water	2006-05-16	07:32	2006-05-17
90521	SSWC2507R5N1	water	2006-05-16	08:30	2006-05-17
90522	SSWC2507R5N2	water	2006-05-16	08:32	2006-05-17
90523	SSWPZ1R5N1	water	2006-05-16	09:15	2006-05-17
90524	SSWPZ1R5N2	water	2006-05-16	09:17	2006-05-17
90525	SSWPZ5R5N1	water	2006-05-16	09:50	2006-05-17
90526	SSWPZ5R5N2	water	2006-05-16	09:52	2006-05-17
90527	SSWPZ6R5N1	water	2006-05-16	10:35	2006-05-17
90528	SSWPZ6R5N2	water	2006-05-16	10:37	2006-05-17
90529	SSWPZ5R5N1D	water	2006-05-16	10:35	2006-05-17
90530	SSWPZ5R5N2D	water	2006-05-16	10:37	2006-05-17
90531	SSWPZ5R5N1NEB	water	2006-05-16	10:49	2006-05-17
90532	SSWPZ5R5N2NEB	water	2006-05-16	10:47	2006-05-17

Sample: 90519 - SSWPZ9R5N1

Param	Flag	Result	Units	RL
Chloride		84700	mg/L	0.500
Nitrate-N		3.01	mg/L	0.100
Sulfate		4350	mg/L	0.500
Total Dissolved Solids		153000	mg/L	10.00

Sample: 90520 - SSWPZ9R5N2

Param	Flag	Result	Units	RL
Total Chromium		<0.0100	mg/L	0.0100
Total Selenium		0.0230	mg/L	0.0100

Sample: 90521 - SSWC2507R5N1

Param	Flag	Result	Units	RL
Chloride		1930	mg/L	0.500
Nitrate-N		7.37	mg/L	0.100
Sulfate		1040	mg/L	0.500
Total Dissolved Solids		1800	mg/L	10.00

Sample: 90522 - SSWC2507R5N2

Param	Flag	Result	Units	RL
Total Chromium		<0.0100	mg/L	0.0100
Total Selenium		0.0510	mg/L	0.0100

Sample: 90523 - SSWPZ1R5N1

Param	Flag	Result	Units	RL
Chloride		62400	mg/L	0.500
Nitrate-N		<2.50	mg/L	0.100
Sulfate		2490	mg/L	0.500
Total Dissolved Solids		113000	mg/L	10.00

Sample: 90524 - SSWPZ1R5N2

Param	Flag	Result	Units	RL
Total Chromium		<0.0100	mg/L	0.0100
Total Selenium		0.0510	mg/L	0.0100

Sample: 90525 - SSWPZ5R5N1

Param	Flag	Result	Units	RL
Chloride		18300	mg/L	0.500
Nitrate-N		2.56	mg/L	0.100
Sulfate		1520	mg/L	0.500
Total Dissolved Solids		32600	mg/L	10.00

Sample: 90526 - SSWPZ5R5N2

Param	Flag	Result	Units	RL
Total Chromium		<0.0100	mg/L	0.0100
Total Selenium		0.0710	mg/L	0.0100

Sample: 90527 - SSWPZ6R5N1

Param	Flag	Result	Units	RL
Chloride		68800	mg/L	0.500
Nitrate-N		7.69	mg/L	0.100
Sulfate		3050	mg/L	0.500
Total Dissolved Solids		115000	mg/L	10.00

Sample: 90528 - SSWPZ6R5N2

Param	Flag	Result	Units	RL
Total Chromium		<0.100	mg/L	0.0100
Total Selenium		<0.100	mg/L	0.0100

Sample: 90529 - SSWPZ5R5N1D

Param	Flag	Result	Units	RL
Chloride		18800	mg/L	0.500
Nitrate-N		2.80	mg/L	0.100
Sulfate		1590	mg/L	0.500
Total Dissolved Solids		35700	mg/L	10.00

Sample: 90530 - SSWPZ5R5N2D

Param	Flag	Result	Units	RL
Total Chromium		<0.100	mg/L	0.0100
Total Selenium		0.106	mg/L	0.0100

Sample: 90531 - SSWPZ5R5N1NEB

Param	Flag	Result	Units	RL
Chloride		15.7	mg/L	0.500
Nitrate-N		0.213	mg/L	0.100
Sulfate		7.57	mg/L	0.500
Total Dissolved Solids		33.00	mg/L	10.00

Sample: 90532 - SSWPZ5R5N2NEB

Param	Flag	Result	Units	RL
Total Chromium		<0.100	mg/L	0.0100
Total Selenium		<0.100	mg/L	0.0100

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Judy Lanier
WRES
P.O.Box 2078
Carlsbad, NM, 88221-2078

Report Date: June 6, 2006

Work Order: 6051718

Project Number: 403426-3 Lines 3

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
90519	SSWPZ9R5N1	water	2006-05-16	07:30	2006-05-17
90520	SSWPZ9R5N2	water	2006-05-16	07:32	2006-05-17
90521	SSWC2507R5N1	water	2006-05-16	08:30	2006-05-17
90522	SSWC2507R5N2	water	2006-05-16	08:32	2006-05-17
90523	SSWPZ1R5N1	water	2006-05-16	09:15	2006-05-17
90524	SSWPZ1R5N2	water	2006-05-16	09:17	2006-05-17
90525	SSWPZ5R5N1	water	2006-05-16	09:50	2006-05-17
90526	SSWPZ5R5N2	water	2006-05-16	09:52	2006-05-17
90527	SSWPZ6R5N1	water	2006-05-16	10:35	2006-05-17
90528	SSWPZ6R5N2	water	2006-05-16	10:37	2006-05-17
90529	SSWPZ5R5N1D	water	2006-05-16	10:35	2006-05-17
90530	SSWPZ5R5N2D	water	2006-05-16	10:37	2006-05-17
90531	SSWPZ5R5N1NEB	water	2006-05-16	10:49	2006-05-17
90532	SSWPZ5R5N2NEB	water	2006-05-16	10:47	2006-05-17

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 24 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Analytical Report

Sample: 90519 - SSWPZ9R5N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26940	Date Analyzed:	2006-05-26	Analyzed By:	WB
Prep Batch:	23641	Sample Preparation:	2006-05-25	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		84700	mg/L	5000	0.500

Sample: 90519 - SSWPZ9R5N1

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	26785	Date Analyzed:	2006-05-18	Analyzed By:	WB
Prep Batch:	23518	Sample Preparation:	2006-05-18	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Nitrate-N		3.01	mg/L	25	0.100

Sample: 90519 - SSWPZ9R5N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26940	Date Analyzed:	2006-05-26	Analyzed By:	WB
Prep Batch:	23641	Sample Preparation:	2006-05-25	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Sulfate		4350	mg/L	500	0.500

Sample: 90519 - SSWPZ9R5N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	26709 [a]	Date Analyzed:	2006-05-19	Analyzed By:	WB
Prep Batch:	23459	Sample Preparation:	2006-05-18	Prepared By:	WB

[a]Duplicate not reported RPD is 4

Parameter	Flag	Result	RL Units	Dilution	RL
Total Dissolved Solids		153000	mg/L	200	10.00

Sample: 90520 - SSWPZ9R5N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	26736	Date Analyzed:	2006-05-23	Analyzed By:	RR
Prep Batch:	23464	Sample Preparation:	2006-05-22	Prepared By:	DS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.0100		mg/L	1	0.0100

Sample: 90520 - SSWPZ9R5N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	26736	Date Analyzed:	2006-05-23	Analyzed By:	RR
Prep Batch:	23464	Sample Preparation:	2006-05-22	Prepared By:	DS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		0.0230		mg/L	1	0.0100

Sample: 90521 - SSWC2507R5N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26939	Date Analyzed:	2006-05-26	Analyzed By:	WB
Prep Batch:	23640	Sample Preparation:	2006-05-25	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		1930		mg/L	100	0.500

Sample: 90521 - SSWC2507R5N1

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	26785	Date Analyzed:	2006-05-18	Analyzed By:	WB
Prep Batch:	23518	Sample Preparation:	2006-05-18	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		7.37		mg/L	25	0.100

Sample: 90521 - SSWC2507R5N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26939	Date Analyzed:	2006-05-26	Analyzed By:	WB
Prep Batch:	23640	Sample Preparation:	2006-05-25	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		1040		mg/L	100	0.500

Sample: 90521 - SSWC2507R5N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	26707	Date Analyzed:	2006-05-22	Analyzed By:	WB
Prep Batch:	23457	Sample Preparation:	2006-05-19	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Total Dissolved Solids		1800	mg/L	5	10.00

Sample: 90522 - SSWC2507R5N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	26736	Date Analyzed:	2006-05-23	Analyzed By:	RR
Prep Batch:	23464	Sample Preparation:	2006-05-22	Prepared By:	DS

Parameter	Flag	Result	RL Units	Dilution	RL
Total Chromium		<0.0100	mg/L	1	0.0100

Sample: 90522 - SSWC2507R5N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	26736	Date Analyzed:	2006-05-23	Analyzed By:	RR
Prep Batch:	23464	Sample Preparation:	2006-05-22	Prepared By:	DS

Parameter	Flag	Result	RL Units	Dilution	RL
Total Selenium		0.0510	mg/L	1	0.0100

Sample: 90523 - SSWPZ1R5N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26940	Date Analyzed:	2006-05-26	Analyzed By:	WB
Prep Batch:	23641	Sample Preparation:	2006-05-25	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		62400	mg/L	5000	0.500

Sample: 90523 - SSWPZ1R5N1

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	26785	Date Analyzed:	2006-05-18	Analyzed By:	WB
Prep Batch:	23518	Sample Preparation:	2006-05-18	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Nitrate-N		<2.50	mg/L	25	0.100

Sample: 90523 - SSWPZ1R5N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26940	Date Analyzed:	2006-05-26	Analyzed By:	WB
Prep Batch:	23641	Sample Preparation:	2006-05-25	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		2490		mg/L	500	0.500

Sample: 90523 - SSWPZ1R5N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	26707	Date Analyzed:	2006-05-22	Analyzed By:	WB
Prep Batch:	23457	Sample Preparation:	2006-05-19	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		113000		mg/L	200	10.00

Sample: 90524 - SSWPZ1R5N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	26736	Date Analyzed:	2006-05-23	Analyzed By:	RR
Prep Batch:	23464	Sample Preparation:	2006-05-22	Prepared By:	DS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.0100		mg/L	1	0.0100

Sample: 90524 - SSWPZ1R5N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	26736	Date Analyzed:	2006-05-23	Analyzed By:	RR
Prep Batch:	23464	Sample Preparation:	2006-05-22	Prepared By:	DS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		0.0510		mg/L	1	0.0100

Sample: 90525 - SSWPZ5R5N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26940	Date Analyzed:	2006-05-26	Analyzed By:	WB
Prep Batch:	23641	Sample Preparation:	2006-05-25	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		18300		mg/L	1000	0.500

Sample: 90525 - SSWPZ5R5N1

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	26785	Date Analyzed:	2006-05-18	Analyzed By:	WB
Prep Batch:	23518	Sample Preparation:	2006-05-18	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		2.56		mg/L	25	0.100

Sample: 90525 - SSWPZ5R5N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26940	Date Analyzed:	2006-05-26	Analyzed By:	WB
Prep Batch:	23641	Sample Preparation:	2006-05-25	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		1520		mg/L	100	0.500

Sample: 90525 - SSWPZ5R5N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	26707	Date Analyzed:	2006-05-22	Analyzed By:	WB
Prep Batch:	23457	Sample Preparation:	2006-05-19	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		32600		mg/L	100	10.00

Sample: 90526 - SSWPZ5R5N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	26736	Date Analyzed:	2006-05-23	Analyzed By:	RR
Prep Batch:	23464	Sample Preparation:	2006-05-22	Prepared By:	DS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.0100		mg/L	1	0.0100

Sample: 90526 - SSWPZ5R5N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	26736	Date Analyzed:	2006-05-23	Analyzed By:	RR
Prep Batch:	23464	Sample Preparation:	2006-05-22	Prepared By:	DS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		0.0710		mg/L	1	0.0100

Sample: 90527 - SSWPZ6R5N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26940	Date Analyzed:	2006-05-26	Analyzed By:	WB
Prep Batch:	23641	Sample Preparation:	2006-05-25	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		68800		mg/L	5000	0.500

Sample: 90527 - SSWPZ6R5N1

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	26785	Date Analyzed:	2006-05-18	Analyzed By:	WB
Prep Batch:	23518	Sample Preparation:	2006-05-18	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		7.69		mg/L	1	0.100

Sample: 90527 - SSWPZ6R5N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26940	Date Analyzed:	2006-05-26	Analyzed By:	WB
Prep Batch:	23641	Sample Preparation:	2006-05-25	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		3050		mg/L	500	0.500

Sample: 90527 - SSWPZ6R5N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	26707	Date Analyzed:	2006-05-22	Analyzed By:	WB
Prep Batch:	23457	Sample Preparation:	2006-05-19	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		115000		mg/L	200	10.00

Sample: 90528 - SSWPZ6R5N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	26751	Date Analyzed:	2006-05-23	Analyzed By:	RR
Prep Batch:	23464	Sample Preparation:	2006-05-22	Prepared By:	DS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.100		mg/L	10	0.0100

Sample: 90528 - SSWPZ6R5N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	26751	Date Analyzed:	2006-05-23	Analyzed By:	RR
Prep Batch:	23464	Sample Preparation:	2006-05-22	Prepared By:	DS

Parameter	Flag	Result	RL Units	Dilution	RL
Total Selenium		<0.100	mg/L	10	0.0100

Sample: 90529 - SSWPZ5R5N1D

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26941	Date Analyzed:	2006-05-26	Analyzed By:	WB
Prep Batch:	23642	Sample Preparation:	2006-05-26	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		18800	mg/L	1000	0.500

Sample: 90529 - SSWPZ5R5N1D

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	26785	Date Analyzed:	2006-05-18	Analyzed By:	WB
Prep Batch:	23518	Sample Preparation:	2006-05-18	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Nitrate-N		2.80	mg/L	25	0.100

Sample: 90529 - SSWPZ5R5N1D

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26941	Date Analyzed:	2006-05-26	Analyzed By:	WB
Prep Batch:	23642	Sample Preparation:	2006-05-26	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Sulfate		1590	mg/L	100	0.500

Sample: 90529 - SSWPZ5R5N1D

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	26707	Date Analyzed:	2006-05-22	Analyzed By:	WB
Prep Batch:	23457	Sample Preparation:	2006-05-19	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Total Dissolved Solids		35700	mg/L	100	10.00

Sample: 90530 - SSWPZ5R5N2D

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	26751	Date Analyzed:	2006-05-23	Analyzed By:	RR
Prep Batch:	23464	Sample Preparation:	2006-05-22	Prepared By:	DS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.100		mg/L	10	0.0100

Sample: 90530 - SSWPZ5R5N2D

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	26751	Date Analyzed:	2006-05-23	Analyzed By:	RR
Prep Batch:	23464	Sample Preparation:	2006-05-22	Prepared By:	DS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		0.106		mg/L	10	0.0100

Sample: 90531 - SSWPZ5R5N1NEB

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26939	Date Analyzed:	2006-05-26	Analyzed By:	WB
Prep Batch:	23640	Sample Preparation:	2006-05-25	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		15.7		mg/L	5	0.500

Sample: 90531 - SSWPZ5R5N1NEB

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	26785	Date Analyzed:	2006-05-18	Analyzed By:	WB
Prep Batch:	23518	Sample Preparation:	2006-05-18	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		0.213		mg/L	1	0.100

Sample: 90531 - SSWPZ5R5N1NEB

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26939	Date Analyzed:	2006-05-26	Analyzed By:	WB
Prep Batch:	23640	Sample Preparation:	2006-05-25	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		7.57		mg/L	5	0.500

Sample: 90531 - SSWPZ5R5N1NEB

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	26707	Date Analyzed:	2006-05-22	Analyzed By:	WB
Prep Batch:	23457	Sample Preparation:	2006-05-19	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		33.00	mg/L	1	10.00

Sample: 90532 - SSWPZ5R5N2NEB

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	26751	Date Analyzed:	2006-05-23	Analyzed By:	RR
Prep Batch:	23464	Sample Preparation:	2006-05-22	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
Total Chromium		<0.100	mg/L	10	0.0100

Sample: 90532 - SSWPZ5R5N2NEB

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	26751	Date Analyzed:	2006-05-23	Analyzed By:	RR
Prep Batch:	23464	Sample Preparation:	2006-05-22	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
Total Selenium		<0.100	mg/L	10	0.0100

Method Blank (1)

QC Batch:	26707	Date Analyzed:	2006-05-22	Analyzed By:	WB
Prep Batch:	23457	QC Preparation:	2006-05-19	Prepared By:	WB

Parameter	Flag	MDL Result	Units	RL
Total Dissolved Solids		<5.000	mg/L	10

Method Blank (1)

QC Batch:	26709	Date Analyzed:	2006-05-19	Analyzed By:	WB
Prep Batch:	23459	QC Preparation:	2006-05-18	Prepared By:	WB

Parameter	Flag	MDL Result	Units	RL
Total Dissolved Solids		<5.000	mg/L	10

Method Blank (1)

QC Batch: 26736 Date Analyzed: 2006-05-23 Analyzed By: RR
Prep Batch: 23464 QC Preparation: 2006-05-22 Prepared By: DS

Parameter	Flag	MDL Result	Units	RL
Total Chromium		<0.00140	mg/L	0.01

Method Blank (1)

QC Batch: 26736 Date Analyzed: 2006-05-23 Analyzed By: RR
Prep Batch: 23464 QC Preparation: 2006-05-22 Prepared By: DS

Parameter	Flag	MDL Result	Units	RL
Total Selenium		<0.00163	mg/L	0.01

Method Blank (1)

QC Batch: 26751 Date Analyzed: 2006-05-23 Analyzed By: RR
Prep Batch: 23464 QC Preparation: 2006-05-22 Prepared By: DS

Parameter	Flag	MDL Result	Units	RL
Total Chromium		<0.00140	mg/L	0.01

Method Blank (1)

QC Batch: 26751 Date Analyzed: 2006-05-23 Analyzed By: RR
Prep Batch: 23464 QC Preparation: 2006-05-22 Prepared By: DS

Parameter	Flag	MDL Result	Units	RL
Total Selenium		<0.00163	mg/L	0.01

Method Blank (1)

QC Batch: 26785 Date Analyzed: 2006-05-18 Analyzed By: WB
Prep Batch: 23518 QC Preparation: 2006-05-18 Prepared By: WB

Parameter	Flag	MDL Result	Units	RL
Nitrate-N		<0.0338	mg/L	0.1

Method Blank (1)

QC Batch: 26939 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23640 QC Preparation: 2006-05-25 Prepared By: WB

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.0552	mg/L	0.5

Method Blank (1)

QC Batch: 26939 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23640 QC Preparation: 2006-05-25 Prepared By: WB

Parameter	Flag	MDL Result	Units	RL
Sulfate		<0.0485	mg/L	0.5

Method Blank (1)

QC Batch: 26940 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23641 QC Preparation: 2006-05-25 Prepared By: WB

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.0552	mg/L	0.5

Method Blank (1)

QC Batch: 26940 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23641 QC Preparation: 2006-05-25 Prepared By: WB

Parameter	Flag	MDL Result	Units	RL
Sulfate		<0.0485	mg/L	0.5

Method Blank (1)

QC Batch: 26941 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23642 QC Preparation: 2006-05-26 Prepared By: WB

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.0552	mg/L	0.5

Method Blank (1)

QC Batch: 26941 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23642 QC Preparation: 2006-05-26 Prepared By: WB

Parameter	Flag	MDL Result	Units	RL
Sulfate		<0.0485	mg/L	0.5

Duplicates (1)

QC Batch: 26707 Date Analyzed: 2006-05-22 Analyzed By: WB
Prep Batch: 23457 QC Preparation: 2006-05-19 Prepared By: WB

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	2240	2230	mg/L	5	0	14.4

Laboratory Control Spike (LCS-1)

QC Batch: 26736 Date Analyzed: 2006-05-23 Analyzed By: RR
Prep Batch: 23464 QC Preparation: 2006-05-22 Prepared By: DS

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Chromium	0.106	0.109	mg/L	1	0.100	<0.00140	106	3	89.8 - 114	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 26736 Date Analyzed: 2006-05-23 Analyzed By: RR
Prep Batch: 23464 QC Preparation: 2006-05-22 Prepared By: DS

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Selenium	0.435	0.445	mg/L	1	0.500	<0.00163	87	2	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 26751 Date Analyzed: 2006-05-23 Analyzed By: RR
Prep Batch: 23464 QC Preparation: 2006-05-22 Prepared By: DS

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Chromium	0.0980	0.101	mg/L	1	0.100	<0.00140	98	3	89.8 - 114	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 26751 Date Analyzed: 2006-05-23 Analyzed By: RR
Prep Batch: 23464 QC Preparation: 2006-05-22 Prepared By: DS

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Selenium	0.483	0.498	mg/L	1	0.500	<0.00163	97	3	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 26785 Date Analyzed: 2006-05-18 Analyzed By: WB
Prep Batch: 23518 QC Preparation: 2006-05-18 Prepared By: WB

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	0.166	0.160	mg/L	1	0.160	<0.0338	104	4	76.6 - 127	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 26939 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23640 QC Preparation: 2006-05-25 Prepared By: WB

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.1	11.9	mg/L	1	12.5	<0.0552	97	2	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 26939 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23640 QC Preparation: 2006-05-25 Prepared By: WB

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	12.4	12.4	mg/L	1	12.5	<0.0485	99	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 26940 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23641 QC Preparation: 2006-05-25 Prepared By: WB

continued ...

control spikes continued...

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.2	12.0	mg/L	1	12.5	<0.0552	97	2	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 26940 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23641 QC Preparation: 2006-05-25 Prepared By: WB

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	12.6	12.6	mg/L	1	12.5	<0.0485	101	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 26941 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23642 QC Preparation: 2006-05-26 Prepared By: WB

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.1	12.1	mg/L	1	12.5	<0.0552	97	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 26941 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23642 QC Preparation: 2006-05-26 Prepared By: WB

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	12.5	12.5	mg/L	1	12.5	<0.0485	100	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

QC Batch: 26736 Date Analyzed: 2006-05-23 Analyzed By: RR
Prep Batch: 23464 QC Preparation: 2006-05-22 Prepared By: DS

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Chromium	0.103	0.104	mg/L	1	0.100	0.002	101	1	68.4 - 131	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

QC Batch: 26736 Date Analyzed: 2006-05-23 Analyzed By: RR
Prep Batch: 23464 QC Preparation: 2006-05-22 Prepared By: DS

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Selenium	0.473	0.481	mg/L	1	0.500	0.031	88	2	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

QC Batch: 26751 Date Analyzed: 2006-05-23 Analyzed By: RR
Prep Batch: 23464 QC Preparation: 2006-05-22 Prepared By: DS

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Chromium	0.0850	0.0840	mg/L	1	0.100	<0.00140	85	1	68.4 - 131	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

QC Batch: 26751 Date Analyzed: 2006-05-23 Analyzed By: RR
Prep Batch: 23464 QC Preparation: 2006-05-22 Prepared By: DS

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Selenium	0.461	0.445	mg/L	1	0.500	0.034	85	4	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

QC Batch: 26785 Date Analyzed: 2006-05-18 Analyzed By: WB
Prep Batch: 23518 QC Preparation: 2006-05-18 Prepared By: WB

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	0.275	0.286	mg/L	1	0.160	0.213	39	4	17.9 - 160	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

QC Batch: 26939 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23640 QC Preparation: 2006-05-25 Prepared By: WB

continued ...

matrix spikes continued ...

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	115000	115000	mg/L	5000	12.5	54125	97	0	25.4 - 171	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

QC Batch: 26939 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23640 QC Preparation: 2006-05-25 Prepared By: WB

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	69200	69200	mg/L	5000	12.5	8440	97	0	0 - 677	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

QC Batch: 26940 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23641 QC Preparation: 2006-05-25 Prepared By: WB

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	132000	135000	mg/L	5000	12.5	68847	101	2	25.4 - 171	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

QC Batch: 26940 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23641 QC Preparation: 2006-05-25 Prepared By: WB

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	69400	68200	mg/L	5000	12.5	8035	98	2	0 - 677	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

QC Batch: 26941 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23642 QC Preparation: 2006-05-26 Prepared By: WB

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	272000	266000	mg/L	10000	12.5	143719	103	2	25.4 - 171	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

QC Batch: 26941 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23642 QC Preparation: 2006-05-26 Prepared By: WB

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	141000	143000	mg/L	10000	12.5	18657	98	1	0 - 677	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1)

QC Batch: 26707 Date Analyzed: 2006-05-22 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1003	100	90 - 110	2006-05-22

Standard (CCV-1)

QC Batch: 26707 Date Analyzed: 2006-05-22 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1013	101	90 - 110	2006-05-22

Standard (ICV-1)

QC Batch: 26709 Date Analyzed: 2006-05-19 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1010	101	90 - 110	2006-05-19

Standard (CCV-1)

QC Batch: 26709 Date Analyzed: 2006-05-19 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	981.0	98	90 - 110	2006-05-19

Standard (ICV-1)

QC Batch: 26736 Date Analyzed: 2006-05-23 Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		mg/L	1.00	0.994	99	90 - 110	2006-05-23

Standard (ICV-1)

QC Batch: 26736 Date Analyzed: 2006-05-23 Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1.00	0.984	98	90 - 110	2006-05-23

Standard (CCV-1)

QC Batch: 26736 Date Analyzed: 2006-05-23 Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		mg/L	1.00	0.986	99	90 - 110	2006-05-23

Standard (CCV-1)

QC Batch: 26736 Date Analyzed: 2006-05-23 Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1.00	0.966	97	90 - 110	2006-05-23

Standard (ICV-1)

QC Batch: 26751 Date Analyzed: 2006-05-23 Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		mg/L	1.00	1.03	103	90 - 110	2006-05-23

Standard (ICV-1)

QC Batch: 26751 Date Analyzed: 2006-05-23 Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1.00	1.02	102	90 - 110	2006-05-23

Standard (CCV-1)

QC Batch: 26751 Date Analyzed: 2006-05-23 Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		mg/L	1.00	1.02	102	90 - 110	2006-05-23

Standard (CCV-1)

QC Batch: 26751 Date Analyzed: 2006-05-23 Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1.00	1.01	101	90 - 110	2006-05-23

Standard (ICV-1)

QC Batch: 26785 Date Analyzed: 2006-05-18 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	0.160	0.164	102	85 - 115	2006-05-18

Standard (CCV-1)

QC Batch: 26785 Date Analyzed: 2006-05-18 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	0.160	0.168	105	85 - 115	2006-05-18

Standard (ICV-1)

QC Batch: 26939 Date Analyzed: 2006-05-26 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.3	98	90 - 110	2006-05-26

Standard (ICV-1)

QC Batch: 26939 Date Analyzed: 2006-05-26 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.6	101	90 - 110	2006-05-26

Standard (CCV-1)

QC Batch: 26939 Date Analyzed: 2006-05-26 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.0	96	90 - 110	2006-05-26

Standard (CCV-1)

QC Batch: 26939 Date Analyzed: 2006-05-26 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.6	101	90 - 110	2006-05-26

Standard (ICV-1)

QC Batch: 26940 Date Analyzed: 2006-05-26 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.0	96	90 - 110	2006-05-26

Standard (ICV-1)

QC Batch: 26940 Date Analyzed: 2006-05-26 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.6	101	90 - 110	2006-05-26

Standard (CCV-1)

QC Batch: 26940 Date Analyzed: 2006-05-26 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.2	97	90 - 110	2006-05-26

Standard (CCV-1)

QC Batch: 26940 Date Analyzed: 2006-05-26 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.6	101	90 - 110	2006-05-26

Standard (ICV-1)

QC Batch: 26941 Date Analyzed: 2006-05-26 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.0	96	90 - 110	2006-05-26

Standard (ICV-1)

QC Batch: 26941 Date Analyzed: 2006-05-26 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.5	100	90 - 110	2006-05-26

Standard (CCV-1)

QC Batch: 26941 Date Analyzed: 2006-05-26 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.2	97	90 - 110	2006-05-26

Standard (CCV-1)

QC Batch: 26941 Date Analyzed: 2006-05-26 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.7	101	90 - 110	2006-05-26

6051110

REQUEST FOR ANALYSIS

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED 5/16/06
LAB DESTINATION Trace Analysis
LABORATORY CONTACT Mike Abel
SEND LAB REPORT TO Judy Lanier
P.O. Box 2078
Carlsbad, N.M. 88221
DATE REPORT REQUIRED 6/16/06
PROJECT CONTACT R. Salness
PROJECT CONTACT PHONE NO. 505 234-8966

RFA Control № 6411
C of C Control № 6411

SAMPLING PROGRAM WIPP/SSWMP
PURCHASE ORDER NO. 403426-3 Line 3

Sample Number	Sample Type	Sample Quantity	Preservative	★Req't. Testing Program	Special Instructions	
SSWPZ9R5N1	Groundwater	1 liter x 1	NONE	General Chemistry	EPA 160.1, 300	9051 19
SSWPZ9R5N2	↓	↓	HNO3 pH<2	Selenium/Chromium	Method 6010B	9052 20
SSWC2507R5N1			NONE	General Chemistry	160.1, 300	21
SSWC2507R5N2			HNO3 pH<2	Selenium/Chromium	6010B	22
SSWPZ1R5N1			NONE	General Chemistry	160.1, 300	23
SSWPZ1R5N2			HNO3 pH<2	Selenium, Chromium	6010B	24
SSWPZ5R5N1			NONE	General Chemistry	160.1, 300	25
SSWPZ5R5N2			HNO3 pH<2	Selenium, Chromium	6010B	26
SSWPZ6R5N1			NONE	General Chemistry	160.1, 300	27
SSWPZ6R5N2			HNO3 pH<2	Selenium/Chromium	6010B	28
SSWPZ5R5N1D			NONE	General Chemistry	160.1, 300	29
SSWPZ5R5N2D	Groundwater		HNO3 pH<2	Selenium/Chromium	6010B	30
SSWPZ5R5N1EB	EB		NONE	General Chemistry	160.1, 300	31
SSWPZ5R5N2EB	EB	1 liter x 1	HNO3 pH<2	Selenium, Chromium	6010B	

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL X RUSH _____ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NONHAZARD X FLAMMABLE _____ SKIN IRRITANT _____ HIGHLY TOXIC _____ BIOLOGICAL _____ OTHER _____ (Specify)

★ EPA 160.1 = TDS only EPA 300 = Chloride, Sulfate, and Nitrate only

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT _____ DISPOSAL BY LAB X

FOR LAB USE ONLY

RECEIVED BY Megan McLeod DATE/TIME 5-17-06 / 1020

4° Bus GU 1687818826

WP 02-EM3001

WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

Report Date: June 6, 2006
403426-3 Lines 3
Work Order: 6051718
Page Number: 23 of 24

03527

CHAIN-OF-CUSTODY RECORD

6051718

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

C of C Control No. 6411

RFA Control No. 6411

SAMPLING PROGRAM WIPP/SSWMP

LAB DESTINATION Trace Analysis

SAMPLE TEAM MEMBERS B. Foster, J. Weatherlin, R. Salvess

CARRIER/WAYBILL NO. GLI 168 781 8836

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
SSWPZ9RSN1	PZ-9, SSW	5/16/06 0730	Groundwater	1 liter plastic	4°good mm 5-17-06	
SSWPZ9RSN2	PZ-9, SSW	0732				
SSWR2507RSN1	C-2507, SSW	0830				
SSWC2507RSN2	C-2507, SSW	0832				
SSWPZ1RSN1	PZ-1, SSW	0915				
SSWPZ1RSN2	PZ-1, SSW	0917				
SSWPZ5RSN1	PZ-5, SSW	1030 952				
SSWPZ5RSN2	PZ-5, SSW	1032 952				
SSWPZ6RSN1	PZ-6, SSW	1035				
SSWPZ6RSN2	PZ-6, SSW	1037				
SSWPZ5RSN1D	PZ-5, SSW	1035				
SSWPZ5RSN2D	PZ-5, SSW	1037	Groundwater			
SSWPZ5RSN1EB	PZ-5, EB	1043	EB			
SSWPZ5RSN2EB	PZ-5, EB	5/16/06 1047	EB	1 liter plastic x1		

Special Instructions: NONE

Possible Sample Hazards: NONE

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Bill Foster, NRES, 5/16/06, 12:15
   Received By: Megan McCord, Trace Analysis, 5/17/06 1020
2. Relinquished By: _____
   Received By: _____
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: _____

WP 02-EM3001

WHITE - Original to accompany samples YELLOW - Field copy PINK - Other NICHOLS PRINTING INC.

4° Bus GLI 168 781 8836

Report Date: June 6, 2006
403426-3 Lines 3

Work Order: 6051718

Page Number: 24 of 24

03528

REQUEST FOR ANALYSIS

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED 5/16/06 RFA Control № 6411

LAB DESTINATION Trace Analysis

LABORATORY CONTACT Mike Abel

SEND LAB REPORT TO Judy Lanier C of C Control № 6411
P.O. Box 2078
Carlsbad, N.M. 88221

DATE REPORT REQUIRED 6/16/06

PROJECT CONTACT R. Salness

PROJECT CONTACT PHONE NO. 505 234-8966

SAMPLING PROGRAM WIPP/SSWMP

PURCHASE ORDER NO. 403426-3 Line 3

Sample Number	Sample Type	Sample Quantity	Preservative	* Req't. Testing Program	Special Instructions	
SSWPZ9R5N1	Ground Water	1 liter x 1	NONE	General Chemistry	EPA 160.1, 300	9051 19
SSWPZ9R5N2	↓	↓	HNO3 pH<2	Selenium/Chromium	Method 6010B	9052 20
SSWC2507R5N1			NONE	General Chemistry	160.1, 300	21
SSWC2507R5N2			HNO3 pH<2	Selenium/Chromium	6010B	22
SSWPZ1R5N1			NONE	General Chemistry	160.1, 300	23
SSWPZ1R5N2			HNO3 pH<2	Selenium, Chromium	6010B	24
SSWPZ5R5N1			NONE	General Chemistry	160.1, 300	25
SSWPZ5R5N2			HNO3 pH<2	Selenium, Chromium	6010B	26
SSWPZ6R5N1			NONE	General Chemistry	160.1, 300	27
SSWPZ6R5N2			HNO3 pH<2	Selenium/Chromium	6010B	28
SSWPZ5R5N1D			NONE	General Chemistry	160.1, 300	29
SSWPZ5R5N2D	Ground Water		HNO3 pH<2	Selenium/Chromium	6010B	30
SSWPZ5R5N1EB	EB		NONE	General Chemistry	160.1, 300	31
SSWPZ5R5N2EB	EB	1 liter x 1	HNO3 pH<2	Selenium, Chromium	6010B	

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL X RUSH _____ (Subject in rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NONHAZARD X FLAMMABLE _____ SKIN IRRITANT _____ HIGHLY TOXIC _____ BIOLOGICAL _____ OTHER _____ (Specify)

* EPA 160.1 = TDS only EPA 300 = Chloride, Sulfate, and Nitrate only

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT _____ DISPOSAL BY LAB X

FOR LAB USE ONLY

RECEIVED BY Megan McLeod DATE/TIME 5-17-06 / 1020

4° RUS GH 11.8701 0021 MA

WP 02-EM3001

WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

NICHOLS PRINTING INC.

03529

CHAIN-OF-CUSTODY RECORD

4051718

C of C Control № 6411

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

RFA Control № 6411

SAMPLING PROGRAM WIPP/SSWMP

LAB DESTINATION Trace Analysis

SAMPLE TEAM MEMBERS B. Foster, J. Weatherlin, R. Salvess

CARRIER/WAYBILL NO. GLI 168 781 8836

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
SSWPZ9RSN1	PZ-9, SSW	5/16/06 0730	Groundwater	1 liter plastic x1	4°good mm 5-17-06	
SSWPZ9RSN2	PZ-9, SSW	0732				
SSWR2507RSN1	C-2507, SSW	0830				
SSWC2507RSN2	C-2507, SSW	0832				
SSWPZ1RSN1	PZ-1, SSW	0915				
SSWPZ1RSN2	PZ-1, SSW	0917				
SSWPZ5RSN1	PZ-5, SSW	1030 950				
SSWPZ5RSN2	PZ-5, SSW	1022952	5/16/06			
SSWPZ6RSN1	PZ-6, SSW	1035				
SSWPZ6RSN2	PZ-6, SSW	1037				
SSWPZ5RSN1D	PZ-5, SSW	1035				
SSWPZ5RSN2D	PZ-5, SSW	1037	Groundwater			
SSWPZ5RSN1EB	PZ-5, EB	1049	EB			
SSWPZ5RSN2EB	PZ-5, EB	5/16/06 1047	EB	1 liter plastic x1		
—	—	—	—	—	—	—

Special Instructions: NONE

Possible Sample Hazards: NONE

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Bill Foster, WRES, 5/16/06, 12:15
   Received By: Megan McCord, Trace Analysis, 5/17/06 1020
2. Relinquished By: _____
   Received By: _____
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: _____

WP 02-EM3001

WHITE - Original to accompany samples

YELLOW - Field copy

PINK - Other

NICHOLS PRINTING INC.

U° Rus GLI 168 781 8836 NA

03530

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

R. Salness
WRES
P.O.Box 2078
Carlsbad, NM, 88221-2078

Report Date: June 23, 2006

Work Order: 6051606

Project Name: WIPP/SSWMP
Project Number: WIPP/SSWMP

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
90430	SSWC2811R5N1	water	2006-05-15	07:30	2006-05-16
90432	SSWPZ12R5N1	water	2006-05-15	08:47	2006-05-16
90434	SSWPZ10R5N1	water	2006-05-15	09:37	2006-05-16
90436	SSWPZ7R5N1	water	2006-05-15	10:33	2006-05-16
90438	SSWPZ11R5N1	water	2006-05-15	11:30	2006-05-16
90440	SSWPZ11R5N1EB	water	2006-05-15	11:45	2006-05-16

Comment(s)

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 8 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Notes:
For inorganic analyses, the term MQL should actually read PQL.

Standard Flags

U - Not detected. The analyte is not detected above the SQL.
J - Estimated. The analyte is positively identified and the value is approximated between the SQL and MQL.
B - The sample contains less than ten times the concentration found in the method blank.
JB - The analyte is positively identified and the value is approximated between the SQL and MQL.
The sample contains less than ten times the concentration found in the method blank.
The result should be considered non-detect to the SQL.

Dr. Blair Leftwich, Director

Analytical Report

Sample: 90430 - SSWC2811R5N1

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26747	Date Analyzed:	2006-05-22	Analyzed By:	WB
Prep Batch:	23487	Sample Preparation:	2006-05-22	Prepared By:	WB

Parameter	Flag	SQL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SQL	MQL (Unadjusted)	MDL (Unadjusted)
Nitrate-N		6.94	6.94	<0.106	mg/L	10	0.0106	0.2	0.0106

Sample: 90432 - SSWPZ12R5N1

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26939	Date Analyzed:	2006-05-26	Analyzed By:	WB
Prep Batch:	23640	Sample Preparation:	2006-05-25	Prepared By:	WB

Parameter	Flag	SQL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SQL	MQL (Unadjusted)	MDL (Unadjusted)
Nitrate-N		20.6	20.6	<0.530	mg/L	50	0.0106	0.2	0.0106

Sample: 90434 - SSWPZ10R5N1

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26747	Date Analyzed:	2006-05-22	Analyzed By:	WB
Prep Batch:	23487	Sample Preparation:	2006-05-22	Prepared By:	WB

Parameter	Flag	SQL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SQL	MQL (Unadjusted)	MDL (Unadjusted)
Nitrate-N		3.42	3.42	<0.0530	mg/L	5	0.0106	0.2	0.0106

Sample: 90436 - SSWPZ7R5N1

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26939	Date Analyzed:	2006-05-26	Analyzed By:	WB
Prep Batch:	23640	Sample Preparation:	2006-05-25	Prepared By:	WB

Parameter	Flag	SQL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SQL	MQL (Unadjusted)	MDL (Unadjusted)
Nitrate-N	U	<5.30	<100	<5.30	mg/L	500	0.0106	0.2	0.0106

Sample: 90438 - SSWPZ11R5N1

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26940	Date Analyzed:	2006-05-26	Analyzed By:	WB
Prep Batch:	23641	Sample Preparation:	2006-05-25	Prepared By:	WB

Parameter	Flag	SQL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SQL	MQL (Unadjusted)	MDL (Unadjusted)
Nitrate-N	U	<5.30	<100	<5.30	mg/L	500	0.0106	0.2	0.0106

Sample: 90440 - SSWPZ11R5N1EB

Analysis: NO3 (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 26939 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23640 Sample Preparation: 2006-05-25 Prepared By: WB

Parameter	Flag	SQL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SQL	MQL (Unadjusted)	MDL (Unadjusted)
Nitrate-N	U	<0.0530	<1.00	<0.0530	mg/L	5	0.0106	0.2	0.0106

Method Blank (1)

QC Batch: 26747 Date Analyzed: 2006-05-22 Analyzed By: WB
Prep Batch: 23487 QC Preparation: 2006-05-22 Prepared By: WB

Parameter	Flag	Result	Units	Reporting Limits
Nitrate-N		<0.0106	mg/L	0.0106

Method Blank (1)

QC Batch: 26939 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23640 QC Preparation: 2006-05-25 Prepared By: WB

Parameter	Flag	Result	Units	Reporting Limits
Nitrate-N		<0.0106	mg/L	0.0106

Method Blank (1)

QC Batch: 26940 Date Analyzed: 2006-05-26 Analyzed By: WB
Prep Batch: 23641 QC Preparation: 2006-05-25 Prepared By: WB

Parameter	Flag	Result	Units	Reporting Limits
Nitrate-N		<0.0106	mg/L	0.0106

Laboratory Control Spike (LCS-1)

QC Batch: 26747 Date Analyzed: 2006-05-22 Analyzed By: WB
Prep Batch: 23487 QC Preparation: 2006-05-22 Prepared By: WB

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	2.63	2.62	mg/L	1	2.50	<0.0106	105	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 26939
Prep Batch: 23640
Date Analyzed: 2006-05-26
QC Preparation: 2006-05-25
Analyzed By: WB
Prepared By: WB

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	2.48	2.44	mg/L	1	2.50	<0.0106	99	2	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 26940
Prep Batch: 23641
Date Analyzed: 2006-05-26
QC Preparation: 2006-05-25
Analyzed By: WB
Prepared By: WB

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	2.45	2.45	mg/L	1	2.50	<0.0106	98	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

QC Batch: 26747
Prep Batch: 23487
Date Analyzed: 2006-05-22
QC Preparation: 2006-05-22
Analyzed By: WB
Prepared By: WB

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	286	320	mg/L	100	2.50	44.9	96	11	77.3 - 128	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

QC Batch: 26939
Prep Batch: 23640
Date Analyzed: 2006-05-26
QC Preparation: 2006-05-25
Analyzed By: WB
Prepared By: WB

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	13200	13200	mg/L	5000	2.50	<53.0	106	0	77.3 - 128	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

QC Batch: 26940
Prep Batch: 23641
Date Analyzed: 2006-05-26
QC Preparation: 2006-05-25
Analyzed By: WB
Prepared By: WB

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	13200	13300	mg/L	5000	2.50	<53.0	106	1	77.3 - 128	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1)

QC Batch: 26747 Date Analyzed: 2006-05-22 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.58	103	90 - 110	2006-05-22

Standard (CCV-1)

QC Batch: 26747 Date Analyzed: 2006-05-22 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.52	101	90 - 110	2006-05-22

Standard (ICV-1)

QC Batch: 26939 Date Analyzed: 2006-05-26 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.53	101	90 - 110	2006-05-26

Standard (CCV-1)

QC Batch: 26939 Date Analyzed: 2006-05-26 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.45	98	90 - 110	2006-05-26

Standard (ICV-1)

QC Batch: 26940 Date Analyzed: 2006-05-26 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.45	98	90 - 110	2006-05-26

Standard (CCV-1)

QC Batch: 26940 Date Analyzed: 2006-05-26 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.49	100	90 - 110	2006-05-26

6051606

REQUEST FOR ANALYSIS

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED 5/15/06 RFA Control No. 641
LAB DESTINATION Trace Analysis
LABORATORY CONTACT Mike Abel
SEND LAB REPORT TO Judy Lanier C of C Control No. 641
P.O. Box 2078
Carlsbad, N.M. 88221
DATE REPORT REQUIRED 6/15/06
PROJECT CONTACT R. Salness
PROJECT CONTACT PHONE NO. 505 234-8966

SAMPLING PROGRAM WIPP/SSWMP
PURCHASE ORDER NO. 403426-3 Line 3

Sample Number	Sample Type	Sample Quantity	Preservative	Req't. Testing Program	Special Instructions
SSW C28 11 RSN1	Ground Water	1 liter x 1	NONE	General Chemistry	EPA 160.1, 300 90
SSW C28 11 RSN2			HNO_3 pH<2	Selenium/Chromium	Method 6010 B
SSW PZ12 RSN1			NONE	General Chemistry	EPA 160.1, 300
SSW PZ12 RSN2			HNO_3 pH<2	Selenium/Chromium	Method 6010 B
SSW PZ10 RSN1			NONE	General Chemistry	EPA 160.1, 300
SSW PZ10 RSN2			HNO_3 pH<2	Selenium/Chromium	Method 6010 B
SSW PZ7 RSN1			NONE	General Chemistry	EPA 160.1, 300
SSW PZ7 RSN2			HNO_3 pH<2	Selenium/Chromium	Method 6010 B
SSW PZ11 RSN1			NONE	General Chemistry	EPA 160.1, 300
SSW PZ11 RSN2	Ground Water		HNO_3 pH<2	Selenium/Chromium	Method 6010 B
SSW PZ11 RSN1 EB	EB		NONE	General Chemistry	EPA 160.1, 300
SSW PZ11 RSN2 EB	EB	1 liter x 1	HNO_3 pH<2	Selenium/Chromium	Method 6010 B

A General Chemistry EPA 160.1 = TAS only EPA 300 = Chloride, Sulfate, and Nitrate only

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL X RUSH _____ (Subject to rush surcharg

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NONHAZARD X FLAMMABLE _____ SKIN IRRITANT _____ HIGHLY TOXIC _____ BIOLOGICAL _____ OTHER _____ (Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT _____ DISPOSAL BY LAB X

FOR LAB USE ONLY

RECEIVED BY Megan McCord DATE/TIME 5-16-06 1005

WP 02-EM3001 WHITE - Original to accompany samples YELLOW - Field copy PINK - Oth

110 Rec'd 5/11/06 781 982 5

Report Date: June 23, 2006
WIPP/SSWMP

Work Order: 6051606
WIPP/SSWMP

Page Number: 7 of 8

03537

6051606

CHAIN-OF-CUSTODY RECORD

C of C Control № 6410

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

RFA Control № 6410

SAMPLING PROGRAM WIPP/SSWMP LAB DESTINATION Trace Analysis

SAMPLE TEAM MEMBERS B. Foster, J. Weatherly, R. Salness CARRIER/WAYBILL NO. GL 1168 781 8825

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
SSWC2811RSN1	C-2811, SSW	5/15/06 0730	Ground Water	1 liter plastic x1	Good 4° mm 5-16-06	904.30
SSWC2811RSN2	C-2811, SSW	0732				431
SSWPZ12RSN1	PZ-12, SSW	08:47				432
SSWPZ12RSN2	PZ-12, SSW	08:49				433
SSWPZ10RSN1	PZ-10, SSW	09:37				434
SSWPZ10RSN2	PZ-10, SSW	09:39				435
SSWPZ7RSN1	PZ-7, SSW	10:33				436
SSWPZ7RSN2	PZ-7, SSW	10:35				437
SSWPZ11RSN1	PZ-11, SSW	11:30				438
SSWPZ11RSN2	PZ-11, SSW	11:32	Ground Water			439
SSWPZ11RSN1EB	PZ-11, EB	11:45	EB			440
SSWPZ11RSN2EB	PZ-11, EB	5/15/06 11:47	EB	1 liter plastic x1		441

Special Instructions: NONE

Possible Sample Hazards: NONE

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Bill Foster, NRES, 5/15/06, 13:00
   Received By: Megan McCord, Trace Analysis, 5/16/06 1005
2. Relinquished By: _____
   Received By: _____
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: _____

WP 02-EM3001 WHITE - Original to accompany samples YELLOW - Field copy PINK - Oth

Bill Foster 1168 781 8825

Report Date: June 23, 2006 WIPP/SSWMP

Work Order: 6051606 WIPP/SSWMP

WASTE ISOLATION PILOT PLANT (WIPP) SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PLAN DP-831

REPORT NUMBER 45: January 1, 2006 through June 30, 2006

SPECIFIC REQUIREMENTS OF DP-831

1.0 DISCHARGE VOLUMES:

Facultative Lagoon System	
Month	**Volume (gallons)**
January	165,148
February	113,404
March	102,590
April*	31,860
May*	48,729
June	60,380

*Flow meter was providing sporadic and abnormal readings on the following dates: April 15, 18, 21-23, 26-27, 29-30 and May 19, 28, 29, 16 and 17 of 2006. The meter had to be re-calibrated (reinstalled the distance parameter) to reset the depth of the weir.

H-19 Evaporation Pond	
Month	**Volume (gallons)**
January	1,820
February	0
March	3,000
April	2,600
May	2,530
June	1,535

Miscellaneous Water Discharged to the Facultative Lagoon System: None

Facultative Lagoon System Evaporation Pond B: 900 gallons

2.0 FACULTATIVE LAGOON AND H-19 EVAPORATION POND MONITORING AND REPORTING

Table 1 contains the analytical results for the Facultative Sewage Lagoon System. The H-19 Evaporation Pond was not sampled due to an insufficient amount of water being present in the pond following several months of drought conditions. The laboratory data sheets are included in Attachment 1. All miscellaneous non-hazardous water disposed of in the H-19 Evaporation Pond was Exhaust Shaft Fan Condensate, purged water from groundwater monitoring activities and observation borehole water from the underground. The Exhaust Shaft Catch Basin which has historically been a source of wastewater removed from the underground has been replaced with a series of boreholes that intercept the water in the south 400 drift between the Exhaust

Shaft and the Waste Shaft. The boreholes have automatic pumps installed in them that pump the water to 500 gallon containers for collection.

Other miscellaneous wastewaters generated include; 495 gallons of water from observation boreholes in the underground, 110 gallons of waste shaft ring water, 500 gallons of water from borehole drilling boreholes for the collection of Exhaust Shaft water, 110 gallons of water containing mortar generated during the construction of the block wall for the closure of Panel 2, 55 gallons of water used to rinse lead bricks (lead concentration was undetectable upon analysis) used in the installation of shielding for SEGA and MEGA detectors used in the Majorana Experiment and 5 gallons of equipment rinse water from cleaning sampling equipment. All miscellaneous non-hazardous water was analyzed to determine that it was not a hazardous waste regulated under the Resource Conservation and Recovery Act.

During this reporting period the following activities were conducted as required by your letter dated December 22, 2005, *Conditional Approval of the Corrective Action Plan based on the Sewage Lagoon Leak Testing Results and Liner Integrity Evaluation.*

- The single leak detected in the H-19 Evaporation Pond by LLSI during the leak tests performed in June 2005 was repaired. The perimeter of the H-19 Evaporation Pond was graded to facilitate the run-off of precipitation away from the pond.
- Settling Pond 2A and Polishing Pond 2B of the south sewage lagoon train have been allowed to dry and the sludge was sampled and determined to be nonhazardous. A contract has been established and materials procured to begin work on the replacement of the liners in July 2006.

3.0 INFILTRATION CONTROL ACTIVITIES (DECEMBER 22, 2003, MODIFICATION)

The following maintenance and erosion control enhancements that were proposed to the Ground Water Quality Bureau in a letter dated September 12, 2005 have been accomplished during this reporting period:

- A new haul road was constructed around the east side of the salt pile into the Salt Storage Area.
- A berm was constructed on the top of the salt pile, one on the north and south portion of the salt pile to divert run-off to discharge chutes protected with rip-rap. The berms are being covered with turf reinforcement mats, the installation of which was 80 percent complete as of June 30, 2006.
- Repairs of the erosion of the salt pile side slopes were 90 percent complete as of June 30, 2006.

Remaining maintenance and erosion control work includes the construction of the discharge chute on the north east side of the salt pile and the discharge chute in the center of the south side of the salt pile and the establishment of vegetation on the salt pile.

4.0 SUMMARY OF ACTIVITIES RELATED TO THE SHALLOW SUBSURFACE WATER (SSW) MONITORING AND SAMPLING PROGRAM

Water levels in the shallow wells (PZ-1 through PZ-12, C-2505, C-2506, and C-2507) were obtained on March 9 and June 14, 2006, and are included in Table 2. These were taken on the quarterly milestones outlined in Table 2 of the Ground Water Monitoring Schedule, in the December 22, 2003, DP-831 Modification.

WQSP-6A was sampled in October 2005 and May 2006 as part of the WIPP Hazardous Waste Facility Permit Detection Monitoring Program.

Only WQSP-6A data for the October sampling event are provided in this report because the results for the May event were not available at the time of submittal. The May WQSP-6A analytical data will be provided in the January 31, 2007, Semi-annual Discharge Monitoring Report. The signed laboratory reports for WQSP-6A are included in Attachment 2.

Concentrations for selenium and chromium in the WQSP-6A sample were below the method detection limits of 0.0250 mg/l. Nitrate concentrations for WQSP-6A were below method detection limit of 0.0100 mg/l. Sulfate, chloride, and total dissolved solids (TDS) concentrations were detected at concentrations exceeding standards of 20.6.2.3103 NMAC, *Standards for Ground Water of 10,000 mg/l TDS Concentration or Less* for Human Health and Domestic Water Supply. Although the concentrations were higher than the standards, they are less than background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285).

The shallow wells were sampled for field and general chemistry parameters in May 2006 as required by the December 22, 2003, modification to DP-831. Five wells were sampled on May 15, 2006, while the remaining wells were sampled on May 16, 2006. Results for the field sampling parameters and laboratory analyses are presented in Table 2. Laboratory reports for all shallow well analyses are included in Attachment 3. Chloride concentrations exceeded values listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply in all shallow wells sampled. The maximum concentration was 84,700 mg/l in PZ-9, while the minimum concentration was 460 mg/l in PZ-10. Total dissolved solids concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in all shallow wells sampled with the maximum concentration of 153,000 mg/l in PZ-9. Nitrate concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in one well with a concentration of 20.6 mg/l in PZ-12. Sulfate concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in eight of ten wells sampled with a maximum concentration of 4,350 mg/l in PZ-9. Chromium concentrations were all below limits and below 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply. Selenium was detected in eight of ten shallow wells sampled. Three of these wells exceeded concentrations identified in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply.

Table 1: Sewage Lagoon and H-19 Semi-Annual Analytical Results								
Analyte	**Influent to Facultative Lagoon System**		**Evaporation Pond B**		**Evaporation Pond C**		**H-19 Evaporation Pond**	
Nitrate (mg/l)	<1.00		<0.10		NA		NA	
TKN (mg/l)	119		19		NA		NA	
TDS (mg/l)	716.0		**19,700**		**4700**		NS	
	Activity	TPU 2 σ	Activity	TPU 2 σ	Activity	TPU 2 σ	Activity	TPU 2 σ
$U^{233/234}$ (Bq/l)	6.44E-02	7.07E-03	1.74E-02	3.11E-03	1.39E-02	2.53E-03	NS	NS
U^{235} (Bq/l)	1.44E-03	1.14E-03	4.38E-04	6.02E-04	-2.92E-05	1.26E-04	NS	NS
U^{238} (Bq/l)	2.92E-02	4.58E-03	7.29E-03	1.99E-03	5.29E-03	1.55E-03	NS	NS
Pu^{238} (Bq/l)	-1.52E-04	7.08E-04	1.73E-04	7.06E-04	3.15E-04	6.87E-04	NS	NS
$Pu^{239/240}$ (Bq/l)	-1.75E-04	3.84E-04	8.38E-05	3.87E-04	-8.50E-05	2.18E-04	NS	NS
Am^{241} (Bq/l)	-7.91E-05	2.45E-04	6.57E-05	3.42E-04	-4.75E-05	1.47E-04	NS	NS
Sr^{90} (Bq/l)	-1.53E-03	2.20E-02	2.89E-03	2.55-02	-9.52E-03	2.51E-02	NS	NS
TPU 2 σ = total propagated uncertainty at 2-sigma (95% confidence interval)								
NA: The analytical parameter is not required.								
NS: Not Sampled								
TKN: Total Kjeldahl Nitrate								
TDS: Total Dissolved Solids								
Bq/l: Becquerel per liter								
"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply								

Table 2
SUMMARY OF SHALLOW SUBSURFACE WATER LEVELS, FIELD PARAMETERS, AND ANALYTICAL RESULTS

	Water Level Monitoring (Ft AMSL)		Field Parameters			General Chemistry Parameters					Trace Metals	
Monitoring Site	03/09/06	06/14/06	pH (SU)	Temp. (^{0}C)	Electrical Conductivity @25 ^{0}C (µS/cm)	Sample Date	Nitrate (mg/l)	Sulfate (mg/l)	Chloride (mg/l)	TDS (mg/l)	Selenium (mg/l)	Chromium (mg/l)
PZ-1	3373.41	3373.26	6.30	22.3	119,600	5/16/06	<2.50	**2490**	**62400**	**113000**	**0.0510**	<0.0100
PZ-2	3373.24	3372.79	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
PZ-3	3374.41	3374.19	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
PZ-4	3368.29	3367.97	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
PZ-5	3375.94	3375.55	6.64	21.7	45,870	5/16/06	2.56	**1520**	**18300**	**32600**	**0.0710**	<0.0100
PZ-6	3372.20	3371.83	6.20	21.7	137,600	5/16/06	7.69	**3050**	**68800**	**115000**	<0.0100	<0.0100
PZ-7	3379.06	3378.49	6.31	19.7	104,000	5/15/06	<5.3	**3190**	**54100**	**139000**	**0.0680**	<0.0100
PZ-8	DRY	DRY	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
PZ-9	3366.19	3365.62	6.02	19.4	154,900	5/16/06	3.01	**4350**	**84700**	**153000**	0.0230	<0.0100
PZ-10	3371.57	3370.70	7.02	20.0	2,712	5/15/06	3.42	539	460	**1830**	0.0140	<0.0100
PZ-11	3375.83	3375.46	6.28	21.5	132,500	5/15/06	<5.3	**3090**	**71000**	**133000**	<0.0100	<0.0100
PZ-12	3359.31	3358.53	6.77	20.5	13,030	5/15/06	**20.6**	**866**	**4510**	**8790**	0.0190	<0.0100
C-2811	3345.10	3344.54	7.07	20.4	5,380	5/15/06	6.94	511		**3740**	0.0310	<0.0100
C-2505	3369.92	3369.55	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
C-2506	3370.34	3369.94	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
C-2507	3366.94	3366.50	6.79	19.7	6,790	5/16/06	7.37	**1040**	**1930**	**1800**	**0.0510**	<0.0100
WQSP-6a	3197.06 [1]	3196.84 [2]	7.25	21.8	3,930	10/19/05	<0.0100	**1940**	**360**	**3430**	<0.0250	<0.0250

Explanation: [1] Water Level Measurement Taken on 03/07/06
[2] Water Level Measurement Taken on 06/13/06
NS: Not Sampled as per permit conditions
"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply

Attachment 1

Laboratory Data Summary Sheets for the Sewage Lagoon System and the H-19 Evaporation Pond

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

J. Siegel
WRES
P.O.Box 2078
Carlsbad, NM, 88221-2078

Report Date: June 26, 2006

Work Order: 6042618

Project Number: Env Monit-DP-831

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
88697	EC-SWL-2006-0425-1.14	water	2006-04-25	12:45	2006-04-26
88698	EC-SWL-2006-0425-2.14	water	2006-04-25	12:50	2006-04-26
88699	EC-SWL-2006-0425-3.14	water	2006-04-25	12:50	2006-04-26
88700	EC-SWL-2006-0425-4.14	water	2006-04-25	12:35	2006-04-26
88701	EC-SWL-2006-0425-5.14	water	2006-04-25	12:15	2006-04-26
88702	EC-SWL-2006-0425-6.14	water	2006-04-25	12:25	2006-04-26
88703	EC-SWL-2006-0425-7.14	water	2006-04-25	12:45	2006-04-26
88704	EC-SWL-2006-0425-8.14	water	2006-04-25	13:00	2006-04-26

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 8 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Analytical Report

Sample: 88697 - EC-SWL-2006-0425-1.14

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26126	Date Analyzed:	2006-04-26	Analyzed By:	WB
Prep Batch:	22945	Sample Preparation:	2006-04-26	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		<1.00		mg/L	5	0.200

Sample: 88698 - EC-SWL-2006-0425-2.14

Analysis:	TKN	Analytical Method:	E 351.3	Prep Method:	N/A
QC Batch:	26164	Date Analyzed:	2006-05-01	Analyzed By:	SM
Prep Batch:	22979	Sample Preparation:	2006-04-28	Prepared By:	SM

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Kjeldahl Nitrogen - N		119		mg/L	1	4.00

Sample: 88699 - EC-SWL-2006-0425-3.14

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	26142	Date Analyzed:	2006-04-27	Analyzed By:	WB
Prep Batch:	22950	Sample Preparation:	2006-04-26	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		716.0		mg/L	2	10.00

Sample: 88700 - EC-SWL-2006-0425-4.14

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	26142	Date Analyzed:	2006-04-27	Analyzed By:	WB
Prep Batch:	22950	Sample Preparation:	2006-04-26	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		39400		mg/L	50	10.00

Sample: 88701 - EC-SWL-2006-0425-5.14

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	26142	Date Analyzed:	2006-04-27	Analyzed By:	WB
Prep Batch:	22950	Sample Preparation:	2006-04-26	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		19700		mg/L	10	10.00

Sample: 88702 - EC-SWL-2006-0425-6.14

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	26142	Date Analyzed:	2006-04-27	Analyzed By:	WB
Prep Batch:	22950	Sample Preparation:	2006-04-26	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		4700		mg/L	5	10.00

Sample: 88703 - EC-SWL-2006-0425-7.14

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	26126	Date Analyzed:	2006-04-26	Analyzed By:	WB
Prep Batch:	22945	Sample Preparation:	2006-04-26	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		<1.00		mg/L	5	0.200

Sample: 88704 - EC-SWL-2006-0425-8.14

Analysis:	TKN	Analytical Method:	E 351.3	Prep Method:	N/A
QC Batch:	26164	Date Analyzed:	2006-05-01	Analyzed By:	SM
Prep Batch:	22979	Sample Preparation:	2006-04-28	Prepared By:	SM

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Kjeldahl Nitrogen - N		<4.00		mg/L	1	4.00

Method Blank (1) QC Batch: 26126

QC Batch:	26126	Date Analyzed:	2006-04-26	Analyzed By:	WB
Prep Batch:	22945	QC Preparation:	2006-04-26	Prepared By:	WB

Parameter	Flag	MDL Result	Units	RL
Nitrate-N		<0.0106	mg/L	0.2

Method Blank (1) QC Batch: 26142

QC Batch:	26142	Date Analyzed:	2006-04-27	Analyzed By:	WB
Prep Batch:	22950	QC Preparation:	2006-04-26	Prepared By:	WB

Parameter	Flag	MDL Result	Units	RL
Total Dissolved Solids		<5.000	mg/L	10

Method Blank (1) QC Batch: 26164

QC Batch: 26164 Date Analyzed: 2006-05-01 Analyzed By: SM
Prep Batch: 22979 QC Preparation: 2006-04-28 Prepared By: SM

Parameter	Flag	MDL Result	Units	RL
Total Kjeldahl Nitrogen - N		<1.77	mg/L	4

Duplicates (1)

QC Batch: 26142 Date Analyzed: 2006-04-27 Analyzed By: WB
Prep Batch: 22950 QC Preparation: 2006-04-26 Prepared By: WB

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	1420	1400	mg/L	2	1	14.4

Laboratory Control Spike (LCS-1)

QC Batch: 26126 Date Analyzed: 2006-04-26 Analyzed By: WB
Prep Batch: 22945 QC Preparation: 2006-04-26 Prepared By: WB

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	2.61	2.57	mg/L	1	2.50	<0.0106	104	2	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 26164 Date Analyzed: 2006-05-01 Analyzed By: SM
Prep Batch: 22979 QC Preparation: 2006-04-28 Prepared By: SM

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Kjeldahl Nitrogen - N	44.0	45.9	mg/L	1	50.0	<1.77	88	4	64.6 - 118	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 88651

QC Batch: 26126 Date Analyzed: 2006-04-26 Analyzed By: WB
Prep Batch: 22945 QC Preparation: 2006-04-26 Prepared By: WB

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	136	137	mg/L	50	2.50	11.9	99	1	77.3 - 128	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 88565

QC Batch: 26164 Date Analyzed: 2006-05-01 Analyzed By: SM
Prep Batch: 22979 QC Preparation: 2006-04-28 Prepared By: SM

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Kjeldahl Nitrogen - N	45.4	53.5	mg/L	1	50.0	<1.77	91	16	58.2 - 121	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1)

QC Batch: 26126 Date Analyzed: 2006-04-26 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.59	104	90 - 110	2006-04-26

Standard (CCV-1)

QC Batch: 26126 Date Analyzed: 2006-04-26 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.60	104	90 - 110	2006-04-26

Standard (ICV-1)

QC Batch: 26142 Date Analyzed: 2006-04-27 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1035	104	90 - 110	2006-04-27

Standard (CCV-1)

QC Batch: 26142 Date Analyzed: 2006-04-27 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1033	103	90 - 110	2006-04-27

Standard (ICV-1)

QC Batch: 26164 Date Analyzed: 2006-05-01 Analyzed By: SM

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Kjeldahl Nitrogen - N		mg/L	5.00	5.04	101	85 - 115	2006-05-01

Standard (CCV-1)

QC Batch: 26164 Date Analyzed: 2006-05-01 Analyzed By: SM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Kjeldahl Nitrogen - N		mg/L	5.00	5.15	103	85 - 115	2006-05-01

6042618

REQUEST FOR ANALYSIS

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED 4-26-06
RFA Control № 6215
LAB DESTINATION TRACE Analysis
LABORATORY CONTACT Megan McCord
SEND LAB REPORT TO WTS
P.O. Box 2078 MS 486-5
Carlsbad, NM 88221
C of C Control № 6215
DATE REPORT REQUIRED Per S.O.W.
PROJECT CONTACT C/o Siegel
PROJECT CONTACT PHONE NO. (505) 234-8313

SAMPLING PROGRAM ENV. MONIT - DP831
PURCHASE ORDER NO. n/a

Sample Number	Sample Type	Sample Quantity	Preservative	Req't. Testing Program	Special Instructions
EC-SWL-20060425-1.14	SEWAGE	1 LITER	<4°C	NO_3	98497
2.14		500 mL	H_2SO_4 pH<2 <4°C	TKN	98
3.14			<4°C	TDS	99
4.14					100
5.14					01
6.14					02
7.14		1 LITER		NO_3	03
8.14	BLANK	500 mL	H_2SO_4 pH<2, <4°C	TKN	04
		n/a	4-25-06 MS		

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL ✓ RUSH _____ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NONHAZARD _____ FLAMMABLE _____ SKIN IRRITANT _____ HIGHLY TOXIC _____ BIOLOGICAL ✓ OTHER _____ (Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT _____ DISPOSAL BY LAB ✓

FOR LAB USE ONLY

RECEIVED BY Megan McCord DATE/TIME 4-26-06 1010

4° carry in

WP 02-EM3001

WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

Report Date: June 26, 2006
Env Monit-DP-831
Work Order: 6042618
Page Number: 7 of 8

03551

CHAIN-OF-CUSTODY RECORD

6042618

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

C of C Control № 6215

SAMPLING PROGRAM ENV. MONIT - DP831 RFA Control № 6215

SAMPLE TEAM MEMBERS R. Simmons, R. Stockwell (CEMRC TECHS) LAB DESTINATION TRACE Analysis

CARRIER/WAYBILL NO. Hand Carry

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
EC-SWL-20060425-1.14	Pond 1A	4-25-06 1245	SEWAGE	1 LITER PLASTIC	4° good MM 4-26-06	98147
2.14	Pond 1A	1250		500 mL PLASTIC		98
3.14	Pond 1A	1250				99
4.14	Pond A	1235				100
5.14	Pond B	1215				01
6.14	Pond C	1225				02
7.14	Pond 1A	1245		1 LITER PLASTIC		03
8.14	BLANK	1300	BLANK	500 mL PLASTIC		04
		n/a 4-25-06 1305				

Special Instructions: n/a

Possible Sample Hazards: BIOHAZARD

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: R Simmons WTS 4-26-06 1010
   Received By: Megan McCord 4-26-06 1010
2. Relinquished By: _____
   Received By: _____
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: _____

WP 02-EM3001

WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

Report Date: June 26, 2006
Env Monit-DP-831

Work Order: 6042618

Page Number: 8 of 8

03552

MK 6-6-06
Narrative Entered by Date

J. White for 6-6-06
Approved by Date

SECTION 3

Case Narrative

SDG: **2006-235** Client: **Environmental Monitoring**

SAMPLE ID			Chain of Custody #	Sample Description	Matrix	Collection		Date Received
Lab #		Client #				Date	Time	
C1322	EC	-SWL-20060425-9.14	6216	Pond 1A	Sewage Lagoon	04/25/06	12:55	04/27/06
C1323	EC	-SWL-20060425-10.14	6216	Pond A	Sewage Lagoon	04/25/06	12:35	04/27/06
C1324	EC	-SWL-20060425-11.14	6216	Pond B	Sewage Lagoon	04/25/06	12:15	04/27/06
C1325	EC	-SWL-20060425-12.14	6216	Pond C	Sewage Lagoon	04/25/06	12:25	04/27/06
C1326	EC	-SWL-20060425-13.14	6216	Pond 1A	Sewage Lagoon	04/25/06	12:55	04/27/06
C1327	EC	-SWL-20060425-14.14	6216	Blank	Sewage Lagoon	04/25/06	13:00	04/27/06

Data presented herein is validated and verified in compliance with Management Control Procedures WP 12-RL3002, Data Validation and Verification and WP 12-RL3003,"Data Reduction and Reporting".

Procedure Number	Revision
WP 12-RL3002	5
WP 12-RL3003	5

Sample Prep Summary

All sample preparation performed in accordance with WP 12-RL1010, "Sample Preparation".

Procedure Number	Revision
WP 12-RL1010	7

Measuring Instrumentation

Alpha Spectrometers

System Name	Instrument ID	Procedure Number	Revision	Used for these samples
Canberra Alpha Analyst	ALP-001	WP 12-RL1015	10	YES

Gas Proportional Counters

System Name	Instrument ID	Procedure Number	Revision	Used for these samples
Tennelec LB 4100	GAB-002	WP 12-RL1340	8	YES

Gamma Spectrometers

System Name	Instrument ID	Procedure Number	Revision	Used for these samples
Canberra	GAM-002-1	WP 12-RL1332	4	YES
Canberra	GAM-002-2	WP 12-RL1332	4	YES

COPY

0003

MK 6-6-06
Narrative Entered by Date

J.M. Whiteford 6-6-06
Approved by Date

SECTION 4

Sample Results Summary

Summary of sample analysis results and respective qualifiers are included in this section.

Qualifier Codes

U	Nuclide considered not detected above the reported MDC and 2σ counting uncertainty.
J	Nuclide identified; the associated numerical value is approximated.
UJ	Nuclide not detected above the reported MDC or 2σ counting uncertainty and a quality deficiency affects the data making the reported data more uncertain.
NJ	Nuclide present at an estimated quantity.
R	Result is not usable for its intended purpose.
=	No qualifier is necessary.

Uranium Analysis Summary

WP 12 RL 1012 revision 5

All samples were analyzed in accordance with the above procedure.

Batch #	Samples
SP06-6-1	C1322, C1323, C1324, C1325, C1326, & C1327

Batch #: SP06-6-1

^{234}U was detected in all samples.

^{235}U was detected in sample C1322, but not in samples C1323, C1324, C1325, C1326, and C1327.

^{238}U was detected in all samples.

Plutonium Analysis Summary

WP 12 RL 1012 revision 5

All samples were analyzed in accordance with the above procedure.

Batch #	Samples
SP06-6-1	C1322, C1323, C1324, C1325, C1326, & C1327

Batch #: SP06-6-1

^{238}Pu was not detected in these samples.

$^{239/240}$Pu was not detected in these samples.

Americium Analysis Summary

WP 12 RL 1012 revision 5

All samples were analyzed in accordance with the above procedure.

Batch #	Samples
SP06-6-1	C1322, C1323, C1324, C1325, C1326, & C1327
SP06-6-15	C1322, C1323, C1324, C1325, C1326, & C1327

Batch #: SP06-6-1

The entire batch was reprocessed due to the low recovery of the Blank.

Batch #: SP06-6-15

This is the reprocess of batch SP06-6-1.

^{241}Am was not detected in these samples.

0004

MK 6-6-06
Narrative Entered by Date

J.M.Whiteford 6-6-06
Approved by Date

Strontium Analysis Summary

WP-12-RL1011, Revision 8

All samples were analyzed in accordance with the above procedure.

Batch #	Samples
SP06-6-1	C1322, C1323, C1324, C1325, C1326, & C1327

Batch #: SP06-6-1

^{90}Sr was not detected in these samples.

Gamma Analysis Summary

WP-12-RL1332, Revision 4

All samples were analyzed in accordance with the above procedure.

Samples
C1322, C1323, C1324, C1325, C1326, & C1327

^{40}K was detected in samples C1323, C1325, and C1326, but not in samples C1322, C1324, and C1326.

^{60}Co was not detected in these samples.

^{137}Cs was notdetected in these samples.

SECTION 5

Quality Control Summary

The RLCS, RBLK, MLCS, and MBLK Control Chart result Summaries are included in this section (as well as RER and Matrix Spike Summaries, and Nonconformance and Variance Reports, if applicable).

SECTION 6

Chain of Custody

Client Chain of Custody and Request for Analysis (if provided), Sample Tracking Sheets and copies of Sample Tracking Logbook pages are included in this section.

SECTION 7

Raw Data

Copies of the Sample Prep Logbook and the Daily Lab Work Logbook pages, a Definition of Terms and Limits, client correspondence, calculation spreadsheets and hand calculations, all supporting documentation for calculations and preparation of the samples, client correspondence and instrument printouts are included in this section.

COPY

0005

SECTION 4

SAMPLE RESULTS SUMMARY

COPY

MK 6-6-06
Data Input by Date

MWhiteford 6-6-06
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: 2006-235
Batch: SP06-6-1
Client: Environmental Monitoring
Lab Id: C1324
Client Id: EC -SWL-20060425-11.14
Matrix: Sewage Lagoon
Collect Date: 4/25/2006
Collect Time: 12:15

* = ID Confidence <90%

ISOTOPE	Activity	TPU 2 s	TPU 1 s	MDC	Units	Qualifier
$^{233/234}U$	1.74E-02	3.11E-03	1.59E-03	1.28E-03	Bq/L	=
^{235}U	4.38E-04	6.02E-04	3.07E-04	5.77E-04	Bq/L	U
^{238}U	7.29E-03	1.99E-03	1.02E-03	9.60E-04	Bq/L	=
^{238}Pu	1.73E-04	7.06E-04	3.60E-04	5.14E-04	Bq/L	U
$^{239/240}Pu$	8.38E-05	3.87E-04	1.97E-04	5.01E-04	Bq/L	U
^{241}Am	6.57E-05	3.42E-04	1.74E-04	6.91E-04	Bq/L	U
^{90}Sr	2.89E-03	2.55E-02	1.30E-02	2.22E-03	Bq/L	U
^{40}K *	3.56E+01	6.24E+00	3.18E+00	7.14E+00	Bq/L	U
^{60}Co	-1.60E-01	3.35E-01	1.71E-01	3.58E-01	Bq/L	U
^{137}Cs *	3.16E-01	2.48E-01	1.27E-01	3.10E-01	Bq/L	U

ISOTOPE	TPU 2 s		1.96	TPU 1 s
^{40}K	6.24E+00	/	1.96	3.18E+00
^{60}Co	3.35E-01	/	1.96	1.71E-01
^{137}Cs	2.48E-01	/	1.96	1.27E-01

COPY

MK 6-6-06
Data Input by Date

MWhiteford 6-6-06
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: 2006-235
Batch: SP06-6-1
Client: Environmental Monitoring
Lab Id: C1325
Client Id: EC -SWL-20060425-12.14
Matrix: Sewage Lagoon
Collect Date: 4/25/2006
Collect Time: 12:25

ISOTOPE	Activity	MRU2s	TPU2s	MDC	Units	Qualifier
$^{233/234}U$	1.39E-02	2.53E-03	1.29E-03	1.23E-03	Bq/L	=
^{235}U	-2.92E-05	1.26E-04	6.42E-05	5.06E-04	Bq/L	U
^{238}U	5.29E-03	1.55E-03	7.91E-04	9.03E-04	Bq/L	=
^{238}Pu	3.15E-04	6.87E-04	3.50E-04	4.68E-04	Bq/L	U
$^{239/240}Pu$	-8.50E-05	2.18E-04	1.11E-04	4.55E-04	Bq/L	U
^{241}Am	-4.75E-05	1.47E-04	7.51E-05	6.31E-04	Bq/L	U
^{90}Sr	-9.52E-03	2.51E-02	1.28E-02	2.30E-03	Bq/L	U
^{40}K	9.01E+00	4.76E+00	2.43E+00	7.18E+00	Bq/L	=
^{60}Co	4.36E-01	5.08E-01	2.59E-01	5.88E-01	Bq/L	U
^{137}Cs	-4.31E-02	5.59E-01	2.85E-01	6.25E-01	Bq/L	U

ISOTOPE	TPU2s	/	1.96	TPU1s
^{40}K	4.76E+00	/	1.96	2.43E+00
^{60}Co	5.08E-01	/	1.96	2.59E-01
^{137}Cs	5.59E-01	/	1.96	2.85E-01

0010

JNK 6-6-06
Data Input by Date

M.W. Whiteford 6-6-06
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: **2006-235**
Batch: **SP06-6-1**
Client: **Environmental Monitoring**
Lab Id: **C1322**
Client Id: **EC -SWL-20060425-9.14**
Matrix: **Sewage Lagoon**
Collect Date: **4/25/2006**
Collect Time: **12:55**

ISOTOPE	ACTIVITY	TPU 2 S	TPU(rss)	MDC	RDL	Units	Qualifier
$^{233/234}U$	6.44E-02	7.07E-03	3.61E-03	1.39E-03	NA	Bq/L	=
^{235}U	1.44E-03	1.14E-03	5.84E-04	7.09E-04	NA	Bq/L	=
^{238}U	2.92E-02	4.58E-03	2.34E-03	1.07E-03	NA	Bq/L	=
^{238}Pu	-1.52E-04	7.08E-04	3.61E-04	6.71E-04	NA	Bq/L	U
$^{239/240}Pu$	-1.75E-04	3.84E-04	1.96E-04	6.59E-04	NA	Bq/L	U
^{241}Am	-7.91E-05	2.45E-04	1.25E-04	8.45E-04	NA	Bq/L	U
^{90}Sr	-1.53E-03	2.20E-02	1.12E-02	1.87E-03	NA	Bq/L	U
^{40}K	2.37E+00	2.81E+00	1.43E+00	3.47E+00	NA	Bq/L	U
^{60}Co	4.98E-03	3.02E-01	1.54E-01	3.45E-01	NA	Bq/L	U
^{137}Cs	-1.74E-02	2.35E-01	1.20E-01	2.76E-01	NA	Bq/L	U

ISOTOPE	TPU 2 S		1.96	TPU(rss)
^{40}K	2.81E+00	/	1.96	1.43E+00
^{60}Co	3.02E-01	/	1.96	1.54E-01
^{137}Cs	2.35E-01	/	1.96	1.20E-01

COPY

MK 6-6-06
Data Input by Date

MRWhiteford 6-6-06
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: **2006-235**
Batch: **SP06-6-1**
Client: **Environmental Monitoring**
Lab Id: **C1323**
Client Id: **EC -SWL-20060425-10.14**
Matrix: **Sewage Lagoon**
Collect Date: **4/25/2006**
Collect Time: **12:35**

ISOTOPE	ACTIVITY	TPU(2S)	TPU	MDC	Units	Qualifier
$^{233/234}U$	1.04E-02	2.42E-03	1.24E-03	1.30E-03	Bq/L	=
^{235}U	-6.98E-05	2.16E-04	1.10E-04	5.97E-04	Bq/L	U
^{238}U	3.88E-03	1.48E-03	7.56E-04	9.76E-04	Bq/L	=
^{238}Pu	3.16E-04	5.78E-04	2.95E-04	3.74E-04	Bq/L	U
$^{239/240}Pu$	4.18E-05	2.75E-04	1.41E-04	3.61E-04	Bq/L	U
^{241}Am	-4.59E-05	1.56E-04	7.96E-05	6.83E-04	Bq/L	U
^{90}Sr	-1.65E-02	2.58E-02	1.32E-02	2.39E-03	Bq/L	U
^{40}K	7.27E+01	1.09E+01	5.56E+00	6.45E+00	Bq/L	=
^{60}Co	1.74E-01	5.19E-01	2.65E-01	5.90E-01	Bq/L	U
^{137}Cs	-9.38E-02	5.62E-01	2.87E-01	6.25E-01	Bq/L	U

ISOTOPE	TPU(2S)			TPU
^{40}K	1.09E+01	/	1.96	5.56E+00
^{60}Co	5.19E-01	/	1.96	2.65E-01
^{137}Cs	5.62E-01	/	1.96	2.87E-01

COPY

0008

MK 6-6-06
Data Input by Date

MKWhiteford 6-6-06
Input Verified by Date

SECTION 4

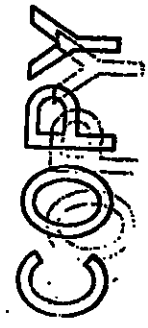
SAMPLE RESULT SUMMARY

SDG: 2006-235
Batch: SP06-6-1
Client: Environmental Monitoring
Lab Id: C1326
Client Id: EC -SWL-20060425-13.14
Matrix: Sewage Lagoon
Collect Date: 4/25/2006
Collect Time: 12:55

* = ID Confidence <90%

ISOTOPE	Activity	TPU 2 sig	EXTPUT 2 sig	MDC	Units	Qualifier
$^{233/234}U$	7.38E-02	7.96E-03	4.06E-03	1.43E-03	Bq/L	=
^{235}U	2.07E-03	1.40E-03	7.15E-04	7.61E-04	Bq/L	=
^{238}U	3.18E-02	5.00E-03	2.55E-03	1.11E-03	Bq/L	=
^{238}Pu	-2.61E-04	7.77E-04	3.96E-04	6.77E-04	Bq/L	U
$^{239/240}Pu$	-1.99E-04	4.13E-04	2.11E-04	6.64E-04	Bq/L	U
^{241}Am	6.15E-04	7.03E-04	3.59E-04	7.72E-04	Bq/L	U
^{90}Sr	-4.55E-04	2.44E-02	1.25E-02	2.13E-03	Bq/L	U
^{40}K	3.15E+00	1.68E+00	8.57E-01	2.38E+00	Bq/L	=
^{60}Co	1.50E-02	3.03E-01	1.55E-01	3.47E-01	Bq/L	U
^{137}Cs *	2.98E-01	2.32E-01	1.18E-01	2.92E-01	Bq/L	U

ISOTOPE	TPU 2 sig			EXTPUT 2 sig
^{40}K	1.68E+00	/	1.96	8.57E-01
^{60}Co	3.03E-01	/	1.96	1.55E-01
^{137}Cs	2.32E-01	/	1.96	1.18E-01



0011

MK 6-6-06
Data Input by Date

MLWhitford 6-6-06
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: 2006-235
Batch: SP06-6-1
Client: Environmental Monitoring
Lab Id: C1327
Client Id: EC -SWL-20060425-14.14
Matrix: Sewage Lagoon
Collect Date: 4/25/2006
Collect Time: 13:00

ISOTOPE	TOT ACTIVITY	TOT PU 2 SIGMA	TOT PU MDC	TOT PU MDC	UNITS	QUALIFIER
$^{233/234}U$	6.16E-04	5.48E-04	2.80E-04	1.21E-03	Bq/L	U
^{235}U	-2.34E-05	1.11E-04	5.65E-05	4.93E-04	Bq/L	U
^{238}U	1.63E-04	3.42E-04	1.74E-04	8.92E-04	Bq/L	U
^{238}Pu	2.25E-04	5.32E-04	2.72E-04	4.30E-04	Bq/L	U
$^{239/240}Pu$	7.48E-05	3.07E-04	1.57E-04	4.17E-04	Bq/L	U
^{241}Am	2.20E-04	3.96E-04	2.02E-04	6.67E-04	Bq/L	U
^{90}Sr	-1.18E-02	2.20E-02	1.12E-02	1.94E-03	Bq/L	U
^{40}K	3.28E-01	3.04E+00	1.55E+00	3.51E+00	Bq/L	U
^{60}Co	7.74E-02	2.93E-01	1.49E-01	3.43E-01	Bq/L	U
^{137}Cs	-3.81E-02	2.42E-01	1.23E-01	2.81E-01	Bq/L	U

ISOTOPE	TOT PU 2 SIGMA	TOT PU MDC	1.96	TOT PU MDC
^{40}K	3.04E+00	/	1.96	1.55E+00
^{60}Co	2.93E-01	/	1.96	1.49E-01
^{137}Cs	2.42E-01	/	1.96	1.23E-01

COPY

0012

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

JAN 26 2006

GROUND WATER

JAN 30 2006

BUREAU

Mr. Clint Marshall
Mining and Environmental Compliance Section
Ground Water Quality Bureau
New Mexico Environment Department
P.O. Box 26110
Santa Fe, NM 87502

Subject: Semi-Annual Discharge Monitoring Report for July 1, 2005 through December 31, 2005

Dear Mr. Marshall:

The purpose of this letter is to transmit the Waste Isolation Pilot Plant Discharge Monitoring Report for the period of July 1, 2005 through December 31, 2005. This report is required by Discharge Plan 831.

If you have any questions about this report or require any additional information, please contact me at (505) 234-7462.

Sincerely,

Mr. H. L. Plum
RCRA Program Manager

Enclosure

cc: w/o enclosure

C. Padilla, NMED	*ED
J. Bearzi, NMED	ED
J. Kieling, NMED	ED
W. Olsen, NMED	ED
T. Klein, NMED/AIP	ED

cc: w/enclosure
S. Zappe, NMED
*ED denotes electronic distribution

CBFO:AMO:HJP:KJB:06-0507:UFC5486

WASTE ISOLATION PILOT PLANT (WIPP) SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PLAN DP-831

REPORT NUMBER 45: July 1, 2005 through December 31, 2005

SPECIFIC REQUIREMENTS OF DP-831

1.0 DISCHARGE VOLUMES:

Facultative Lagoon System	725,266 gallons
Miscellaneous Water Discharged to the Facultative Lagoon System	None
Facultative Lagoon System Evaporation Pond B	None
H-19 Evaporation Pond	25,915 gallons

2.0 SURFACE WATER QUALITY ANALYSIS

Table 1 contains the water quality analytical results for the Facultative Lagoon System and the H-19 Evaporation Pond. The laboratory data sheets are included in Attachment 1. Table 2 contains the analytical results for the evaporation ponds associated with the infiltration controls as required by the December 22, 2003 Discharge Plan Modification. Attachment 2 contains the laboratory data sheets for the evaporation ponds associated with the infiltration controls.

3.0 INFILTRATION CONTROL ACTIVITIES (DECEMBER 22, 2003, MODIFICATION)

The installation of the HDPE liner in SWIC Pond A was completed on Saturday July 30, 2005. The anchor trenches were backfilled and final grading around the pond was completed on August 2, 2005. In a letter dated September 12, 2005, the Ground Water Quality Bureau was notified that the construction phase of the infiltration controls proposed in the Design Basis Summary contained in Attachment A of the April 24, 2003 Discharge Plan Modification Application was complete. A second letter dated September 12, 2005 notified the Ground Water Quality Bureau of a two phase plan for repairs and the construction of enhanced erosion control and drainage features for the covered salt pile. Phase one was initiated during this reporting period by removing all accumulated sediment from the salt pile run-off ditches.

4.0 SEWAGE LAGOON CORRECTIVE ACTION PLAN

In response to sewage lagoon liner integrity investigation conducted in June of 2005, WIPP provided a corrective action plan in a letter dated November 3, 2005. In that corrective action plan, conditionally approved by the Water Quality Bureau on December 22, 2005, WIPP committed to provide status of repairs on the sewage lagoon ponds when the semi-annual discharge plan is submitted. No work took place during this reporting period. During FY2006, the corrective action plan committed to the replacement of the liners in Ponds 2A and 2B. Currently, a work order containing the applicable standards and specifications for earthwork and liner replacement is being developed for inclusion in a Request for Proposals.

5.0 SUMMARY OF ACTIVITIES RELATED TO THE SHALLOW SUBSURFACE WATER (SSW) MONITORING AND SAMPLING PROGRAM

Water levels in the shallow wells (PZ-1 through PZ-12, C-2505, C-2506, and C-2507) were obtained on June 21 and December 7, 2005, and are included in Table 3. These were taken on the quarterly milestones outlined in Table 2, Ground Water Monitoring Schedule, in the December 22, 2003, DP-831 Modification. Figure 1 represents a potentiometric surface map for the December 2005 monitoring data.

WQSP-6A was sampled in April 2005 and November 2005 as part of the WIPP Hazardous Waste Facility Permit Detection Monitoring Program (DMP) (Table 3). Only WQSP-6A data for the April sampling event are provided in this report because the results for the November event were not available at the time of submittal. The November WQSP-6A analytical data will be provided in the July 31, 2006, Semi-annual Discharge Monitoring Report. The signed laboratory reports for WQSP-6A are included in Attachment 3.

Concentrations for chromium in the WQSP-6A sample were below the method detection limits of 0.0250 mg/l. The selenium concentration was 0.0570 mg/l. Sulfate, chloride, and total dissolved solids (TDS) concentrations were detected at concentrations exceeding standards of 20.6.2.3103 NMAC, *Standards for Ground Water of 10,000 mg/l TDS Concentration or Less* for Human Health and Domestic Water Supply. Although the concentrations were higher than the standards, they are less than background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285). The shallow subsurface water identified at the WIPP site has not impacted the Dewey Lake groundwater in WQSP-6A.

The shallow wells were sampled for field and general chemistry parameters in October 2005 as required by the December 22, 2003, modification to DP-831. Five wells were sampled on October 10, 2005, while the remaining wells were sampled on October 11, 2005. Results for the field sampling parameters and laboratory analyses are presented in Table 3. Laboratory reports for all shallow well analyses are included in Attachment 4. Chloride concentrations exceeded values listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply in all shallow wells sampled. The maximum concentration was 85,500 mg/l in PZ-9, while the minimum concentration was 318 mg/l in PZ-10. Total dissolved solids concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in all shallow wells sampled with the maximum concentration of 129,000 mg/l in PZ-11. Nitrate concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in four wells with the highest concentration at 426 mg/l in PZ-12. Sulfate concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in ten wells sampled with a maximum concentration of 3,930 mg/l in PZ-9. Chromium concentrations were all below limits and below 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply. Selenium was detected in all wells sampled. Three of these wells exceeded concentrations for selenium identified in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply.

Overall, the maximum concentrations detected for all parameters were less than the concentrations detected during the last semi-annual reporting period.

Table 1: Sewage Lagoon and H-19 Semi-Annual Analytical Results								
Analyte	Influent to Facultative Lagoon System		Evaporation Pond B		Evaporation Pond C		H-19 Evaporation Pond	
Nitrate (mg/l)	<1.00		NA		NA		NA	
TKN (mg/l)	46.2		NA		NA		NA	
TDS (mg/l)	472		10,700		18,500		322,000	
	Activity	TPU 2 σ	Activity	TPU 2 σ	Activity	TPU 2 σ	Activity	TPU 2 σ
$U^{233/234}$ (Bq/l)	6.05E-02	7.95E-03	9.50E-03	2.21E-03	9.32E-03	2.10E-03	9.61E-01	4.70E-02
U^{235} (Bq/l)	3.45E-03	2.03E-03	2.57E-04	4.66E-04	-3.52E-05	1.41E-04	2.37E-02	4.64E-03
U^{238} (Bq/l)	1.92E-02	4.30E-03	4.02E-03	1.44E-03	3.84E-03	1.35E-03	2.36E-01	1.61E-02
Pu^{238} (Bq/l)	3.35E-04	1.23E-03	-2.68E-04	4.26E-04	-3.98E-05	4.84E-04	-7.18E-05	1.99E-04
$Pu^{239/240}$ (Bq/l)	-3.71E-04	7.16E-04	-9.80E-05	2.58E-04	-4.55E-05	1.70E-04	-3.07E-05	1.30E-04
Am^{241} (Bq/l)	-5.90E-05	7.75E-04	4.73E-06	5.43E-04	-3.19E-05	5.33E-04	-2.74E-04	5.28E-04
Sr^{90} (Bq/l)	5.83E-03	7.41E-02	4.85E-02	4.85E-02	4.39E-03	4.22E-02	2.94E-02	6.87E-02
TPU 2 σ = total propagated uncertainty at 2-sigma (95% confidence interval)								
NA: The analytical parameter is not required.								
NS: Not Sampled								
TKN: Total Kjeldahl Nitrogen								
TDS: Total Dissolved Solids								
Bq/l: Becquerel per liter								
"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply								

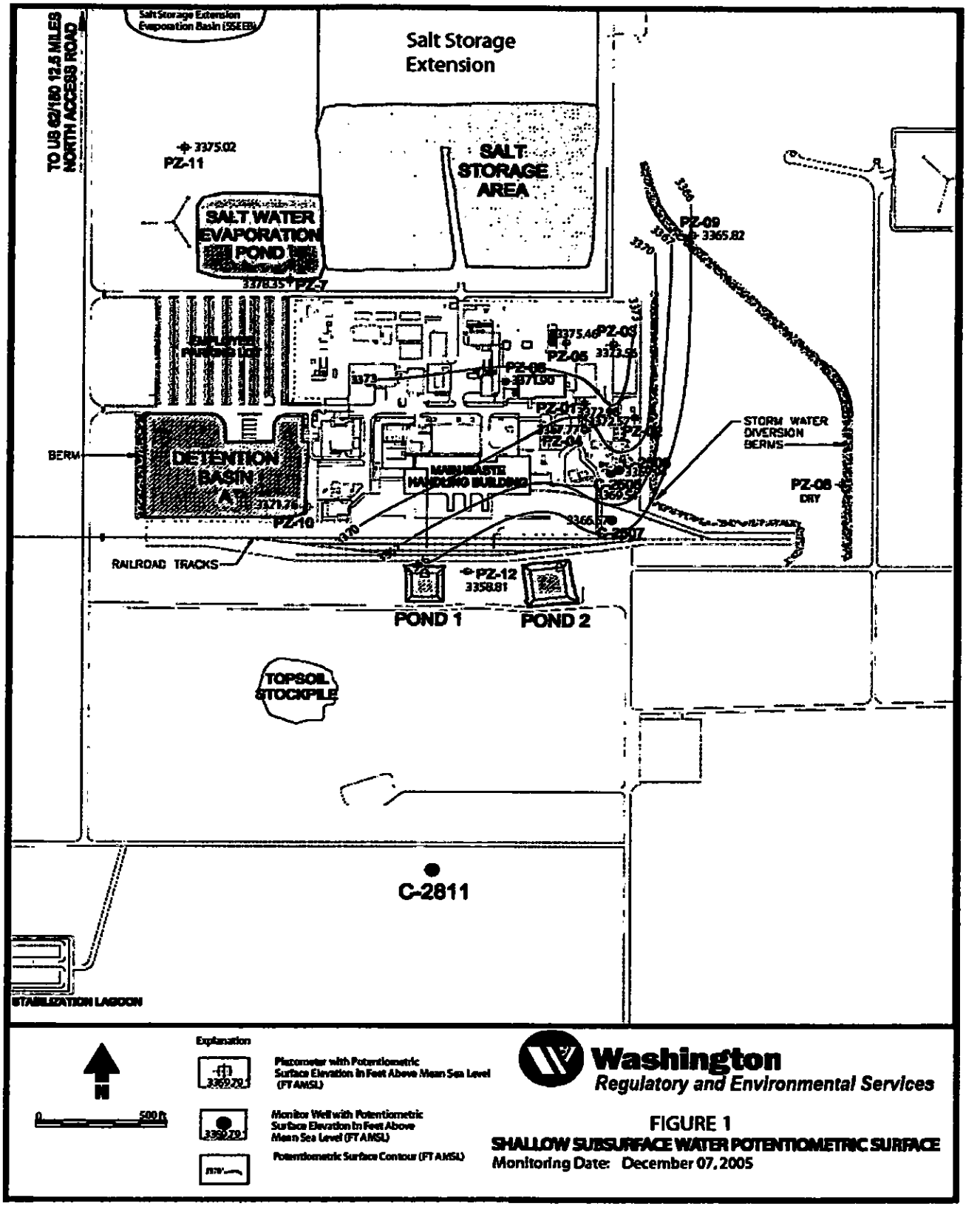
Table 2: Infiltration Control Evaporation Ponds Annual Analytical Results							
Evaporation Pond	Chloride mg/l	Nitrate-N mg/l	Sulfate mg/l	TDS mg/l	Selenium mg/l	Chromium mg/l	Water Depth (ft)/Volume (gallons)
Salt Pile Evaporation Pond	50,500	0.226	478	67,000	< 0.0100	< 0.0100	1.00/1,032,004
Salt Storage Extension Evaporation Basin	223,000	2.83	8,330	339,000	< 0.0100	< 0.0100	7.30/3,717,486
Pond 1	22.4	1.58	9.57	107	< 0.0100	< 0.0100	3.80/456,948
Pond 2	38.2	1.00	2.50	378	< 0.0100	< 0.0100	5.40/1,581,525
Pond A	150	1.00	0.500	115	< 0.0100	< 0.0100	4.20/4,532,281
Bold: Concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply							

Table 3
SUMMARY OF SHALLOW SUBSURFACE WATER LEVELS, FIELD PARAMETERS, AND ANALYTICAL RESULTS

	Water Level Monitoring (Ft AMSL)		Field Parameters			General Chemistry Parameters					Trace Metals	
Monitoring Site	06/21/05	12/07/05	pH (SU)	Temp. (^{0}C)	Electrical Conductivity @25 ^{0}C (µS/cm)	Sample Date	Nitrate (mg/l)	Sulfate (mg/l)	Chloride (mg/l)	TDS (mg/l)	Selenium (mg/l)	Chromium (mg/l)
PZ-1	3,372.40	3,372.98	6.36	20.5	96,800	10/11/05	2.59	**1,950**	**54,900**	**74,800**	0.0430	<0.01
PZ-2	3,371.70	3,372.57	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
PZ-3	3,372.64	3,373.56	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
PZ-4	3,367.17	3,367.77	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
PZ-5	NA	NA	NA	NA	NA	10/11/05	4.58	**1,480**	**26,800**	**32,400**	**0.0640**	<0.01
PZ-6	3,371.61	3,371.90	6.15	20.9	139,300	10/11/05	<20.0	**2,850**	**83,800**	**106,000**	0.0210	<0.01
PZ-7	3,377.95	3,378.35	6.39	21.3	97,100	10/10/05	6.37	**2,770**	**61,000**	**88,000**	0.0470	<0.01
PZ-8	Dry	Dry	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
PZ-9	3,366.17	3,365.82	6.14	17.8	132,400	10/11/05	<20.0	**3,930**	**85,500**	**107,000**	0.0220	<0.01
PZ-10	3,372.12	3,371.76	7.09	21.5	2,228	10/10/05	3.34	515	**318**	**1,720**	0.0150	<0.01
PZ-11	3,374.66	3,375.02	6.32	21.1	128,200	10/10/05	<20.0	**2,950**	**84,300**	**129,000**	0.0130	<0.01
PZ-12	3,358.69	3,358.81	6.84	20.9	9,970	10/10/05	**426**	**805**	**3,790**	**7,740**	0.0200	<0.01
C-2811	3,342.70	3,344.12	7.12	20.7	6,090	10/10/05	7.48	584	**2,250**	**4,410**	0.0340	<0.01
C-2505	3,369.26	3,369.54	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
C-2506	3,369.66	3,369.94	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
C-2507	3,366.41	3,366.57	6.78	17.4	4,730	10/11/05	6.13	**920**	**1,630**	**3,240**	0.0470	<0.01
MQSP-6a	3,196.83[1]	3,196.73[2]	7.22	22.1	3,930	4/20/05	5.98	**1,920**	**432**	**3,700**	**0.0570**	<0.025

Explanation: [1] Water Level Measurement Taken on 6/20/05
[2] Water Level Measurement Taken on 12/05/05
NS: Not Sampled as per permit conditions
"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply

TOC
~~3365~~
3363.80


TO US 62/180 12.5 MILES
NORTH ACCESS ROAD
Salt Storage Extension Evaporation Basin (SSEEB)
Salt Storage Extension
SALT STORAGE AREA
PZ-11
3375.02
SALT WATER EVAPORATION POND
3378.35
PZ-7
PZ-09
3365.82
PZ-03
3375.46
PZ-05
3373.55
PZ-06
3371.00
PZ-01
PZ-04
PZ-02
STORM WATER DIVERSION BERMS
BERM
DETENTION BASIN A
3371.76
PZ-10
MAIN WASTE HANDLING BUILDING
PZ-08
DRY
C-2806
C-2807
RAILROAD TRACKS
PZ-12
3358.81
POND 1
POND 2
TOPSOIL STOCKPILE
C-2811
STABILIZATION LAGOON
N
0
500 ft
Explanation
Piezometer with Potentiometric Surface Elevation in Feet Above Mean Sea Level (FT AMSL)
Monitor Well with Potentiometric Surface Elevation in Feet Above Mean Sea Level (FT AMSL)
Potentiometric Surface Contour (FT AMSL)
Washington
Regulatory and Environmental Services
FIGURE 1
SHALLOW SUBSURFACE WATER POTENTIOMETRIC SURFACE
Monitoring Date: December 07, 2005

Attachment 1

Laboratory Data Summary Sheets for the Sewage Lagoon System and the H-19 Evaporation Pond

COVER PAGE - CLASSICALS ANALYSES DATA PACKAGE

Lab Name: TraceAnalysis, Inc.

SDG No.: 5112911

Program: Envir. Monit.-Sewage (DP-831)

WIPP Sample No.	Lab Sample ID.
EC-SWL-20051128.1.16	T78950
EC-SWL-20051128.2.16	T78951
EC-SWL-20051128.3.16	T78952
EC-SWL-20051128.4.16	T78953
EC-SWL-20051128.5.16	T78954
EC-SWL-20051128.6.16	T78955
EC-SWL-20051128.7.16	T78956
EC-SWL-20051128.8.16	T78957
EC-SWL-20051128.9.16	T78958

Comments: Narrative Report is attached. **Yes** X **No** _____

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the Narrative Report. Release of data contained in this hardcopy data package (and in the data submitted on magnetic media, if data is submitted on magnetic media), has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Michael Abel

Date: 1/5/06

Name: Blair Leftwich

Title: Managing Director

Forms by ChemSW™ (707)864-0845;p/m11092;v5.2;11/1/97

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
EC-SWL-20051128.1.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 5112911

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 11/29/06

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T78950	7727-37-9	Nitrate (as NO3)	1.00	U	12/5/2005	E 300.0	0.200

Comments:
Ran out of hold time due to lab error.

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
EC-SWL-20051128.2.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 5112911

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 11/29/05

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T78951		TKN	46.2		12/16/2005	E 351.3	4.0

Comments:
Filtrate colored possibly due to particles passing through the filter.

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
EC-SWL-20051128.3.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 5112911

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 11/29/05

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T78952		Total Dissolved Solids (TDS)	472		12/6/2005	SM 2540C	10

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
EC-SWL-20051128.5.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 5112911

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 11/29/05

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T78954		Total Dissolved Solids (TDS)	10700		12/6/2005	SM 2540C	10

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
EC-SWL-20051128.6.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 5112911

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 11/29/05

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T78955		Total Dissolved Solids (TDS)	18500		12/6/2005	SM 2540C	10

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
EC-SWL-20051128.8.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 5112911

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 11/29/05

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T78957		Total Dissolved Solids (TDS)	322000		12/6/2005	SM 2540C	10

Comments:

MK 1-20-06
Narrative Entered by Date

MWhitaford 1-20-06
Approved by Date

SECTION 3

Case Narrative

SDG: **2005-600** Client: **Environmental Monitoring**

SAMPLE ID			Chain of	Sample	Matrix	Collection		Date
Lab	Client		Custody #	Description		Date	Time	Received
C1160	EC-	SWL-20051128-10.16	6188	Pond 1A	Sewage Lagoon	11/28/05	9:10	12/28/05
C1161	EC-	SWL-20051128-11.16	6188	Pond A	Sewage Lagoon	11/28/05	9:45	12/28/05
C1162	EC-	SWL-20051128-12.16	6188	Pond B	Sewage Lagoon	11/28/05	9:59	12/28/05
C1163	EC-	SWL-20051128-13.16	6188	Pond C	Sewage Lagoon	11/28/05	10:18	12/28/05
C1164	EC-	SWL-20051128-14.16	6188	Pond 1A	Sewage Lagoon	11/28/05	9:10	12/28/05
C1165	EC-	SWL-20051128-15.16	6188	H-19	Sewage Lagoon	11/28/05	11:00	12/28/05
C1166	EC-	SWL-20051128-16.16	6188	Blank	Sewage Lagoon	11/28/05	11:15	12/28/05

Data presented herein is validated and verified in compliance with Management Control Procedures WP 12-RL3002, Data Validation and Verification and WP 12-RL3003,"Data Reduction and Reporting".

Procedure Number	Revision
WP 12-RL3002	5
WP 12-RL3003	5

Sample Prep Summary

All sample preparation performed in accordance with WP 12-RL1010, "Sample Preparation".

Procedure Number	Revision
WP 12-RL1010	6

Measuring Instrumentation

Alpha Spectrometers

System Name	Instrument ID	Procedure Number	Revision	Used for these samples
Canberra Alpha Analyst	ALP-001	WP 12-RL1015	9	YES
Canberra Alpha Analyst	ALP-002	WP 12-RL1002	4	NO

Gas Proportional Counters

System Name	Instrument ID	Procedure Number	Revision	Used for these samples
Tennelec LB 4100	GAB-002	WP 12-RL1340	7	YES
Tennelec Series 5	GAB-003	WP 12-RL1016	5	NO

Gamma Spectrometers

System Name	Instrument ID	Procedure Number	Revision	Used for these samples
Canberra	GAM-001-1	WP 12-RL1332	4	NO
Canberra	GAM-001-2	WP 12-RL1332	4	NO
Canberra	GAM-001-3	WP 12-RL1332	4	NO
Canberra	GAM-002-1	WP 12-RL1332	4	YES
Canberra	GAM-002-2	WP 12-RL1332	4	YES

System Name	Instrument ID	Procedure Number	Revision	Used for these samples
Packard LSC	LSC-002	WP 12-RL1313	5	NO

0003

COPY

MK 1-20-06
Data Input by Date

Matthew Whitford 1-20-06
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: 2005-600
Batch: SP06-1-1
Client: Environmental Monitoring
Lab Id: C1160
Client Id: EC- SWL-20051128-10.16
Matrix: Sewage Lagoon
Collect Date: 11/28/2005
Collect Time: 9:10

* = SP06-1-8
** = SP06-1-8rect

ISOTOPE	Activity	TPU 2 s	TPU 1 s	MDC	Units	Qualifier
$^{233/234}U$ *	6.23E-02	6.05E-03	3.09E-03	1.47E-03	Bq/L	=
^{235}U *	1.89E-03	1.11E-03	5.65E-04	6.34E-04	Bq/L	=
^{238}U *	2.72E-02	3.83E-03	1.95E-03	9.71E-04	Bq/L	=
^{238}Pu	3.35E-04	1.23E-03	6.30E-04	1.05E-03	Bq/L	U
$^{239/240}Pu$	-3.71E-04	7.16E-04	3.65E-04	1.08E-03	Bq/L	U
^{241}Am	-5.90E-05	7.75E-04	3.95E-04	6.77E-04	Bq/L	U
^{90}Sr **	5.83E-03	7.41E-02	3.78E-02	7.61E-03	Bq/L	U
^{40}K	2.11E+00	3.11E+00	1.59E+00	3.77E+00	Bq/L	U
^{60}Co	-1.79E-01	3.30E-01	1.68E-01	3.49E-01	Bq/L	U
^{137}Cs	1.09E-02	2.23E-01	1.14E-01	2.65E-01	Bq/L	U

ISOTOPE	TPU 2 s	/	1.96	TPU 1 s
^{40}K	3.11E+00	/	1.96	1.59E+00
^{60}Co	3.30E-01	/	1.96	1.68E-01
^{137}Cs	2.23E-01	/	1.96	1.14E-01

COPY

1-20-06
Data Input by Date

1-20-06
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: 2005-600
Batch: SP06-1-1
Client: Environmental Monitoring
Lab Id: C1161
Client Id: EC- SWL-20051128-11.16
Matrix: Sewage Lagoon
Collect Date: 11/28/2005
Collect Time: 9:45

*= SP06-1-8
** = SP06-1-8rect

ISOTOPE	Activity	TPU 2 s	TPU 1.6	MDC	Units	Qualifier
$^{233/234}U$ *	9.01E-03	2.04E-03	1.04E-03	1.43E-03	Bq/L	=
^{235}U *	2.21E-04	4.39E-04	2.24E-04	5.86E-04	Bq/L	U
^{238}U *	3.29E-03	1.24E-03	6.30E-04	9.32E-04	Bq/L	=
^{238}Pu	-7.23E-05	3.89E-04	1.99E-04	4.09E-04	Bq/L	U
$^{239/240}Pu$	1.02E-04	2.62E-04	1.34E-04	4.46E-04	Bq/L	U
^{241}Am	3.40E-04	6.41E-04	3.27E-04	4.91E-04	Bq/L	U
^{90}Sr **	1.81E-02	5.12E-02	2.61E-02	5.24E-03	Bq/L	U
^{40}K	9.02E+00	4.24E+00	2.16E+00	6.11E+00	Bq/L	=
^{60}Co	1.18E-01	5.08E-01	2.59E-01	5.76E-01	Bq/L	U
^{137}Cs	-1.94E-01	5.32E-01	2.71E-01	5.83E-01	Bq/L	U

ISOTOPE	TPU 2 s	/	1.96	TPU 1 s
^{40}K	4.24E+00	/	1.96	2.16E+00
^{60}Co	5.08E-01	/	1.96	2.59E-01
^{137}Cs	5.32E-01	/	1.96	2.71E-01

COPY

MK 1-20-06
Data Input by Date

N Whitford 1-20-06
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: 2005-600
Batch: SP06-1-1
Client: Environmental Monitoring
Lab Id: C1162
Client Id: EC- SWL-20051128-12.16
Matrix: Sewage Lagoon
Collect Date: 11/28/2005
Collect Time: 9;59

* = SP06-1-8
** = SP06-1-8rect

ISOTOPE	Activity	TPU 2 s	TPU 1 s	MDC	Units	Qualifier
$^{233/234}U$ *	1.03E-02	2.24E-03	1.14E-03	1.44E-03	Bq/L	=
^{235}U *	2.45E-04	4.44E-04	2.27E-04	5.99E-04	Bq/L	U
^{238}U *	4.79E-03	1.52E-03	7.78E-04	9.43E-04	Bq/L	=
^{238}Pu	-2.68E-04	4.26E-04	2.18E-04	5.53E-04	Bq/L	U
$^{239/240}Pu$	-9.80E-05	2.58E-04	1.31E-04	5.89E-04	Bq/L	U
^{241}Am	4.73E-06	5.43E-04	2.77E-04	5.38E-04	Bq/L	U
^{90}Sr **	2.25E-02	4.85E-02	2.47E-02	4.94E-03	Bq/L	U
^{40}K	3.75E+01	6.92E+00	3.53E+00	3.02E+00	Bq/L	=
^{60}Co	2.09E-01	2.58E-01	1.32E-01	3.17E-01	Bq/L	U
^{137}Cs	-9.27E-02	2.35E-01	1.20E-01	2.67E-01	Bq/L	U

ISOTOPE	TPU 2 s	/	1.96 =	TPU 1 s
^{40}K	6.92E+00	/	1.96	3.53E+00
^{60}Co	2.58E-01	/	1.96	1.32E-01
^{137}Cs	2.35E-01	/	1.96	1.20E-01

MK 1-20-06
Data Input by Date

JWWhitford 1-20-06
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: 2005-600
Batch: SP06-1-1
Client: Environmental Monitoring
Lab Id: C1163
Client Id: EC- SWL-20051128-13.16
Matrix: Sewage Lagoon
Collect Date: 11/28/2005
Collect Time: 10:18

* = SP06-1-8
** = SP06-1-8rect

ISOTOPE	Activity	TPU 2 s	TPU 1 s	MDC	Units	Qualifier
$^{233/234}U$ *	7.13E-03	1.69E-03	8.63E-04	1.39E-03	Bq/L	=
^{235}U *	3.44E-04	4.40E-04	2.24E-04	5.35E-04	Bq/L	U
^{238}U *	3.37E-03	1.16E-03	5.94E-04	8.91E-04	Bq/L	=
^{238}Pu	-3.98E-05	4.84E-04	2.47E-04	5.22E-04	Bq/L	U
$^{239/240}Pu$	-4.55E-05	1.70E-04	8.67E-05	5.58E-04	Bq/L	U
^{241}Am	-3.19E-05	5.33E-04	2.72E-04	5.19E-04	Bq/L	U
^{90}Sr **	4.39E-03	4.22E-02	2.15E-02	4.15E-03	Bq/L	U
^{40}K	2.16E+01	5.62E+00	2.87E+00	6.28E+00	Bq/L	=
^{60}Co	4.32E-01	4.49E-01	2.29E-01	5.21E-01	Bq/L	U
^{137}Cs	-2.45E-01	4.32E-01	2.20E-01	5.54E-01	Bq/L	U

ISOTOPE	TPU 2 s	/	1.96 =	TPU 1 s
^{40}K	5.62E+00	/	1.96	2.87E+00
^{60}Co	4.49E-01	/	1.96	2.29E-01
^{137}Cs	4.32E-01	/	1.96	2.20E-01

COPY

MK 1-20-06
Data Input by Date

TN Whitford 1-20-06
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: **2005-600**
Batch: **SP06-1-1**
Client: **Environmental Monitoring**
Lab Id: **C1164**
Client Id: **EC- SWL-20051128-14.16**
Matrix: **Sewage Lagoon**
Collect Date: **11/28/2005**
Collect Time: **9:10**

* = SP06-1-8
** = SP06-1-8rect

ISOTOPE	Activity	TPU 2 s	TPU 1 s	MDC	Units	Qualifier
$^{233/234}U$ *	5.41E-02	5.67E-03	2.89E-03	1.48E-03	Bq/L	=
^{235}U *	2.97E-03	1.39E-03	7.12E-04	6.49E-04	Bq/L	=
^{238}U *	2.52E-02	3.74E-03	1.91E-03	9.83E-04	Bq/L	=
^{238}Pu	-2.09E-04	3.95E-04	2.02E-04	6.02E-04	Bq/L	U
$^{239/240}Pu$	-8.35E-05	2.50E-04	1.27E-04	6.39E-04	Bq/L	U
^{241}Am	1.25E-04	6.98E-04	3.56E-04	6.87E-04	Bq/L	U
^{90}Sr **	-1.04E-02	5.49E-02	2.80E-02	5.75E-03	Bq/L	U
^{40}K	3.47E+00	3.32E+00	1.69E+00	4.10E+00	Bq/L	U
^{60}Co	-1.25E-01	2.81E-01	1.43E-01	3.01E-01	Bq/L	U
^{137}Cs	1.93E-01	2.19E-01	1.12E-01	2.70E-01	Bq/L	U

ISOTOPE	TPU 2 s	/	1.96	TPU 1 s
^{40}K	3.32E+00	/	1.96	1.69E+00
^{60}Co	2.81E-01	/	1.96	1.43E-01
^{137}Cs	2.19E-01	/	1.96	1.12E-01

COPY

MK 1-20-06
Data Input by Date

NWhiteford 1-20-06
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: **2005-600**
Batch: **SP06-1-1**
Client: **Environmental Monitoring**
Lab Id: **C1165**
Client Id: **EC- SWL-20051128-15.16**
Matrix: **Sewage Lagoon**
Collect Date: **11/28/2005**
Collect Time: **11:00**

* = SP06-1-8
** = SP06-1-8rect

ISOTOPE	Activity	TPU 2 s	TPU 1 s	MDC	Units	Qualifier
$^{233/234}U$ *	9.61E-01	4.70E-02	2.40E-02	1.61E-03	Bq/L	=
^{235}U *	2.37E-02	4.64E-03	2.37E-03	8.10E-04	Bq/L	=
^{238}U *	2.36E-01	1.61E-02	8.19E-03	1.11E-03	Bq/L	=
^{238}Pu	-7.18E-05	1.99E-04	1.02E-04	4.63E-04	Bq/L	U
$^{239/240}Pu$	-3.07E-05	1.30E-04	6.64E-05	5.00E-04	Bq/L	U
^{241}Am	-2.74E-04	5.28E-04	2.70E-04	8.78E-04	Bq/L	U
^{90}Sr **	2.94E-02	6.87E-02	3.50E-02	7.07E-03	Bq/L	U
^{40}K	6.12E+02	9.74E+01	4.97E+01	7.22E+00	Bq/L	=
^{60}Co	-1.06E-01	6.45E-01	3.29E-01	7.12E-01	Bq/L	U
^{137}Cs	-6.44E-01	6.29E-01	3.21E-01	6.58E-01	Bq/L	U

ISOTOPE	TPU 2 s	/	1.96	TPU 1 s
^{40}K	9.74E+01	/	1.96	4.97E+01
^{60}Co	6.45E-01	/	1.96	3.29E-01
^{137}Cs	6.29E-01	/	1.96	3.21E-01

COPY

CMK 1-20-06
Data Input by Date

MWhiteford 1-20-06
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: **2005-600**
Batch: **SP06-1-1**
Client: **Environmental Monitoring**
Lab Id: **C1166**
Client Id: **EC- SWL-20051128-16.16**
Matrix: **Sewage Lagoon**
Collect Date: **11/28/2005**
Collect Time: **11:15**

*= SP06-1-8
** = SP06-1-8rect

ISOTOPE	Activity	TPU 2 s	TPU 1 s	MDC	Units	Qualifier
$^{233/234}U$ *	9.59E-04	6.46E-04	3.29E-04	1.41E-03	Bq/L	U
^{235}U *	-1.85E-05	9.76E-05	4.98E-05	5.61E-04	Bq/L	U
^{238}U *	3.95E-04	4.42E-04	2.26E-04	9.12E-04	Bq/L	U
^{238}Pu	-3.07E-04	7.07E-04	3.61E-04	1.22E-03	Bq/L	U
$^{239/240}Pu$	-1.31E-04	4.62E-04	2.36E-04	1.26E-03	Bq/L	U
^{241}Am	4.07E-05	3.65E-04	1.86E-04	5.47E-04	Bq/L	U
^{90}Sr **	4.22E-03	3.97E-02	2.03E-02	3.86E-03	Bq/L	U
^{40}K	1.65E+00	1.42E+00	7.24E-01	2.17E+00	Bq/L	U
^{60}Co	1.96E-01	2.58E-01	1.32E-01	3.16E-01	Bq/L	U
^{137}Cs	1.92E-01	2.14E-01	1.09E-01	2.65E-01	Bq/L	U

ISOTOPE	TPU 2 s	/ 1	1.96 =	TPU 1 s
^{40}K	1.42E+00	/	1.96	7.24E-01
^{60}Co	2.58E-01	/	1.96	1.32E-01
^{137}Cs	2.14E-01	/	1.96	1.09E-01

COPY

UC13

Attachment 2

Laboratory Data Summary Sheets for the Infiltration Control Evaporation Ponds

COVER PAGE - CLASSICALS ANALYSES DATA PACKAGE

Lab Name: TraceAnalysis, Inc.

SDG No.: 5110107

Program: ENV. MONIT.-INFILTRATION CONTROL DP-831

WIPP Sample No.	Lab Sample ID.
WR-SW6-20051031-1.18	T77194
WR-SW6-20051031-2.18	T77195
WR-SW6-20051031-4-18	T77197
WR-SW6-20051031-5-18	T77198
WR-SW6-20051031-7.18	T77200
WR-SW6-20051031-8.18	T77201
WR-SW6-20051031-10.18	T77203
WR-SW6-20051031-11.18	T77204
WR-SW6-20051031-13.18	T77206
WR-SW6-20051031-14.18	T77207
WR-SW6-20051031-16.18	T77209
WR-SW6-20051031-17.18	T77210

Comments: Narrative Report is attached. Yes X No

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the Narrative Report. Release of data contained in this hardcopy data package (and in the data submitted on magnetic media, if data is submitted on magnetic media), has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Michael Leftwich
Date: 1/5/06

Name: Blair Leftwich
Title: Managing Director

Forms by ChemSW™ (707)864-0845;p/n11092;v5.2;11/1/97

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
WR-SW6-20051031-1.18

Lab Name: TraceAnalysis, Inc.

SDG No.: 5110107

Matrix (aqueous/solid/leachate): aqueous

Receipt date 11/01/05

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T77194	7782-50-5	Chloride	223000		11/1/2005	300.0	0.500
T77194	7727-37-9	Nitrate (as NO3)	2.83		11/4/2005	SM 4500-NO3 E	0.100
T77194		Sulfate	8330		11/1/2005	300.0	0.500
T77194		Total Dissolved Solids (TDS)	339000		11/3/2005	SM 2540C	10

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

Lab Name: TraceAnalysis, Inc.

WIPP Sample No.
WR-SW6-20051031-2.18

SDG No.: 5110107

Matrix (aqueous/solid/leachate): aqueous

Receipt date 11/01/05

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T77195		Total Kjeldahl Nitrogen (TKN)	5.32		11/3/2005	E 351.3	4.00

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

Lab Name: TraceAnalysis, Inc.

WIPP Sample No.
WR-SW6-20051031-4.18

SDG No.: 5110107

Matrix (aqueous/solid/leachate): aqueous

Receipt date 11/01/05

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T77197	7782-50-5	Chloride	50500		11/3/2005	300.0	0.500
T77197	7727-37-9	Nitrate (as NO3)	0.226		11/4/2005	SM 4500-NO3 E	0.100
T77197		Sulfate	478		11/3/2005	300.0	0.500
T77197		Total Dissolved Solids (TDS)	67000		11/3/2005	SM 2540C	10

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
WR-SW6-20051031-5.18

Lab Name: TraceAnalysis, Inc.

SDG No.: 5110107

Matrix (aqueous/solid/leachate): aqueous

Receipt date 11/01/05

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T77198		Total Kjeldahl Nitrogen (TKN)	5.88		11/3/2005	E 351.3	4.00

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
WR-SW6-20051031-7.18

Lab Name: TraceAnalysis, Inc.

SDG No.: 5110107

Matrix (aqueous/solid/leachate): aqueous

Receipt date 11/01/05

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T77200	7782-50-5	Chloride	50500		11/3/2005	300.0	0.500
T77200	7727-37-9	Nitrate (as NO3)	1.00	U	11/1/2005	300.0	0.200
T77200		Sulfate	0.500	U	11/1/2005	300.0	0.500
T77200		Total Dissolved Solids (TDS)	115		11/3/2005	SM 2540C	10

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
WR-SW6-20051031-8.18

Lab Name: TraceAnalysis, Inc.

SDG No.: 5110107

Matrix (aqueous/solid/leachate): aqueous

Receipt date 11/01/05

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T77201		Total Kjeldahl Nitrogen (TKN)	4.00	U	11/3/2005	E 351.3	4.00

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
WR-SW6-20051031-10.18

Lab Name: TraceAnalysis, Inc.

SDG No.: 5110107

Matrix (aqueous/solid/leachate): aqueous

Receipt date 11/01/05

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T77203	7782-50-5	Chloride	22.4		11/1/2005	300.0	0.500
T77203	7727-37-9	Nitrate (as NO3)	1.58		11/1/2005	300.0	0.200
T77203		Sulfate	9.57		11/1/2005	300.0	0.500
T77203		Total Dissolved Solids (TDS)	107		11/3/2005	SM 2540C	10

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
WR-SW6-20051031-11.18

Lab Name: TraceAnalysis, Inc.

SDG No.: 5110107

Matrix (aqueous/solid/leachate): aqueous

Receipt date 11/01/05

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T77204		Total Kjeldahl Nitrogen (TKN)	7.28	U	11/3/2005	E 351.3	4.00

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
WR-SW6-20051031-13.18

Lab Name: TraceAnalysis, Inc.

SDG No.: 5110107

Matrix (aqueous/solid/leachate): aqueous

Receipt date 11/01/05

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T77206	7782-50-5	Chloride	38.2		11/1/2005	300.0	0.500
T77206	7727-37-9	Nitrate (as NO3)	1.00	U	11/1/2005	300.0	0.200
T77206		Sulfate	2.50	U	11/1/2005	300.0	0.500
T77206		Total Dissolved Solids (TDS)	378		11/3/2005	SM 2540C	10

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
WR-SW6-20051031-14.18

Lab Name: TraceAnalysis, Inc.

SDG No.: 5110107

Matrix (aqueous/solid/leachate): aqueous

Receipt date 11/01/05

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T77207		Total Kjeldahl Nitrogen (TKN)	4.00	U	11/3/2005	E 351.3	4.00

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
WR-SW6-20051031-16.18

Lab Name: TraceAnalysis, Inc.

SDG No.: 5110107

Matrix (aqueous/solid/leachate): aqueous

Receipt date 11/01/05

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T77209	7782-50-5	Chloride	223000		11/1/2005	300.0	0.500
T77209	7727-37-9	Nitrate (as NO3)	1.68		11/4/2005	SM 4500-NO3 E	0.100
T77209		Sulfate	7340		11/1/2005	300.0	0.500
T77209		Total Dissolved Solids (TDS)	349000		11/3/2005	SM 2540C	10

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
WR-SW6-20051031-17.18

Lab Name: TraceAnalysis, Inc.

SDG No.: 5110107

Matrix (aqueous/solid/leachate): aqueous

Receipt date 11/01/05

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T77210		Total Kjeldahl Nitrogen (TKN)	7.00		11/3/2005	E 351.3	4.00

Comments:

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: TraceAnalysis, Inc.

SDG No.: 5110107

WIPP Sample No.	Lab Sample ID.
WR-SW6-20051031-3.18	T77196
WR-SW6-20051031-6.18	T77199
WR-SW6-20051031-9.18	T77202
WR-SW6-20051031-12.18	T77205
WR-SW6-20051031-15.18	T77208
WR-SW6-20051031-18.18	T77211

Were ICP interelement corrections applied? Yes/No No

Were ICP backgrounds corrections applied? Yes/No Yes

If yes-were raw data generated before application of background corrections? Yes/No Yes

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: _____ Name: Blair Leftwich

Date: 1/3/06 Title: Managing Director

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WR-SW6-20051031-3.18

Lab Name: TraceAnalysis, Inc.

SDG No.: 5110107

Matrix (soil/water): Water

Lab Sample ID: T77196

Date Received: 11/01/05

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Analysis Date	Q	RL	M
7440-47-3	Chromium	0.0100	U	11/04/05		0.0100	P
7782-49-2	Selenium	0.0100	U	11/04/05		0.0100	P

Comments:

FORM I - IN

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WR-SW6-20051031-6.18

Lab Name: TraceAnalysis, Inc.

SDG No.: ###

Matrix (soil/water): Water

Lab Sample ID: T77199

Date Received: 11/01/05

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Analysis Date	Q	RL	M
7440-47-3	Chromium	0.0100	U	11/04/05		0.0100	P
7782-49-2	Selenium	0.0100	U	11/04/05		0.0100	P

Comments:

FORM I - IN

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WR-SW6-20051031-9.18

Lab Name: TraceAnalysis, Inc.

SDG No.: ###

Matrix (soil/water): Water

Lab Sample ID: T77202

Date Received: 11/01/05

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Analysis Date	Q	RL	M
7440-47-3	Chromium	0.0100	U	11/04/05		0.0100	P
7782-49-2	Selenium	0.0100	U	11/04/05		0.0100	P

Comments:

FORM I - IN

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WR-SW6-20051031-12.18

Lab Name: TraceAnalysis, Inc.

SDG No.: ###

Matrix (soil/water): Water

Lab Sample ID: T77205

Date Received: 11/01/05

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Analysis Date	Q	RL	M
7440-47-3	Chromium	0.0100	U	11/04/05		0.0100	P
7782-49-2	Selenium	0.0100	U	11/04/05		0.0100	P

Comments:

FORM I - IN

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WR-SW6-20051031-15.18

Lab Name: TraceAnalysis, Inc.

SDG No.: ###

Matrix (soil/water): Water

Lab Sample ID: T77208

Date Received: 11/01/05

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Analysis Date	Q	RL	M
7440-47-3	Chromium	0.0100	U	11/04/05		0.0100	P
7782-49-2	Selenium	0.0100	U	11/04/05		0.0100	P

Comments:

FORM I - IN

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WR-SW6-20051031-18.18

Lab Name: TraceAnalysis, Inc.

SDG No.: ###

Matrix (soil/water): Water

Lab Sample ID: T77211

Date Received: 11/01/05

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Analysis Date	Q	RL	M
7440-47-3	Chromium	0.0100	U	11/04/05		0.0100	P
7782-49-2	Selenium	0.0100	U	11/04/05		0.0100	P

Comments:

FORM I - IN

Forms by ChemSW(707)864-0845;p/n11014;v3.21;1/1/98
ILM02.0

5/10/05

CHAIN-OF-CUSTODY RECORD

C of C Control № 6182

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

RFA Control № 6182

SECTION III Page 3

SAMPLING PROGRAM ENV. Mon. T. - Infiltration Controls DP-831 LAB DESTINATION TRACE ANALYSIS

SAMPLE TEAM MEMBERS R. Simmons, R. Stockwell (ENV. Techs) CARRIER/WAYBILL NO. HANDCARRY

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
-SWL-2005 1031- 1.18	EXTension EVAP. BASIN	10-31-05 0830	WATER Runoff	1 LITER PLASTIC	good 77194	
2.18	↓	↓	↓	500 ml ↓	95	
3.18	↓	↓	↓	500 ml ↓	96	
4.18	SALT P.Le EVAP.	0910	↓	1 LITER PLASTIC	97	
5.18	↓	↓	↓	500 ml ↓	98	
6.18	↓	↓	↓	500 ml ↓	99	
7.18	EVAP BASIN A	0945	↓	1 LITER PLASTIC	200	
8.18	↓	↓	↓	500 ml ↓	01	
9.18	↓	↓	↓	500 ml ↓	02	
10.18	POND 1	0935	↓	1 LITER PLASTIC	03	
11.18	↓	↓	↓	500 ml ↓	04	
12.18	↓	↓	↓	500 ml ↓	05	
13.18	POND 2	0925	↓	1 LITER PLASTIC	06	
		n/a 10-31-05 1125				

Special Instructions: n/a

Possible Sample Hazards: n/a

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: [signature] WTS 11-1-05 1120
   Received By: [signature] 11-1-05 11:20
2. Relinquished By: _____
   Received By: _____ JV [signature]
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: _____

WP 02-EM3001 WHITE - Original to accompany samples YELLOW - Field copy PINK - Other NICHOLS PRINTING INC.

03606

5110107

CHAIN-OF-CUSTODY RECORD

C of C Control № 6183

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

RFA Control № 6183

SECTION II Page 4

SAMPLING PROGRAM ENV. MONIT. - INFILTRATION CONTROLS · DP831 LAB DESTINATION TRACE Analysis

SAMPLE TEAM MEMBERS R. Simmons, R. Stockwell (ENV. TECHS) CARRIER/WAYBILL NO. HAND CARRY

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
SWL-20051031-14.18	Pond 2	10-31-05 0925	Water Runoff	500ml Plastic	good 77207	
15.18	↓	0925	↓	↓	08	
16.18	Extension Evap. Basin	0830		1 Liter	09	
17.18	↓	0830		500ml	10	
18.18	Blank	1100	↓	↓	11	

n/a 10-31-05 TWS

Special Instructions: n/a

Possible Sample Hazards: n/a

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: R. Simmons WIS 11-1-05 1120
   Received By: Vicki Hanson 11-1-05 11:20
2. Relinquished By: _____
   Received By: _____
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: _____

WP 02-EM3001 20 Carlsbad WHITE - Original to accompany samples YELLOW - Field copy PINK - Other NICHOLS PRINTING INC.

03607

Attachment 3

Laboratory Data Summary Sheets for WQSP 6a

ANALYTICAL REPORT INDEX

This report contains the result for sixteen miscellaneous samples received on April 20 2005, under SDG 5042026.

The determinations of Total Antimony, Arsenic, Barium, Beryllium, Calcium, Cadmium, Chromium, Iron, Lead, Magnesium, Nickel, Potassium, Selenium, Silver, Thallium, and Vanadium were done by inductively coupled plasma-atomicemission spectromery (ICP-AES) according to the TraceAnalysis Laboratory Standard Operating Procedure SOP-6010B. Mercury was analyzed according to SOP-7470A using an automated cold-vapor atomic absorption spectrometer.

The determination of Volatile and Isobutyl Alcohol were done by GC/MS according to TraceAnalysis Laboratory Standard Operating Procedure SOP-8260B.

The determination of Semivolatiles were done by GC/MS according to TraceAnalysis Laboratory Standard Operating Procedure SOP-8270C.

A "U" qualifier indicates the analyte was not detected.

A "B" qualifier indicates the analyte is above detection but below reporting limits.

TOC was ran by method 415.1.

TOX was ran by STL by method 9020B.

Chloride, Nitrate, and Sulfate ran by IC by method EPA 300.0.

Alkalinity, Density, pH, Conductivity, TDS, and TSS ran by EPA 310.1, ASTM D854-92, 150.1, SM2510B, 160.1 and 160.2.

RELEASE OF THE DATA CONTAINED IN THIS PACKAGE HAS BEEN AUTHORIZED BY THE LABORATORY MANAGER OR THE MANAGER'S DESIGNEE.

Michael Abel 8/2/05
LABORATORY MANAGER: DATE

Brandi Ritchson 8/2/05
PREPARED BY: DATE

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

Lab Name: TraceAnalysis, Inc.

SDG No.: 5042026

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 04/20/05

WIPP Round No. 20

WIPP Well No. 6A

Concentration Units (mg/L or mg/Kg dry weight): mg/L

WIPP Sample No.	Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
WQ6ADLR20N8	T60491		Alkalinity	104		4/25/2005	SM 2320 B	4.0
WQ6ADLR20N8	T60491	7782-50-5	Chloride	432		4/21/2005	300.0	2.0
WQ6ADLR20N8	T60491		Density	1.01		4/20/2005	ASTM D 854-92	N/A
WQ6ADLR20N8	T60491	7727-37-9	Nitrate (as N)	5.98		4/22/2005	353.3	0.10
WQ6ADLR20N8	T60491		pH	7.62		4/20/2005	150.1	4-10
WQ6ADLR20N8	T60491		Conductivity	3970		4/20/2005	SM2510B	
WQ6ADLR20N8	T60491		Sulfate	1920		4/21/2005	300.0	2
WQ6ADLR20N8	T60491		Total Dissolved Solids (TDS)	3700		4/25/2005	160.1	10
WQ6ADLR20N5	T60485		Total Organic Carbon (TOC)	1.00	U	5/2/2005	415.1	1.0
WQ6ADLR20N4	T60483		Total Organic Halogen (TOX)	0.15	U	5/5/2005	5320B/9020B	0.005
WQ6ADLR20N8	T60491		Total Suspended Solids (TSS)	1.00	U	4/26/2005	160.2	1.0

(Density reported in g/mL, pH reported in s.u., Conductivity reported in uMHOs/cm, all other analytes reported in mg/L)
(pH ran as soon as received in laboratory)

Comments:
TOX ran by STL
pH received out of hold time.

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WQ6ADLR20N7

Lab Name: TraceAnalysis, Inc.

SDG No.: 5042026

Matrix (soil/water): Water

Lab Sample ID: T60489

Date Received: 04/20/05

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Analysis Date	Q	RL	M
7440-36-0	Antimony	0.013	U	05/10/05		0.013	P
7440-38-2	Arsenic	0.1	U	05/10/05		0.1	P
7440-39-3	Barium	0.02	U	05/10/05		0.02	P
7440-41-7	Beryllium	0.010	U	05/10/05		0.010	P
7440-43-9	Cadmium	0.010	U	05/10/05		0.010	P
7440-47-3	Chromium	0.025	U	05/10/05		0.025	P
7439-89-6	Iron	0.500	U	05/10/05		0.500	P
7439-92-1	Lead	0.02	U	05/10/05		0.02	P
7439-97-6	Mercury	0.0002	U	04/26/05		0.0002	CV
7440-02-0	Nickel	0.025	U	05/10/05		0.025	P
7782-49-2	Selenium	0.0570		05/10/05		0.025	P
7440-22-4	Silver	0.013	U	05/10/05		0.013	P
7440-28-0	Thallium	0.025	U	05/10/05		0.025	P
7440-62-2	Vanadium	0.05	U	05/10/05		0.05	P

5/12/05

Comments:

FORM I - IN

Attachment 4

Laboratory Data Summary Sheets for Subsurface Shallow Water Wells

Analytical and Quality Control Report

R. Salness
WRES
P.O.Box 2078
Carlsbad, NM 88221-2078

Report Date: October 24, 2005

Work Order: 5101108

Project Name: WIPP/SSWMP
Project Number: WIPP/SSWMP

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
75426	SSWC2811R4N1	water	2005-10-10	08:54	2005-10-11
75427	SSWC2811R4N2	water	2005-10-10	08:54	2005-10-11
75428	SSWPZ12R4N1	water	2005-10-10	09:45	2005-10-11
75429	SSWPZ12R4N2	water	2005-10-10	09:45	2005-10-11
75430	SSWPZ10R4N1	water	2005-10-10	10:40	2005-10-11
75431	SSWPZ10R4N2	water	2005-10-10	10:40	2005-10-11
75432	SSWPZ7R4N1	water	2005-10-10	11:30	2005-10-11
75433	SSWPZ7R4N2	water	2005-10-10	11:30	2005-10-11
75434	SSWPZ11R4N1	water	2005-10-10	12:38	2005-10-11
75435	SSWPZ11R4N2	water	2005-10-10	12:38	2005-10-11
75436	SSWPZ11R4N1EB	water	2005-10-10	12:48	2005-10-11
75437	SSWPZ11R4N2EB	water	2005-10-10	12:48	2005-10-11

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 19 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael Abel

Dr. Blair Leftwich, Director

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.0100		mg/L	1	0.0100

Sample: 75427 - SSWC2811R4N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	21956	Date Analyzed:	2005-10-13	Analyzed By:	RR
Prep Batch:	19232	Sample Preparation:	2005-10-12	Prepared By:	DS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		0.0340		mg/L	1	0.0100

Sample: 75428 - SSWPZ12R4N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	21958	Date Analyzed:	2005-10-12	Analyzed By:	WB
Prep Batch:	19271	Sample Preparation:	2005-10-12	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		3790		mg/L	500	0.500

Sample: 75428 - SSWPZ12R4N1

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	21958	Date Analyzed:	2005-10-12	Analyzed By:	WB
Prep Batch:	19271	Sample Preparation:	2005-10-12	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		426		mg/L	50	0.200

Sample: 75428 - SSWPZ12R4N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	21958	Date Analyzed:	2005-10-12	Analyzed By:	WB
Prep Batch:	19271	Sample Preparation:	2005-10-12	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		805		mg/L	50	0.500

Sample: 75430 - SSWPZ10R4N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	21957	Date Analyzed:	2005-10-12	Analyzed By:	WB
Prep Batch:	19270	Sample Preparation:	2005-10-11	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		515		mg/L	50	0.500

Sample: 75430 - SSWPZ10R4N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	21945	Date Analyzed:	2005-10-13	Analyzed By:	RS
Prep Batch:	19261	Sample Preparation:	2005-10-12	Prepared By:	RS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		1720		mg/L	2	10.00

Sample: 75431 - SSWPZ10R4N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	21956	Date Analyzed:	2005-10-13	Analyzed By:	RR
Prep Batch:	19232	Sample Preparation:	2005-10-12	Prepared By:	DS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.0100		mg/L	1	0.0100

Sample: 75431 - SSWPZ10R4N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	21956	Date Analyzed:	2005-10-13	Analyzed By:	RR
Prep Batch:	19232	Sample Preparation:	2005-10-12	Prepared By:	DS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		0.0150		mg/L	1	0.0100

Sample: 75432 - SSWPZ7R4N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	21958	Date Analyzed:	2005-10-12	Analyzed By:	WB
Prep Batch:	19271	Sample Preparation:	2005-10-12	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		61000		mg/L	10000	0.500

Sample: 75434 - SSWPZ11R4N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	21958	Date Analyzed:	2005-10-12	Analyzed By:	WB
Prep Batch:	19271	Sample Preparation:	2005-10-12	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		84300		mg/L	10000	0.500

Sample: 75434 - SSWPZ11R4N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	21958	Date Analyzed:	2005-10-12	Analyzed By:	WB
Prep Batch:	19271	Sample Preparation:	2005-10-12	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		2950		mg/L	100	0.500

Sample: 75434 - SSWPZ11R4N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	21945	Date Analyzed:	2005-10-13	Analyzed By:	RS
Prep Batch:	19261	Sample Preparation:	2005-10-12	Prepared By:	RS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		129000		mg/L	200	10.00

Sample: 75435 - SSWPZ11R4N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	21956	Date Analyzed:	2005-10-13	Analyzed By:	RR
Prep Batch:	19232	Sample Preparation:	2005-10-12	Prepared By:	DS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.0100		mg/L	1	0.0100

Sample: 75435 - SSWPZ11R4N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	21956	Date Analyzed:	2005-10-13	Analyzed By:	RR
Prep Batch:	19232	Sample Preparation:	2005-10-12	Prepared By:	DS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		0.0130		mg/L	1	0.0100

Sample: 75437 - SSWPZ11R4N2EB

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	21956	Date Analyzed:	2005-10-13	Analyzed By:	RR
Prep Batch:	19232	Sample Preparation:	2005-10-12	Prepared By:	DS

Parameter	Flag	RL Result	Units	Dilution	RL
Total Selenium		<0.0100	mg/L	1	0.0100

Method Blank (1) QC Batch: 21945

Parameter	Flag	MDL Result	Units	RL
Total Dissolved Solids		<5.000	mg/L	10

Method Blank (1) QC Batch: 21956

Parameter	Flag	MDL Result	Units	RL
Total Chromium		<0.000273	mg/L	0.01

Method Blank (1) QC Batch: 21956

Parameter	Flag	MDL Result	Units	RL
Total Selenium		<0.00163	mg/L	0.01

Method Blank (1) QC Batch: 21957

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.0504	mg/L	0.5

Method Blank (1) QC Batch: 21957

Parameter	Flag	MDL Result	Units	RL
Sulfate		<0.450	mg/L	0.5

Method Blank (1) QC Batch: 21958

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.4	12.2	mg/L	1	12.5	<0.0504	99	2	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 21958

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	2.55	2.55	mg/L	1	2.50	<0.00400	102	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 21958

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	12.5	12.6	mg/L	1	12.5	<0.450	100	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 21959

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.1	12.2	mg/L	1	12.5	<0.0504	97	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 21959

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	2.56	2.54	mg/L	1	2.50	<0.00400	102	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 21959

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	12.6	12.7	mg/L	1	12.5	<0.450	101	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 21956 Spiked Sample: 75427

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Chromium	0.0880	0.0890	mg/L	1	0.100	<0.000273	88	1	75 - 122	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 21956 Spiked Sample: 75427

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Selenium	0.454	0.462	mg/L	1	0.500	0.034	84	2	75 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 21957 Spiked Sample: 75462

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	912	917	mg/L	50	12.5	275	102	0	72.6 - 124	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 21957 Spiked Sample: 75462

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	1120	1120	mg/L	50	12.5	477	103	0	72.9 - 128	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 21958 Spiked Sample: 75434

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	212000	212000	mg/L	10000	12.5	84300	102	0	72.6 - 124	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 21958 Spiked Sample: 75434

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	26600	27100	mg/L	10000	2.50	<40.0	106	2	63.5 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 21958 Spiked Sample: 75434

Standard (ICV-1) QC Batch: 21956

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1.00	0.994	99	90 - 110	2005-10-13

Standard (CCV-1) QC Batch: 21956

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		mg/L	1.00	1.00	100	90 - 110	2005-10-13

Standard (CCV-1) QC Batch: 21956

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1.00	0.985	98	90 - 110	2005-10-13

Standard (ICV-1) QC Batch: 21957

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.9	103	90 - 110	2005-10-12

Standard (ICV-1) QC Batch: 21957

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.8	102	90 - 110	2005-10-12

Standard (CCV-1) QC Batch: 21957

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.9	103	90 - 110	2005-10-12

Standard (CCV-1) QC Batch: 21957

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	13.0	104	90 - 110	2005-10-12

Standard (ICV-1) QC Batch: 21959

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.52	101	90 - 110	2005-10-12

Standard (ICV-1) QC Batch: 21959

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.7	102	90 - 110	2005-10-12

Standard (CCV-1) QC Batch: 21959

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.2	98	90 - 110	2005-10-12

Standard (CCV-1) QC Batch: 21959

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.52	101	90 - 110	2005-10-12

Standard (CCV-1) QC Batch: 21959

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.6	101	90 - 110	2005-10-12

Standard (ICV-1) QC Batch: 22067

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	974.0	97	90 - 110	2005-10-18

Standard (CCV-1) QC Batch: 22067

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	950.0	95	90 - 110	2005-10-18

5101108

CHAIN-OF-CUSTODY RECORD

C of C Control № 6366

RFA Control № 6366

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

SAMPLING PROGRAM WIPP/SSWMP LAB DESTINATION Trace Analysis

SAMPLE TEAM MEMBERS R. Salness, B. Foster CARRIER/WAYBILL NO.

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
SSWC2811R4N1	C-2811, SSW	10/10/05 08:54	Groundwater	1 liter plastic x1	good	75426
SSWC2811R4N2	C-2811, SSW	08:54				27
SSWPZ12R4N1	PZ-12, SSW	09:45				28
SSWPZ12R4N2	PZ-12, SSW	09:45				29
SSWPZ10R4N1	PZ-10, SSW	10:40				30
SSWPZ10R4N2	PZ-10, SSW	10:40				31
SSWPZ7R4N1	PZ-7, SSW	11:30				32
SSWPZ7R4N2	PZ-7, SSW	11:30				33
SSWPZ11R4N1	PZ-11, SSW	12:38				34
SSWPZ11R4N2	PZ-11, SSW	12:38				35
SSWPZ11R4N1EB	PZ-11, EB	12:48	Groundwater			36
SSWPZ11R4N2EB	PZ-11, EB	10/10/05 12:48	EB			37
			EB	1 liter plastic x1		

Special Instructions: NONE

Possible Sample Hazards: NONE

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Bill Foster, WRES, 10/10/05, 13:45
   Received By: 10-10-05 9:30
2. Relinquished By:
   Received By:
3. Relinquished By:
   Received By:
4. Relinquished By:
   Received By:

WP 02-EM3001 Bus 168 275 7263 4° WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

RP

Report Date: October 24, 2005
WIPP/SSWMP

Work Order: 5101108
WIPP/SSWMP

Page Number: 19 of 19

03623

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

R. Salness
WRES
P.O.Box 2078
Carlsbad, NM 88221-2078

Report Date: December 14, 2005

Work Order: 5101211

Project Name: WIPP/SSWMP
Project Number: WIPP/SSWMP

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
75504	SSWPZ9R4N1	water	2005-10-11	07:55	2005-10-12
75505	SSWPZ9R4N2	water	2005-10-11	07:55	2005-10-12
75506	SSWPZ1R4N1	water	2005-10-11	09:30	2005-10-12
75507	SSWPZ1R4N2	water	2005-10-11	09:30	2005-10-12
75508	SSWC2507R4N1	water	2005-10-11	08:50	2005-10-12
75509	SSWC2507R4N2	water	2005-10-11	08:50	2005-10-12
75510	SSWPZ5R4N1	water	2005-10-11	00:00	2005-10-12
75511	SSWPZ5R4N2	water	2005-10-11	00:00	2005-10-12
75512	SSWPZ6R4N1	water	2005-10-11	10:10	2005-10-12
75513	SSWPZ6R4N2	water	2005-10-11	10:10	2005-10-12
75514	SSWPZ5R4N1D	water	2005-10-11	00:00	2005-10-12
75515	SSWPZ5R4N2D	water	2005-10-11	00:00	2005-10-12
75516	SSWPZ5R4N1EB	water	2005-10-11	00:00	2005-10-12
75517	SSWPZ5R4N2EB	water	2005-10-11	00:00	2005-10-12

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 24 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Analytical Report

Sample: 75504 - SSWPZ9R4N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	22024	Date Analyzed:	2005-10-13	Analyzed By:	WB
Prep Batch:	19330	Sample Preparation:	2005-10-13	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		85500		mg/L	1000	0.500

Sample: 75504 - SSWPZ9R4N1

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	22024	Date Analyzed:	2005-10-13	Analyzed By:	WB
Prep Batch:	19330	Sample Preparation:	2005-10-13	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		<20.0		mg/L	100	0.200

Sample: 75504 - SSWPZ9R4N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	22024	Date Analyzed:	2005-10-13	Analyzed By:	WB
Prep Batch:	19330	Sample Preparation:	2005-10-13	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		3930		mg/L	100	0.500

Sample: 75504 - SSWPZ9R4N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	22067	Date Analyzed:	2005-10-18	Analyzed By:	WB
Prep Batch:	19351	Sample Preparation:	2005-10-17	Prepared By:	RS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		107000		mg/L	200	10.00

Sample: 75505 - SSWPZ9R4N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	22022	Date Analyzed:	2005-10-17	Analyzed By:	RR
Prep Batch:	19281	Sample Preparation:	2005-10-13	Prepared By:	DS

Sample: 75506 - SSWPZ1R4N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	22067	Date Analyzed:	2005-10-18	Analyzed By:	WB
Prep Batch:	19351	Sample Preparation:	2005-10-17	Prepared By:	RS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		74800		mg/L	200	10.00

Sample: 75507 - SSWPZ1R4N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	22022	Date Analyzed:	2005-10-17	Analyzed By:	RR
Prep Batch:	19281	Sample Preparation:	2005-10-13	Prepared By:	DS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.0100		mg/L	1	0.0100

Sample: 75507 - SSWPZ1R4N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	22022	Date Analyzed:	2005-10-17	Analyzed By:	RR
Prep Batch:	19281	Sample Preparation:	2005-10-13	Prepared By:	DS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		0.0430		mg/L	1	0.0100

Sample: 75508 - SSWC2507R4N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	22024	Date Analyzed:	2005-10-13	Analyzed By:	WB
Prep Batch:	19330	Sample Preparation:	2005-10-13	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		1630		mg/L	100	0.500

Sample: 75508 - SSWC2507R4N1

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	21960	Date Analyzed:	2005-10-12	Analyzed By:	WB
Prep Batch:	19273	Sample Preparation:	2005-10-12	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		6.13		mg/L	5	0.200

Sample: 75510 - SSWPZ5R4N1

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	21960	Date Analyzed:	2005-10-12	Analyzed By:	WB
Prep Batch:	19273	Sample Preparation:	2005-10-12	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		5.14		mg/L	5	0.200

Sample: 75510 - SSWPZ5R4N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	22024	Date Analyzed:	2005-10-13	Analyzed By:	WB
Prep Batch:	19330	Sample Preparation:	2005-10-13	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		769		mg/L	50	0.500

Sample: 75510 - SSWPZ5R4N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	22067	Date Analyzed:	2005-10-18	Analyzed By:	WB
Prep Batch:	19351	Sample Preparation:	2005-10-17	Prepared By:	RS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		32800		mg/L	100	10.00

Sample: 75511 - SSWPZ5R4N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	22022	Date Analyzed:	2005-10-17	Analyzed By:	RR
Prep Batch:	19281	Sample Preparation:	2005-10-13	Prepared By:	DS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.0100		mg/L	1	0.0100

Sample: 75511 - SSWPZ5R4N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	22022	Date Analyzed:	2005-10-17	Analyzed By:	RR
Prep Batch:	19281	Sample Preparation:	2005-10-13	Prepared By:	DS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		0.0620		mg/L	1	0.0100

Sample: 75513 - SSWPZ6R4N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	22022	Date Analyzed:	2005-10-17	Analyzed By:	RR
Prep Batch:	19281	Sample Preparation:	2005-10-13	Prepared By:	DS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		0.0210		mg/L	1	0.0100

Sample: 75514 - SSWPZ5R4N1D

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	22025	Date Analyzed:	2005-10-13	Analyzed By:	WB
Prep Batch:	19331	Sample Preparation:	2005-10-13	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		26800		mg/L	5000	0.500

Sample: 75514 - SSWPZ5R4N1D

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	21960	Date Analyzed:	2005-10-12	Analyzed By:	WB
Prep Batch:	19273	Sample Preparation:	2005-10-12	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		4.58		mg/L	5	0.200

Sample: 75514 - SSWPZ5R4N1D

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	22025	Date Analyzed:	2005-10-13	Analyzed By:	WB
Prep Batch:	19331	Sample Preparation:	2005-10-13	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		1480		mg/L	50	0.500

Sample: 75514 - SSWPZ5R4N1D

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	22067	Date Analyzed:	2005-10-18	Analyzed By:	WB
Prep Batch:	19351	Sample Preparation:	2005-10-17	Prepared By:	RS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		32400		mg/L	100	10.00

Sample: 75516 - SSWPZ5R4N1EB

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	22203	Date Analyzed:	2005-10-24	Analyzed By:	WB
Prep Batch:	19492	Sample Preparation:	2005-10-21	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Total Dissolved Solids	[2]	155.0	mg/L	5	10.00

Sample: 75517 - SSWPZ5R4N2EB

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	22022	Date Analyzed:	2005-10-17	Analyzed By:	RR
Prep Batch:	19281	Sample Preparation:	2005-10-13	Prepared By:	DS

Parameter	Flag	Result	RL Units	Dilution	RL
Total Chromium		<0.0100	mg/L	1	0.0100

Sample: 75517 - SSWPZ5R4N2EB

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	22022	Date Analyzed:	2005-10-17	Analyzed By:	RR
Prep Batch:	19281	Sample Preparation:	2005-10-13	Prepared By:	DS

Parameter	Flag	Result	RL Units	Dilution	RL
Total Selenium		<0.0100	mg/L	1	0.0100

Method Blank (1) QC Batch: 21960

Parameter	Flag	MDL Result	Units	RL
Nitrate-N		<0.00400	mg/L	0.2

Method Blank (1) QC Batch: 22022

Parameter	Flag	MDL Result	Units	RL
Total Chromium		<0.000273	mg/L	0.01

Method Blank (1) QC Batch: 22022

[2]Sample ran out of hold time due to miscommunication. •

Method Blank (1) QC Batch: 22067

Parameter	Flag	MDL Result	Units	RL
Total Dissolved Solids		<5.000	mg/L	10

Method Blank (1) QC Batch: 22087

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.0504	mg/L	0.5

Method Blank (1) QC Batch: 22087

Parameter	Flag	MDL Result	Units	RL
Nitrate-N		<0.00400	mg/L	0.2

Method Blank (1) QC Batch: 22087

Parameter	Flag	MDL Result	Units	RL
Sulfate		<0.450	mg/L	0.5

Method Blank (1) QC Batch: 22203

Parameter	Flag	MDL Result	Units	RL
Total Dissolved Solids		<5.000	mg/L	10

Method Blank (1) QC Batch: 23367

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.0504	mg/L	0.5

Duplicate (1) QC Batch: 22067

Laboratory Control Spike (LCS-1) QC Batch: 22024

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	12.7	12.4	mg/L	1	12.5	<0.450	102	2	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 22025

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	11.6	11.7	mg/L	1	12.5	<0.0504	93	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 22025

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	2.50	2.48	mg/L	1	2.50	<0.00400	100	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 22025

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	12.0	12.0	mg/L	1	12.5	<0.450	96	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 22087

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.9	13.2	mg/L	1	12.5	<0.0504	103	2	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 22087

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	2.70	2.70	mg/L	1	2.50	<0.00400	108	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 22087

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	272	274	mg/L	100	2.50	26.5	98	1	63.5 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 22024 Spiked Sample: 75508

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	2160	2170	mg/L	100	12.5	920	99	0	72.9 - 128	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 22025 Spiked Sample: 75473

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	1290	1210	mg/L	50	12.5	578	114	6	72.6 - 124	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 22025 Spiked Sample: 75473

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	135	132	mg/L	50	2.50	<0.200	108	2	63.5 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 22025 Spiked Sample: 75473

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	902	893	mg/L	50	12.5	268	101	1	72.9 - 128	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 22087 Spiked Sample: 76001

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	753	756	mg/L	50	12.5	156	96	0	72.6 - 124	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 22087 Spiked Sample: 76001

Standard (CCV-1) QC Batch: 22022

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		mg/L	1.00	1.01	101	90 - 110	2005-10-17

Standard (CCV-1) QC Batch: 22022

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1.00	1.00	100	90 - 110	2005-10-17

Standard (ICV-1) QC Batch: 22024

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.1	97	90 - 110	2005-10-13

Standard (ICV-1) QC Batch: 22024

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.53	101	90 - 110	2005-10-13

Standard (ICV-1) QC Batch: 22024

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.4	99	90 - 110	2005-10-13

Standard (CCV-1) QC Batch: 22024

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.0	96	90 - 110	2005-10-13

Standard (CCV-1) QC Batch: 22024

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.53	101	90 - 110	2005-10-13

Standard (ICV-1) QC Batch: 22067

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	974.0	97	90 - 110	2005-10-18

Standard (CCV-1) QC Batch: 22067

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	950.0	95	90 - 110	2005-10-18

Standard (ICV-1) QC Batch: 22087

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.6	93	90 - 110	2005-10-18

Standard (ICV-1) QC Batch: 22087

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.43	97	90 - 110	2005-10-18

Standard (ICV-1) QC Batch: 22087

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.1	97	90 - 110	2005-10-18

Standard (CCV-1) QC Batch: 22087

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	13.3	106	90 - 110	2005-10-18

Standard (CCV-1) QC Batch: 22087

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.69	108	90 - 110	2005-10-18

5/01/211

CHAIN-OF-CUSTODY RECORD

C of C Control № 6367

RFA Control № 6367

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

SAMPLING PROGRAM WIPP/SSWMP LAB DESTINATION Trace Analysis

SAMPLE TEAM MEMBERS R. Salness, B. Foster CARRIER/WAYBILL NO. Bus G4 168275 7807

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
SSWPZ9R4N1	PZ-9, SSW	10/11/05 07:55	Ground Water	1 liter plastic	75504	
SSWPZ9R4N2	PZ-9, SSW	07:55			505	
SSWPZ1R4N1	PZ-1, SSW	09:30			506	
SSWPZ1R4N2	PZ-1, SSW	09:30			507	
SSWC2507R4N1	C-2507, SSW	08:50			508	
SSWC2507R4N2	C-2507, SSW	08:50			509	
SSWPZ5R4N1	PZ-5, SSW				510	
SSWPZ5R4N2	PZ-5, SSW				511	
SSWPZ6R4N1	PZ-6, SSW	10:10			512	
SSWPZ6R4N2	PZ-6, SSW	10:10			513	
SSWPZ5R4N1D	PZ-5, SSW				514	
SSWPZ5R4N2D	PZ-5, SSW		Ground Water		515	
SSWPZ5R4N1EB	PZ-5, EB		EB		516	
SSWPZ5R4N2EB	PZ-5, EB	10/11/05	EB	1 liter plastic	517	

Special Instructions: NONE

Possible Sample Hazards: NONE

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Bill Foster, WRES, 10/11/05, 12:30
   Received By: Megan McCord, 10/12/05 9:30
2. Relinquished By: _____
   Received By: _____
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: _____

WP 02-EM3001 4⁰ WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

Report Date: December 14, 2005 WIPP/SSWMP

Work Order: 5101211 WIPP/SSWMP

SEP 1 2 2005

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

SEP 1 2 2005

Mr. Steve Zappe, WIPP Project Leader
Hazardous Waste Permits Program
Hazardous Waste Bureau
New Mexico Environment Department
2905 E. Rodeo Park Dr. Bldg. 1
Santa Fe, NM 87505-6303

Subject: WIPP Groundwater Information Request

Dear Mr. Zappe:

We are providing information pertaining to the WIPP groundwater monitoring program that was requested by Mr. Carl Chavez of your office based on his attendance at a recent EPA inspection of the WIPP monitoring programs. The request was e-mailed to Mr. Daryl Mercer of CBFO on July 13, 2005. The information request in Mr. Chavez's e-mail and associated responses are enumerated below.

Item 1 –

Current top-of-casing (TOC) and groundwater elevation data for all groundwater monitoring wells.

The TOC elevations for active and plugged monitoring wells are provided in Table 1.

Mark Crawley of WRES indicated that the WQSP wells had been resurveyed, but that the survey was conducted by DOE and not certified surveyors. He implied that he could send this data. Please include the date of survey and any other relevant information.

The WQSP survey data are provided below. The survey was a Second Order, Class 2 survey performed, shot by the WIPP survey crew according to standards by the Federal Geodetic Control Subcommittee.

The survey shows negligible difference in elevation of the well casings, generally less than one tenth of a foot, which can be attributed to survey error.

CBFO:AMO:HJP:KJB:05-1521:UFC5486

Top of Casing Elevations, WIPP WQSP Wells
2005 Resurvey vs. Original Survey at Time of Well Installation

Well ID	Date of Survey (2005)	Top of Casing (TOC) Elevation (ft, msl) (2005)	Original Survey TOC Elevation (ft, msl) (reported in HWFP)
WQSP-1	February 8	3419.24	3419.2
WQSP-2	February 22	3463.99	3463.9
WQSP-3	May 26	3480.40	3480.3
WQSP-4	March 3	3433.10	3433.0
WQSP-5	May 11	3384.51	3384.4
WQSP-6	May 18	3364.77	3364.7
WQSP-6a	May 18	3363.83	3363.8

Item 2 –

Static water level summary data for the years 2004 to present, similar to the attached 2003 data summary. If pre-2001 data are available, I would also like to have this information in the same format. I already have 2001 through 2003 data summary tables.

A CD ROM is enclosed containing the requested information. There are six relevant Excel files as follows:

- WLMP2005
- 2004 WIPP GW levels
- 2000 wl data
- 1999 wl data
- 1998 wl data
- 1997 wl data

The 2005 year to date file is structured as one tab per month for all wells. The 1997-2004 files are sorted by well.

Item 3 –

David Hughes offered to validate Eastings and Northing from Table V.C.1 of the WIPP Hazardous Waste Facility Permit listed below.

Table V.C.1 - Well Locations				
Well Name	State Plane Coordinates	Top of Casing Elevation (ft amsl)	Screen Interval Depth (ft below casing top)	Sampled Unit
WQSP-1	663600E, 503774N	3419.2	702 - 727	Culebra
WQSP-2	667598E, 505542N	3463.9	811 - 836	Culebra
WQSP-3	670576E, 504030N	3480.3	844 - 869	Culebra
WQSP-4	670658E, 495000N	3433.0	764 - 789	Culebra
WQSP-5	667170E, 493666N	3384.4	646 - 671	Culebra
WQSP-6	663691E, 494942N	3364.7	581 - 606	Culebra
WQSP-6a	663625E, 494969N	3363.8	189 - 214	Dewey Lake

The well location coordinates listed in Table V.C.1 of the WIPP Hazardous Waste Facility Permit were validated by Mr. Hughes and are in NAD27, New Mexico East, U.S. Survey Feet, State Plane Coordinates.

NMED doesn't know the source of the apparently equivalent information in the EPA survey data file. NMED also notices that EPA's TOC elevations differ from those in the permit.

The coordinate system for EPA's data file is Universal Transverse Mercator (UTM) which is simply another commonly used geodetic coordinate system. This grid has all wells in their correct relative coordinates, and ties to the State Plane system via conversion programs that can be readily obtained on the internet.

It should be noted that EPA's reference elevations are not necessarily TOC elevations. For example, the reference elevation for AEC-8 was the Kelly bushing on the drill rig. See part 1(a) and Table 1 for the definitive TOC database.

If possible, provide an equivalent WIPP spreadsheet similar to EPA's containing all current and previous (plugged and abandoned) well survey information. Please identify the horizontal and vertical datum for Cartesian coordinate measurements (e.g., 1927 or 1983 horizontal, 1929 or 1988 vertical, etc.).

This information was provided in Table 1. Monitoring well locations are in 1927 State Plane coordinates. An Excel file is also being provided electronically, the file name is "WIPP Monitoring Well Coordinates".

Item 4 –

Chuck Byrum also asked David Hughes to provide an updated map of the well monitoring network (including all new SNL wells) and a map of any plugged and abandoned wells.

Two maps are being provided as requested. DBM-54, WIPP MONITORING WELL LOCATIONS FY-2006, and DBM-56, WIPP PLUGGED MONITORING WELL LOCATIONS FY-2006.

I believe there is a current plug and abandonment table maintained by DOE. Please provide me with copies of these maps (hardcopy) and the table (electronically).

The plugging and abandonment table kept for calendar year 2005 is provided as Table 2 and in electronic form. The electronic file name is "Summary_Table_Dates", in MS Word. The same map as in Item 4(a) showing all plugged wells since plugging operations began includes the 2005 wells.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

CBFO:AMO:HJP:KJB:05-1521:UFC5486

If you have any questions regarding this transmittal, please contact Mr. Jody Plum at (505) 234-7462.

Sincerely,

Lloyd L. Piper, Acting Manager
DOE Carlsbad Field Office

Richard D. Raaz, General Manager
Washington TRU Solutions LLC

Enclosure

cc: w/enclosure
C. Marshall, NMED
C. Walker, Trinity Engineering
CBFO M & RC

cc: w/o enclosure
C. Padilla *ED
J. Bearzi, NMED ED
J. Kieling, NMED ED
* ED denotes electronic distribution

CBFO:AMO:HJP:KJB:05-1521:UFC5486

Table 1
Locations of Monitoring Wells for WIPP

Well Name	Township	Range	Section	Eastings NAD 27	Northings NAD 27	Top of Casing (ft, msl)	Plugged (P) / Active (A)/ Inactive (IA)	Formation (1)	Notes
AEC-7	21S	32E	31	691829	523133	3657.25		A CUL	
AEC-8	22S	31E	11	679951	513567	3537.10		P BC	
C-2505	22S	31E	20	667370	499266	3413.05		A SR/D	
C-2506	22S	31E	20	667400	499279	3412.87		A SR/D	
C-2507	22S	31E	20	667374	499069	3410.01		A SR/D	
C-2737	22S	31E	29	666960	497104	3399.30		A CUL/MAG (PIP)	
C-2811	22S	31E	29	666853	497094	3398.92		A SR/D	
CB-1	23S	31E	5	665583	486108	3328.38		A BC	
D-268	22S	30E	35	650843	488920	3280.70		IA CUL	Xfer'd custody to Mills Ranch
DOE-1	22S	31E	28	672206	493563	3465.22		A CUL	
DOE-2	22S	31E	8	667317	509876	3419.09		A BC	
ERDA-9	22S	31E	20	667301	498887	3410.10		A CUL	
H-1	22S	31E	29	666400	497991	3399.53		P CUL	
H-10A	23S	32E	20	697463	467561	3688.67		A MAG	
H-10B	23S	32E	20	697549	467613	3689.47		P CUL	
H-10C	23S	32E	20	697550	467513	3688.64		A CUL	
H-11B1	22S	31E	33	672647	489617	3411.62		P CUL	
H-11B2	22S	31E	33	672653	489542	3411.64		A MAG	
H-11B3	22S	31E	33	672716	489608	3412.42		P CUL	
H-11B4	22S	31E	33	672501	489620	3410.89		A CUL	
H-12	23S	31E	15	678079	477535	3427.19		A CUL	
H-14	22S	31E	29	662815	493697	3347.11		A MAG	
H-15	22S	31E	28	672606	498572	3481.63		A MAG/CUL (PIP)	
H-16	22S	31E	20	666231	499726	3406.77		A LM	
H-17	23S	31E	3	673837	484304	3385.31		A CUL	
H-18	22S	31E	20	662621	502926	3414.21		A MAG	
H-19B0	22S	31E	28	669964	494836	3418.38		A CUL	
H-19B2	22S	31E	28	669963	494786	3419.01		A CUL	
H-19B3	22S	31E	28	670007	494861	3419.09		A CUL	
H-19B4	22S	31E	28	669920	494861	3419.03		A CUL	
H-19B5	22S	31E	28	669924	494817	3418.63		A CUL	
H-19B6	22S	31E	28	669975	494906	3419.07		A CUL	
H-19B7	22S	31E	28	669967	494807	3418.99		A CUL	
H-2A	22S	31E	29	663897	497912	3378.09		P CUL	
H-2B1	22S	31E	29	663860	497943	3378.46		A MAG	
H-2B2	22S	31E	29	663890	497938	3378.31		A CUL	
H-2C	22S	31E	29	663907	498002	3378.41		P CUL	
H-3B1	22S	31E	29	667377	495440	3390.64		A MAG	
H-3B2	22S	31E	29	667283	495476	3390.03		A CUL	
H-3B3	22S	31E	29	667298	495376	3388.67		P CUL	
H-3D	22S	31E	29	667350	495421	3390.01		A SR/DL	
H-4A	23S	31E	5	662992	487512	3333.29		P CUL	
H-4B	23S	31E	5	662906	487554	3333.35		A CUL	
H-4C	23S	31E	5	662991	487607	3334.04		A MAG	
H-5A	22S	31E	15	677828	508111	3506.24		P CUL	Top of tubing
H-5B	22S	31E	15	677777	508194	3506.04		A CUL	

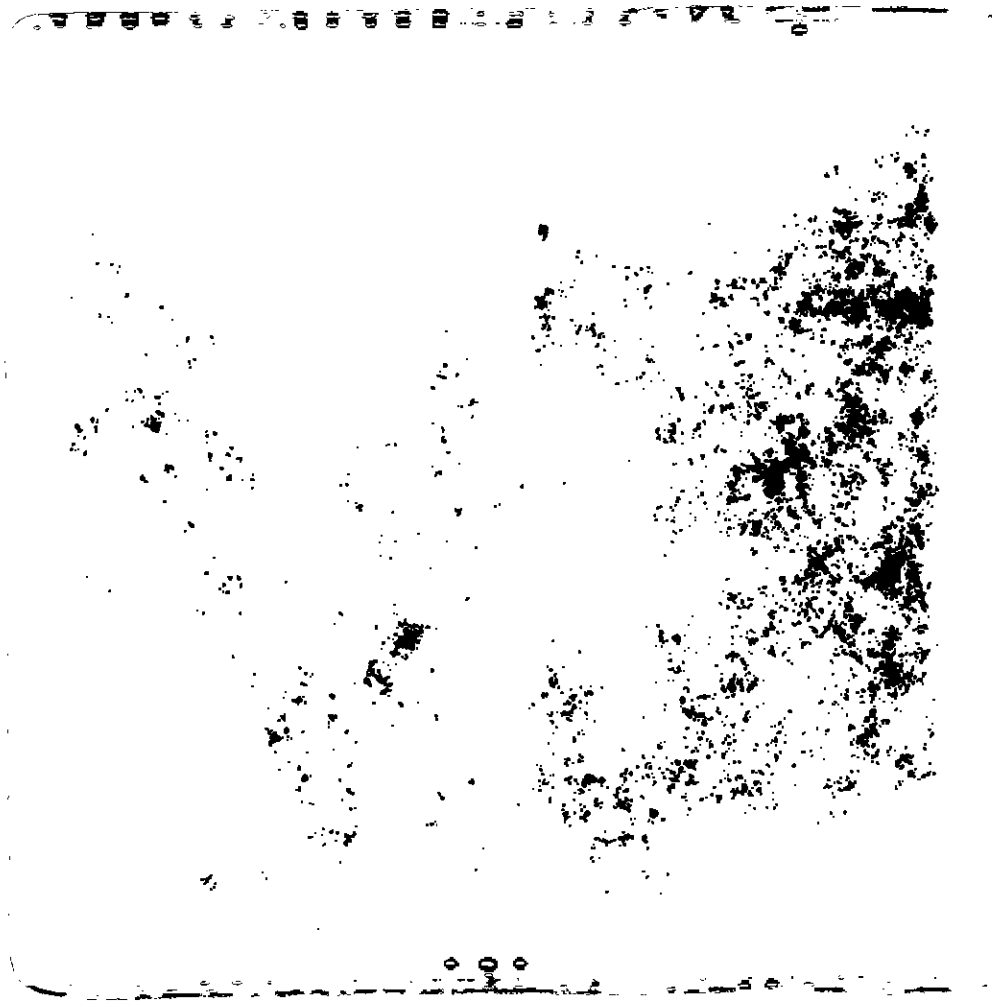
Table 1
Locations of Monitoring Wells for WIPP

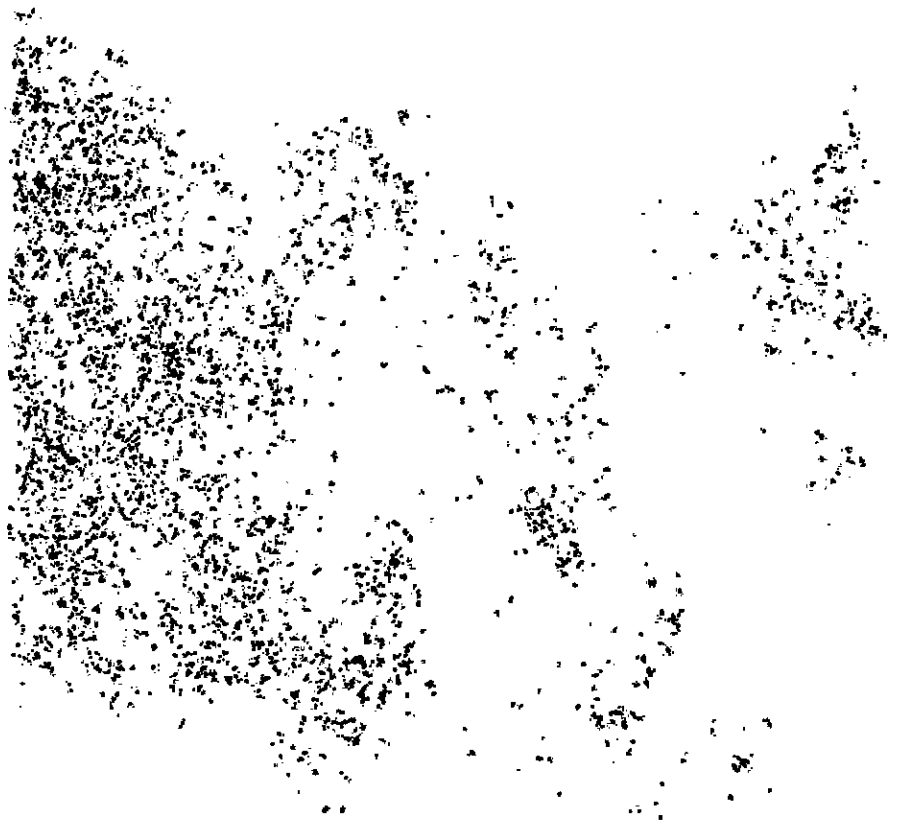
Well Name	Township	Range	Section	Eastings NAD 27	Northings NAD 27	Top of Casing (ft, msl)	Plugged (P) / Active (A)/ Inactive (IA)	Formation (1)	Notes
H-5C	22S	31E	15	677878	508198	3506.04	A	MAG	
H-6A	22S	31E	18	657132	508881	3348.11	P	CUL	Top of tubing
H-6B	22S	31E	18	657180	508969	3348.25	A	CUL	
H-6C	22S	31E	18	657232	508884	3348.52	A	MAG	
H-7A	23S	30E	14	648790	475132	3163.18	P	MAG	
H-7B1	23S	30E	14	648862	475061	3164.17	A	CUL	
H-7B2	23S	30E	14	648837	474965	3164.40	P	CUL	
H-7C	23S	30E	14	648766	475035	3164.13	IA	CUL	Xfer'd custody to BLM 08/10/05
H-8A	24S	30E	23	650392	438678	3432.99	A	MAG	
H-8B	24S	30E	23	650473	438646	3433.64	IA	CUL	Xfer'd custody to rancher
H-8C	24S	30E	23	650409	438581	3432.90	IA	RU/SA	Xfer'd custody to BLM 08/10/05
H-9A	24S	31E	4	667879	453977	3406.68	P	CUL	
H-9B	24S	31E	4	667979	453978	3406.86	IA	CUL	
H-9C	24S	31E	4	667929	453890	3407.30	A	CUL/MAG (PIP)	
IMC-461	22S	30E	22	642643	500059	3289.48	A	CUL	
P-14	22S	30E	24	652159	499082	3361.06	P	CUL	
P-15	22S	31E	31	657148	488426	3311.38	P	CUL	
P-17	23S	31E	4	667955	484185	3337.24	A	CUL	
P-18	22S	31E	26	682589	493556	3478.42	P	CUL	
PZ-1	22S	31E	20	667265	499555	3413.41	A	SR/D	
PZ-2	22S	31E	20	667461	499498	3413.42	A	SR/D	
PZ-3	22S	31E	20	667377	499808	3416.15	A	SR/D	
PZ-4	22S	31E	20	667268	499444	3412.10	A	SR/D	
PZ-5	22S	31E	20	667197	499810	3415.31	A	SR/D	
PZ-6	22S	31E	20	666967	499648	3413.49	A	SR/D	
PZ-7	22S	31E	20	666139	500070	3413.99	A	SR/D	
PZ-8	22S	31E	21	668253	499220	DRY	A	SR/D (DRY)	
PZ-9	22S	31E	21	667676	500263	3421.21	A	SR/D	
PZ-10	22S	31E	20	666211	499122	3405.80	A	SR/D	
PZ-11	22S	31E	20	665736	500625	3418.95	A	SR/D	
PZ-12	22S	31E	20	666826	498850	3408.99	A	SR/D	
SNL-1	21S	31E	16	667826	539423	3512.84	A	CUL	
SNL-2	22S	30E	12	652349	514022	3323.03	A	CUL	
SNL-3	21S	31E	34	675337	522141	3490.34	A	CUL	
SNL-5	22S	31E	6	661740	516444	3381.88	A	CUL	
SNL-6	21S	32E	7	692361	542848	pending	A	CUL	
SNL-8	22S	31E	14	683175	504874	3555.79	A	CUL	
SNL-9	22S	30E	23	650921	499949	3360.95	A	CUL	
SNL-12	23S	31E	20	665510	468654	3339.44	A	CUL	
SNL-13	23S	30E	1	656370	484695	3294.23	A	CUL	
SNL-14	23S	31E	4	671396	484746	3368.38	A	CUL	
SNL-15	22S	31E	26	682542	493513	3481.23	A	CUL	
WIPP-11	22S	31E	9	667700	513751	3430.53	A	CUL	
WIPP-12	22S	31E	17	667371	504068	3472.06	P	CUL	
WIPP-13	22S	31E	17	663885	506464	3405.71	A	CUL	
WIPP-18	22S	31E	20	667446	502935	3458.76	A	MAG	
WIPP-19	22S	31E	20	667453	501632	3435.14	A	CUL	
WIPP-21	22S	31E	20	667459	500071	3418.96	P	CUL	

Table 1
Locations of Monitoring Wells for WIPP

Well Name	Township	Range	Section	Eastings NAD 27	Northings NAD 27	Top of Casing (ft, msl)	Plugged (P) / Active (A)/ Inactive (IA)	Formation (1)	Notes
WIPP-22	22S	31E	20	667453	501165	3428.12	P	CUL	
WIPP-25	22S	30E	15	643343	505868	3214.39	A	CUL/MAG (PIP)	
WIPP-26	22S	30E	29	635509	496516	3153.20	A	CUL	
WIPP-27	21S	30E	21	637103	535612	3178.98	A	CUL/MAG (PIP)	
WIPP-28	21S	31E	18	659579	540722	3349.21	P	RU/SA	
WIPP-29	22S	29E	34	612378	488559	2978.26	P	CUL	
WIPP-30	21S	31E	33	667536	524337	3429.05	A	CUL/MAG (PIP)	
WQSP-1	22S	31E	20	663592	503795	3419.20	A	CUL	
WQSP-2	22S	31E	16	667593	505566	3463.90	A	CUL	
WQSP-3	22S	31E	16	670605	504027	3480.30	A	CUL	
WQSP-4	22S	31E	28	670668	495004	3433.00	A	CUL	
WQSP-5	22S	31E	29	667184	493683	3384.40	A	CUL	
WQSP-6	22S	31E	29	663698	494956	3364.70	A	CUL	
WQSP-6A	22S	31E	29	663631	494983	3363.80	A	DL	

Notes
(1) CUL = Culebra, DL = Dewey Lake, LM = Los Medanos, MAG = Magenta, PIP = production injection packer, RU = Rustler, SA = Salado, SR = Santa Rosa , BC = Bell Canyon





Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

JUL 29 2005

RECEIVED
AUG 01 2005

Mr. Clint Marshall
Ground Water Pollution Prevention Section
New Mexico Environment Department
P.O. Box 26110
Santa Fe, NM 87502

Subject: Semi-Annual Discharge Monitoring Report for January 1, 2005, Through June 30, 2005

Dear Mr. Marshall:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Discharge Monitoring Report for the period of January 1, 2005, through June 30, 2005. This report is required by Discharge Plan 831.

If you have any questions about this report or require any additional information, please contact Mr. H. L. Plum at (505) 234-7462.

Sincerely,

Lloyd L. Piper,
Acting Manager

Enclosure

cc: w/enclosure
S. Zappe, NMED

cc: w/o enclosure
C. Padilla, NMED *ED
J. Bearzi, NMED ED
J. Kieling, NMED ED
*ED denotes electronic distribution

CBFO:OCT:HJP:KJB:05-1501:UFC5486

03646

bcc: w/o enclosure

V. Daub, CBFO	*ED
G Basabilvazo, CBFO	ED
M. Rose, CBFO	ED
J. Plum, CBFO	ED
H. Johnson, CBFO	ED
D. Mercer, CBFO	ED
L. Steven, WTS	ED
G. Johnson, WTS	ED
D. Bignell, WRES	ED
M. Crawley, WRES	ED
R. Kehrman, WRES	ED
J. Siegel, WRES	ED

RCRA Chronology
CBFO M & RC
*ED denotes electronic distribution

CBFO:OCT:HJP:KJB:05-1501:UFC5486

WASTE ISOLATION PILOT PLANT (WIPP) SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PLAN DP-831

REPORT NUMBER 44: January 1, 2005 through June 30, 2005

SPECIFIC REQUIREMENTS OF DP-831

1.0 DISCHARGE VOLUMES:

Facultative Lagoon System	664,411 gallons
Miscellaneous Water Discharged to the Facultative Lagoon System	None
Facultative Lagoon System Evaporation Pond B	None
H-19 Evaporation Pond	20,797 gallons

2.0 SURFACE WATER QUALITY ANALYSIS

Table 1 contains the water quality analytical results for the Facultative Lagoon System and the H-19 Evaporation Pond. The laboratory data sheets are included in Attachment 1.

3.0 INFILTRATION CONTROL ACTIVITIES (DECEMBER 22, 2003, MODIFICATION)

The July 1, 2004, through December 31, 2004, Discharge Monitoring Report discussed the status of the remaining construction work on the infiltration controls to include the lining of the salt pile run-off ditches with HDPE, the placement of native soils and vegetative cover on the old Salt Pile, and the lining of Storm Water Infiltration Control (SWIC) Pond A, Pond 1, and Pond 2 with HDPE.

The salt pile run-off ditches, Pond 1 and Pond 2 were lined in January 2005. The placement of native soils, including repairs from excessive precipitation events in the fall of 2004, was completed in March of 2005. The hydro-mulch and seed mix was applied in April of 2005. As reported to the Ground Water Quality Bureau in several letters between March and July 2005, continued precipitation has prevented the installation of the HDPE liner in SWIC Pond A. Efforts to dewater the pond and dry the soils enough to resume construction are ongoing.

Additionally, heavy rains in May and June of 2005 resulted in additional erosion on the side slopes of the salt pile cover before seed germination occurred. Various options for repairing the erosion, establishing vegetation and minimizing long-term maintenance for the salt pile are being evaluated for effectiveness.

4.0 SUMMARY OF ACTIVITIES RELATED TO THE SHALLOW SUBSURFACE WATER (SSW) MONITORING AND SAMPLING PROGRAM

Water levels in the shallow wells (PZ-1 through PZ-12, C-2505, C-2506, and C-2507) were obtained on March 16 and June 21, 2005, and are included in Table 2. These were taken on the quarterly milestones outlined in Table 2, Ground Water Monitoring Schedule, in the December 22, 2003, DP-831 Modification.

The Water Quality Sampling Program, Well 6A (WQSP-6A) was sampled on November 17, 2004, and April 2005 as part of the WIPP Hazardous Waste Facility Permit Detection Monitoring Program (DMP) (Table 2). Only WQSP-6A data for the November sampling event are provided in this report because the results for the April event were not available at the time of submittal. The April WQSP-6A analytical

data will be provided in the July 1, 2005, through December 31, 2005, Semi-annual Discharge Monitoring Report due by January 31, 2006. The signed laboratory reports for WQSP-6A are included in Attachment 2.

Concentrations for selenium and chromium in the WQSP-6A sample were below the method detection limits of 0.0250 milligrams per liter (mg/l). Sulfate, chloride, and total dissolved solids (TDS) concentrations were detected at concentrations exceeding standards of 20.6.2.3103 NMAC, *Standards for Ground Water of 10,000 mg/l TDS Concentration or Less for Human Health and Domestic Water Supply.* Although the concentrations were higher than the standards, they are less than the naturally occurring background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285). The shallow subsurface water identified at the WIPP site has not impacted the Dewey Lake groundwater in WQSP-6A.

The ten shallow wells were sampled for field and general chemistry parameters in May 2005 as required by the December 22, 2003, modification to DP-831. Five wells were sampled on May 16, 2005, while the remaining five wells were sampled on May 17, 2005. Results for the field sampling parameters and laboratory analyses are presented in Table 2. Laboratory reports for all shallow well analyses are included in Attachment 3. Chloride concentrations exceeded the value of 250.0 mg/l listed in 20.6.2.3103 NMAC for human health and domestic water supply in all shallow wells sampled. The maximum concentration was 182,000 mg/l in PZ-9, while the minimum concentration was 416 mg/l in PZ-10. Total dissolved solids concentrations exceeded the 20.6.2.3103 NMAC value of 1,000 mg/l for human health and domestic water supply in all shallow wells sampled with the maximum concentration of 164,000 mg/l in PZ-9. Nitrate concentrations did not exceeded the 20.6.2.3103 NMAC value of 10 mg/l for human health and domestic water supply. Sulfate concentrations exceeded the 20.6.2.3103 NMAC value of 600.0 mg/l for human health and domestic water supply in nine wells sampled with a maximum concentration of 5,090 mg/l in PZ-9. Chromium concentrations exceeded the 20.6.2.3103 NMAC value of 0.05 mg/l for human health and domestic water supply in eight of the shallow wells sampled, with a maximum concentration of 0.0940 mg/l. Selenium was detected in nine wells sampled. Seven of these wells exceeded the concentration of 0.05 mg/l identified in 20.6.2.3103 NMAC for human health and domestic water supply.

Table 1: Sewage Lagoon and H-19 Semi-Annual Analytical Results								
Analyte	**Influent to Facultative Lagoon System**		**Evaporation Pond B**		**Evaporation Pond C**		**H-19 Evaporation Pond**	
Nitrate (mg/l)	<0.435		<0.10		NA		NA	
TKN (mg/l)	59.1		19		NA		NA	
TDS (mg/l)	522		**6,840**		**8,970**		**285,000**	
	Activity	TPU 2 σ	Activity	TPU 2 σ	Activity	TPU 2 σ	Activity	TPU 2 σ
$U^{233/234}$ (Bq/l)	5.32E-02	6.72E-03	1.16E-02	3.45E-03	1.81E-02	3.86E-03	7.37E-01	3.85E-02
U^{235} (Bq/l)	6.61E-04	8.61E-04	5.18E-04	9.13E-04	2.25E-04	5.19E-04	9.95E-03	3.05E-03
U^{238} (Bq/l)	2.26E-02	4.25E-03	5.03E-03	2.27E-03	6.43E-03	2.28E-03	1.75E-01	1.35E-02
Pu^{238} (Bq/l)	-1.28E-04	2.55E-04	0.00E+00	3.93E-04	-4.50E-05	3.53E-04	7.35E-04	1.60E-03
$Pu^{239/240}$ (Bq/l)	-4.90E-05	1.58E-04	6.54E-05	3.44E-04	3.14E-04	4.16E-04	-3.21E-04	7.92E-04
Am^{241} (Bq/l)	5.95E-04	7.82E-04	2.30E-04	5.05E-04	1.28E-04	4.53E-04	1.85E-04	5.48E-04
Sr^{90} (Bq/l)	3.32E-04	4.02E-02	1.01E-03	2.97E-02	-4.08E-03	2.85E-02	6.14E-03	4.32E-02
TPU 2 σ = total propagated uncertainty at 2-sigma (95% confidence interval)								
NA: The analytical parameter is not required.								
NS: Not Sampled								
TKN: Total Kjeldahl Nitrate								
TDS: Total Dissolved Solids								
Bq/l: Becquerel per liter								
"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply								

Table 2
SUMMARY OF SHALLOW SUBSURFACE WATER LEVELS, FIELD PARAMETERS, AND ANALYTICAL RESULTS

	Water Level Monitoring (Ft AMSL)		Field Parameters			General Chemistry Parameters					Trace Metals	
Monitoring Site	03/16/05	06/21/05	pH (SU)	Temp. (°C)	Electrical Conductivity @25 °C (µS/cm)	Sample Date	Nitrate (mg/l)	Sulfate (mg/l)	Chloride (mg/l)	TDS (mg/l)	Selenium (mg/l)	Chromium (mg/l)
PZ-1	3371.97	3372.40	6.32	23.8	>3999	5/17/05	1.47	**2640**	**62300**	**100500**	**0.0600**	**0.0770**
PZ-2	3371.31	3371.70	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
PZ-3	3372.17	3372.64	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
PZ-4	3366.78	3367.17	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
PZ-5	3374.73	3375.05	6.45	21.9	>3999	5/17/05	2.96	**3260**	**46000**	**65400**	**0.0930**	**0.0670**
PZ-6	3371.35	3371.61	6.00	22.6	>3999	5/17/05	4.25	**3610**	**109000**	**160500**	**0.0500**	**0.0540**
PZ-7	3377.79	3377.95	6.36	21.4	>3999	5/16/05	4.02	**2530**	**42100**	**65900**	**0.0820**	**0.0940**
PZ-8	Dry	Dry	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
PZ-9	3366.47	3366.17	5.93	20.40	>3999	5/17/05	2.82	**5090**	**182000**	**164000**	0.0500	**0.0710**
PZ-10	3372.26	3372.12	7.01	20.1	1618	5/16/05	3.63	572	**416**	**1756**	0.0440	0.0370
PZ-11	3374.58	3374.66	6.26	21.8	>3999	5/16/05	4.63	**2890**	**66000**	**100000**	<0.0100	<0.0100
PZ-12	3358.89	3358.69	6.77	20.7	>3999	5/16/05	8.85	**679**	**3730**	**5890**	**0.0510**	**0.0540**
C-2811	3342.54	3342.70	6.98	20.1	>3999	5/16/05	6.02	524	**1930**	**3740**	**0.0580**	**0.0530**
C-2505	3369.01	3369.26	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
C-2506	3369.41	3369.66	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
C-2507	3366.16	3366.41	6.81	20.8	>3999	5/17/05	7.94	**860**	**1370**	**3340**	**0.0780**	**0.0630**
WQSP-6a	3197.16 [1]	3196.83 [2]	7.3	23.2	4070	11/17/05	6.72	**1960**	**487**	**3655**	<0.0250	<0.0250

Explanation: [1] **Water Level Measurement Taken on 3/08/05**

[2] **Water Level Measurement Taken on 6/20/05**

NS: Not Sampled as per permit conditions

"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply

Attachment 1

Laboratory Data Summary Sheets for the Sewage Lagoon System and the H-19 Evaporation Pond

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
EC-SWL-20050426-1.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 5042727

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 04/27/05

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T61042	7727-37-9	Nitrate (as NO3)	0.435		4/28/2005	353.3	0.10

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
EC-SWL-20050426-2.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 5042727

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 04/27/05

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T61043		TKN	59.1		4/29/2005	351.3	4.0

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
EC-SWL-20050426-3.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 5042727

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 04/27/05

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T61044		Total Dissolved Solids (TDS)	522		5/3/2005	160.1	10

Comments:

SECTION I
Page 4

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
EC-SWL-20050426-4.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 5042727

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 04/27/05

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T61045		Total Dissolved Solids (TDS)	2290		5/3/2005	160.1	10

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
EC-SWL-20050426-5.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 5042727

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 04/27/05

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T61046		Total Dissolved Solids (TDS)	6840		5/3/2005	160.1	10

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
EC-SWL-20050426-6.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 5042727

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 04/27/05

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T61047		Total Dissolved Solids (TDS)	8970		5/3/2005	160.1	10

Comments:

SECTION I
Page 7

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
EC-SWL-20050426-7.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 5042727

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 04/27/05

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T61048	7727-37-9	Nitrate (as NO3)	<0.0200		4/28/2005	353.3	0.10

Comments:

SECTION I
Page 8

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
EC-SWL-20050426-8.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 5042727

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 04/27/05

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T61049		Total Dissolved Solids (TDS)	285000		5/3/2005	160.1	10

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
EC-SWL-20050426-9.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 5042727

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 04/27/05

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T61050		Total Dissolved Solids (TDS)	<10		5/3/2005	160.1	10

Comments:

MK 6-13-05
Data Input by Date

MRWhitford 6-14-05
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: **2005-188**
Batch: **SP05-5-5**
Client: **Environmental Monitoring**
Lab Id: **C860**
Client Id: **EC SWL-20050426-10.16**
Matrix: **Water**
Collect Date: **4/26/2005**
Collect Time: **13:15**

ISOTOPE	Activity	TPU 2 s	TPU 1 s	MDC	RDL	Units	Qualifier
$^{233/234}U$	5.32E-02	6.72E-03	3.43E-03	1.49E-03	NA	Bq/L	=
^{235}U	6.61E-04	8.61E-04	4.39E-04	8.43E-04	NA	Bq/L	U
^{238}U	2.26E-02	4.25E-03	2.17E-03	1.01E-03	NA	Bq/L	=
^{238}Pu	-1.28E-04	2.55E-04	1.30E-04	5.08E-04	NA	Bq/L	U
$^{239/240}Pu$	-4.90E-05	1.58E-04	8.06E-05	4.71E-04	NA	Bq/L	U
^{241}Am	5.95E-04	7.82E-04	3.99E-04	7.68E-04	NA	Bq/L	U
^{90}Sr	3.32E-04	4.02E-02	2.05E-02	2.49E-02	NA	Bq/L	U
^{40}K	3.50E+00	1.96E+00	9.80E-01	2.80E+00	NA	Bq/L	=
^{60}Co	-6.10E-02	3.06E-01	1.53E-01	3.40E-01	NA	Bq/L	U
^{137}Cs	8.32E-02	2.26E-01	1.13E-01	2.72E-01	NA	Bq/L	U

ISOTOPE	TPU 2 s	/	1.96	TPU 1 s
$^{233/234}U$	6.72E-03	/	1.96	3.43E-03
^{235}U	8.61E-04	/	1.96	4.39E-04
^{238}U	4.25E-03	/	1.96	2.17E-03
^{238}Pu	2.55E-04	/	1.96	1.30E-04
$^{239/240}Pu$	1.58E-04	/	1.96	8.06E-05
^{241}Am	7.82E-04	/	1.96	3.99E-04
^{90}Sr	4.02E-02	/	1.96	2.05E-02
^{40}K	1.96E+00	/	1.96	1.00E+00
^{60}Co	3.06E-01	/	1.96	1.56E-01
^{137}Cs	2.26E-01	/	1.96	1.15E-01

COPY

MK 6-13-05
Data Input by Date

MWhitefield 6-14-05
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: **2005-188**
Batch: **SP05-5-5**
Client: **Environmental Monitoring**
Lab Id: **C861**
Client Id: **EC SWL-20050426-11.16**
Matrix: **Water**
Collect Date: **4/26/2005**
Collect Time: **12:45**

ISOTOPE	Activity	TPU 2 s	TPU 1 s	MDC	RDL	Units	Qualifier
$^{233/234}U$	9.00E-03	2.82E-03	1.44E-03	1.56E-03	NA	Bq/L	=
^{235}U	-2.77E-04	5.44E-04	2.78E-04	9.80E-04	NA	Bq/L	U
^{238}U	2.32E-03	1.50E-03	7.67E-04	1.09E-03	NA	Bq/L	=
^{238}Pu	-1.35E-04	2.76E-04	1.41E-04	5.46E-04	NA	Bq/L	U
$^{239/240}Pu$	1.63E-04	4.88E-04	2.49E-04	5.08E-04	NA	Bq/L	U
^{241}Am	0.00E+00	6.09E-04	3.11E-04	8.67E-04	NA	Bq/L	U
^{90}Sr	1.13E-02	3.07E-02	1.57E-02	1.59E-02	NA	Bq/L	U
^{40}K	9.83E+00	5.76E+00	2.94E+00	8.71E+00	NA	Bq/L	=
^{60}Co	-9.75E-02	5.03E-01	2.57E-01	5.40E-01	NA	Bq/L	U
^{137}Cs	-2.93E-01	4.89E-01	2.49E-01	5.34E-01	NA	Bq/L	U

ISOTOPE	TPU 2 s	/	1.96	TPU 1 s
$^{233/234}U$	2.82E-03	/	1.96	1.44E-03
^{235}U	5.44E-04	/	1.96	2.78E-04
^{238}U	1.50E-03	/	1.96	7.67E-04
^{238}Pu	2.76E-04	/	1.96	1.41E-04
$^{239/240}Pu$	4.88E-04	/	1.96	2.49E-04
^{241}Am	6.09E-04	/	1.96	3.11E-04
^{90}Sr	3.07E-02	/	1.96	1.57E-02
^{40}K	5.76E+00	/	1.96	2.94E+00
^{60}Co	5.03E-01	/	1.96	2.57E-01
^{137}Cs	4.89E-01	/	1.96	2.49E-01

COPY

MK 6-13-05
Data Input by Date

MW Litteford 6-14-05
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: **2005-188**
Batch: **SP05-5-5**
Client: **Environmental Monitoring**
Lab Id: **C862**
Client Id: **EC SWL-20050426-12.16**
Matrix: **Water**
Collect Date: **4/26/2005**
Collect Time: **12:52**

ISOTOPE	Activity	TPU 2 s	TPU 1 s	MDC	RDL	Units	Qualifier
$^{233/234}U$	1.16E-02	3.45E-03	1.76E-03	1.63E-03	NA	Bq/L	=
^{235}U	5.18E-04	9.13E-04	4.66E-04	1.02E-03	NA	Bq/L	U
^{238}U	5.03E-03	2.27E-03	1.16E-03	1.15E-03	NA	Bq/L	=
^{238}Pu	0.00E+00	3.93E-04	2.00E-04	5.33E-04	NA	Bq/L	U
$^{239/240}Pu$	6.54E-05	3.44E-04	1.76E-04	4.95E-04	NA	Bq/L	U
^{241}Am	2.30E-04	5.05E-04	2.58E-04	6.14E-04	NA	Bq/L	U
^{90}Sr	1.01E-03	2.97E-02	1.51E-02	1.54E-02	NA	Bq/L	U
^{40}K	1.25E+01	4.83E+00	2.46E+00	6.64E+00	NA	Bq/L	=
^{60}Co	2.72E-01	4.93E-01	2.52E-01	5.53E-01	NA	Bq/L	U
^{137}Cs	-3.94E-01	4.80E-01	2.45E-01	5.14E-01	NA	Bq/L	U

ISOTOPE	TPU 2 s	MC	1.96	TPU 1 s
$^{233/234}U$	3.45E-03	/	1.96	1.76E-03
^{235}U	9.13E-04	/	1.96	4.66E-04
^{238}U	2.27E-03	/	1.96	1.16E-03
^{238}Pu	3.93E-04	/	1.96	2.00E-04
$^{239/240}Pu$	3.44E-04	/	1.96	1.76E-04
^{241}Am	5.05E-04	/	1.96	2.58E-04
^{90}Sr	2.97E-02	/	1.96	1.51E-02
^{40}K	4.83E+00	/	1.96	2.46E+00
^{60}Co	4.93E-01	/	1.96	2.52E-01
^{137}Cs	4.80E-01	/	1.96	2.45E-01

MK 6-13-05
Data Input by Date

MRWhiteford 6-14-05
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: **2005-188**
Batch: **SP05-5-5**
Client: **Environmental Monitoring**
Lab Id: **C863**
Client Id: **EC SWL-20050426-13.16**
Matrix: **Water**
Collect Date: **4/26/2005**
Collect Time: **13:00**

ISOTOPE	Activity	TPU 2 s	TPU 1 s	MDC	RDL	Units	Qualifier
$^{233/234}U$	1.81E-02	3.86E-03	1.97E-03	1.51E-03	NA	Bq/L	=
^{235}U	2.25E-04	5.19E-04	2.65E-04	8.67E-04	NA	Bq/L	U
^{238}U	6.43E-03	2.28E-03	1.16E-03	1.03E-03	NA	Bq/L	=
^{238}Pu	-4.50E-05	3.53E-04	1.80E-04	4.65E-04	NA	Bq/L	U
$^{239/240}Pu$	3.14E-04	4.16E-04	2.12E-04	4.28E-04	NA	Bq/L	U
^{241}Am	1.28E-04	4.53E-04	2.31E-04	6.32E-04	NA	Bq/L	U
^{90}Sr	-4.08E-03	2.85E-02	1.46E-02	1.46E-02	NA	Bq/L	U
^{40}K	1.74E+01	3.73E+00	1.90E+00	2.44E+00	NA	Bq/L	=
^{60}Co	-5.60E-02	3.17E-01	1.62E-01	3.54E-01	NA	Bq/L	U
^{137}Cs	-1.84E-01	2.41E-01	1.23E-01	2.61E-01	NA	Bq/L	U

ISOTOPE	TPU 2 S	/	1.96	TPU 1 s
$^{233/234}U$	3.86E-03	/	1.96	1.97E-03
^{235}U	5.19E-04	/	1.96	2.65E-04
^{238}U	2.28E-03	/	1.96	1.16E-03
^{238}Pu	3.53E-04	/	1.96	1.80E-04
$^{239/240}Pu$	4.16E-04	/	1.96	2.12E-04
^{241}Am	4.53E-04	/	1.96	2.31E-04
^{90}Sr	2.85E-02	/	1.96	1.46E-02
^{40}K	3.73E+00	/	1.96	1.90E+00
^{60}Co	3.17E-01	/	1.96	1.62E-01
^{137}Cs	2.41E-01	/	1.96	1.23E-01

COPY

MK 6-13-05
Data Input by Date

MKWhiteford 6-14-05
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: **2005-188**
Batch: **SP05-5-5**
Client: **Environmental Monitoring**
Lab Id: **C864**
Client Id: **EC SWL-20050426-14.16**
Matrix: **Water**
Collect Date: **4/26/2005**
Collect Time: **12:52**

ISOTOPE	Activity	TPU 2 S	TPU 1 S	MDC	RDL	Units	Qualifier
$^{233/234}U$	1.13E-02	3.14E-03	1.60E-03	1.55E-03	NA	Bq/L	=
^{235}U	5.20E-04	7.61E-04	3.88E-04	9.17E-04	NA	Bq/L	U
^{238}U	4.04E-03	1.89E-03	9.64E-04	1.07E-03	NA	Bq/L	=
^{238}Pu	-5.44E-05	1.92E-04	9.81E-05	6.27E-04	NA	Bq/L	U
$^{239/240}Pu$	2.72E-05	4.70E-04	2.40E-04	5.90E-04	NA	Bq/L	U
^{241}Am	2.71E-05	3.87E-04	1.97E-04	6.69E-04	NA	Bq/L	U
^{90}Sr	1.19E-02	3.83E-02	1.95E-02	2.30E-02	NA	Bq/L	U
^{40}K	1.45E+01	5.03E+00	2.57E+00	6.65E+00	NA	Bq/L	=
^{60}Co	3.33E-01	4.77E-01	2.43E-01	5.39E-01	NA	Bq/L	U
^{137}Cs	-2.99E-01	4.76E-01	2.43E-01	5.18E-01	NA	Bq/L	U

ISOTOPE	TPU 2 SA	/	1.96	TPU 1 SA
$^{233/234}U$	3.14E-03	/	1.96	1.60E-03
^{235}U	7.61E-04	/	1.96	3.88E-04
^{238}U	1.89E-03	/	1.96	9.64E-04
^{238}Pu	1.92E-04	/	1.96	9.81E-05
$^{239/240}Pu$	4.70E-04	/	1.96	2.40E-04
^{241}Am	3.87E-04	/	1.96	1.97E-04
^{90}Sr	3.83E-02	/	1.96	1.95E-02
^{40}K	5.03E+00	/	1.96	2.57E+00
^{60}Co	4.77E-01	/	1.96	2.43E-01
^{137}Cs	4.76E-01	/	1.96	2.43E-01

COPY

MK 6-13-05
Data Input by Date

M K Whiteford 6-14-05
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: **2005-188**
Batch: **SP05-5-5**
Client: **Environmental Monitoring**
Lab Id: **C865**
Client Id: **EC SWL-20050426-15.16**
Matrix: **Water**
Collect Date: **4/26/2005**
Collect Time: **13:50**

ISOTOPE	Activity	TPU 2 s	TPU 1 s	MDC	RDL	Units	Qualifier
$^{233/234}U$	7.37E-01	3.85E-02	1.97E-02	1.48E-03	NA	Bq/L	=
^{235}U	9.97E-03	3.05E-03	1.56E-03	8.30E-04	NA	Bq/L	=
^{238}U	1.75E-01	1.35E-02	6.87E-03	1.00E-03	NA	Bq/L	=
^{238}Pu	7.35E-04	1.60E-03	8.15E-04	1.53E-03	NA	Bq/L	U
$^{239/240}Pu$	-3.21E-04	7.92E-04	4.04E-04	1.49E-03	NA	Bq/L	U
^{241}Am	1.85E-04	5.48E-04	2.80E-04	9.48E-04	NA	Bq/L	U
^{90}Sr	6.14E-03	4.32E-02	2.21E-02	2.69E-02	NA	Bq/L	U
^{40}K	2.79E+02	4.52E+01	2.31E+01	4.56E+00	NA	Bq/L	=
^{60}Co	1.76E-01	4.03E-01	2.06E-01	4.68E-01	NA	Bq/L	U
^{137}Cs	-1.57E-01	2.91E-01	1.48E-01	3.25E-01	NA	Bq/L	U

ISOTOPE	TPU 2 s	/	1.96 =	TPU 1 s
$^{233/234}U$	3.85E-02	/	1.96	1.97E-02
^{235}U	3.05E-03	/	1.96	1.56E-03
^{238}U	1.35E-02	/	1.96	6.87E-03
^{238}Pu	1.60E-03	/	1.96	8.15E-04
$^{239/240}Pu$	7.92E-04	/	1.96	4.04E-04
^{241}Am	5.48E-04	/	1.96	2.80E-04
^{90}Sr	4.32E-02	/	1.96	2.21E-02
^{40}K	4.52E+01	/	1.96	2.31E+01
^{60}Co	4.03E-01	/	1.96	2.06E-01
^{137}Cs	2.91E-01	/	1.96	1.48E-01

COPY

MK 6-14-05
Data Input by Date

MRWhitford 6-14-05
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: 2005-188
Batch: SP05-5-5
Client: Environmental Monitoring
Lab Id: C866
Client Id: EC SWL-20050426-16.16
Matrix: Water
Collect Date: 4/26/2005
Collect Time: 14:00

ISOTOPE	Activity	TPU 2 s	TPU 1 s	MDC	RDL	Units	Qualifier
$^{233/234}U$	1.97E-03	1.41E-03	7.19E-04	1.63E-03	NA	Bq/L	=
^{235}U	5.63E-04	8.99E-04	4.59E-04	1.03E-03	NA	Bq/L	U
^{238}U	9.46E-04	1.01E-03	5.15E-04	1.16E-03	NA	Bq/L	U
^{238}Pu	-1.54E-04	3.51E-04	1.79E-04	7.12E-04	NA	Bq/L	U
$^{239/240}Pu$	-6.15E-05	2.21E-04	1.13E-04	6.74E-04	NA	Bq/L	U
^{241}Am	7.04E-05	5.57E-04	2.84E-04	8.67E-04	NA	Bq/L	U
^{90}Sr	1.31E-02	3.82E-02	1.95E-02	2.31E-02	NA	Bq/L	U
^{40}K	8.05E+00	5.01E+00	2.56E+00	5.77E+00	NA	Bq/L	U
^{60}Co	3.54E-02	5.14E-01	2.62E-01	5.63E-01	NA	Bq/L	U
^{137}Cs	-4.25E-01	4.86E-01	2.48E-01	5.18E-01	NA	Bq/L	U

ISOTOPE	TPU 2 s	/	1.96	TPU 1 s
$^{233/234}U$	1.41E-03	/	1.96	7.19E-04
^{235}U	8.99E-04	/	1.96	4.59E-04
^{238}U	1.01E-03	/	1.96	5.15E-04
^{238}Pu	3.51E-04	/	1.96	1.79E-04
$^{239/240}Pu$	2.21E-04	/	1.96	1.13E-04
^{241}Am	5.57E-04	/	1.96	2.84E-04
^{90}Sr	3.82E-02	/	1.96	1.95E-02
^{40}K	5.01E+00	/	1.96	2.56E+00
^{60}Co	5.14E-01	/	1.96	2.62E-01
^{137}Cs	4.86E-01	/	1.96	2.48E-01

COPY

Attachment 2

Laboratory Data Summary Sheets for WQSP 6a

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

Lab Name: TraceAnalysis, Inc.

SDG No.: 4111720

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 11/17/04

WIPP Round No.	19
WIPP Well No.	6A

Concentration Units (mg/L or mg/Kg dry weight): mg/L

WIPP Sample No.	Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
WQ6ADLR19N8	T48639		Alkalinity	106		11/24/04	SM 2320 B	4.0
WQ6ADLR19N8	T48639	7782-50-5	Chloride	491		11/23/04	300.0	2.0
WQ6ADLR19N8	T48639		Density	1.00		11/29/05	ASTM D 854-92	N/A
WQ6ADLR19N8	T48639	7727-37-9	Nitrate (as N)	6.72		11/18/04	353.3	0.10
WQ6ADLR19N8	T48639		pH	7.42		11/17/04	150.1	4-10
WQ6ADLR19N8	T48639		Conductivity	4227		11/25/04	SM2510B	
WQ6ADLR19N8	T48639		Sulfate	1960		11/23/04	300.0	2
WQ6ADLR19N8	T48639		Total Dissolved Solids (TDS)	3655		11/23/04	160.1	10
WQ6ADLR19N5	T48633		Total Organic Carbon (TOC)	1.00	U	11/22/04	415.1	1.0
WQ6ADLR19N4			Total Organic Halogen (TOX)	0.030	U	12/2/04	5320B/9020B	0.005
WQ6ADLR19N8	T48639		Total Suspended Solids (TSS)	1.00	U	11/24/04	160.2	1.0

(Density reported in g/mL, pH reported in s.u., Conductivity reported in uMHOs/cm, all other analytes reported in mg/L)
(pH ran as soon as received in laboratory)

Comments:
TOX ran by STL
pH received out of hold time.

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WQ6ADLR19N7

Lab Name: TraceAnalysis, Inc.

SDG No.: 4111720

Matrix (soil/water): Water

Lab Sample ID: T48637

Date Received: ~~11/23/04~~ 11/17/04 Mk 11/18/05

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Analysis Date	Q	RL	M
7440-36-0	Antimony	0.25	U	11/30/04		0.25	P
7440-38-2	Arsenic	0.1	U	11/30/04		0.1	P
7440-39-3	Barium	0.1	U	11/30/04		0.1	P
7440-41-7	Beryllium	0.010	U	11/30/04		0.010	P
7440-43-9	Cadmium	0.010	U	11/30/04		0.010	P
7440-47-3	Chromium	0.025	U	11/30/04		0.025	P
7439-89-6	Iron	0.500	U	11/30/04		0.500	P
7439-92-1	Lead	0.05	U	11/30/04		0.05	P
7439-97-6	Mercury	0.0002	U	11/24/04		0.0002	CV
7440-02-0	Nickel	0.05	U	11/30/04		0.05	P
7782-49-2	Selenium	0.025	U	11/30/04		0.025	P
7440-22-4	Silver	0.025	U	11/30/04		0.025	P
7440-28-0	Thallium	0.025	U	11/30/04		0.025	P
7440-62-2	Vanadium	0.05	U	11/30/04		0.05	P

Comments:

FORM I - IN

Attachment 3

Laboratory Data Summary Sheets for Subsurface Shallow Water Wells

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

R. Salness
WRES
P.O.Box 2078
Carlsbad, NM 88221-2078

Report Date: June 7, 2005

Work Order: 5051717

Project Name: WIPP/SSWMP
Project Number: WIPP/SSWMP

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
62965	SSWWC2811R3N1	water	2005-05-16	07:58	2005-05-17
62966	SSWWC2811R3N2	water	2005-05-16	07:58	2005-05-17
62967	SSWPZ12R3N1	water	2005-05-16	08:50	2005-05-17
62968	SSWPZ12R3N2	water	2005-05-16	08:50	2005-05-17
62969	SSWPZ10R3N1	water	2005-05-16	09:32	2005-05-17
62970	SSWPZ10R3N2	water	2005-05-16	09:32	2005-05-17
62971	SSWPZ7R3N1	water	2005-05-16	10:21	2005-05-17
62972	SSWPZ7R3N2	water	2005-05-16	10:21	2005-05-17
62973	SSWPZ11R3N1	water	2005-05-16	11:01	2005-05-17
62974	SSWPZ11R3N2	water	2005-05-16	11:01	2005-05-17
62975	SSWPZ11R3N1EB	water	2005-05-16	11:20	2005-05-17
62976	SSWPZ11R3N2EB	water	2005-05-16	11:20	2005-05-17

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 23 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael Ard

Dr. Blair Leftwich, Director

Analytical Report

Sample: 62965 - SSWWC2811R3N1

Analysis: Chloride (IC)
QC Batch: 18135
Prep Batch: 15975

Analytical Method: E 300.0
Date Analyzed: 2005-05-17
Sample Preparation: 2005-05-17

Prep Method: N/A
Analyzed By: WB
Prepared By: WB

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		1930	mg/L	100	0.500

Sample: 62965 - SSWWC2811R3N1

Analysis: NO3 (IC)
QC Batch: 18222
Prep Batch: 16040

Analytical Method: E 300.0
Date Analyzed: 2005-05-20
Sample Preparation: 2005-05-17

Prep Method: N/A
Analyzed By: WB
Prepared By: WB

Parameter	Flag	Result	RL Units	Dilution	RL
Nitrate-N		6.02	mg/L	5	0.200

Sample: 62965 - SSWWC2811R3N1

Analysis: SO4 (IC)
QC Batch: 18135
Prep Batch: 15975

Analytical Method: E 300.0
Date Analyzed: 2005-05-17
Sample Preparation: 2005-05-17

Prep Method: N/A
Analyzed By: WB
Prepared By: WB

Parameter	Flag	Result	RL Units	Dilution	RL
Sulfate		524	mg/L	100	0.500

Sample: 62965 - SSWWC2811R3N1

Analysis: TDS
QC Batch: 18174
Prep Batch: 16006

Analytical Method: SM 2540C
Date Analyzed: 2005-05-18
Sample Preparation: 2005-05-17

Prep Method: N/A
Analyzed By: WB
Prepared By: WB

Parameter	Flag	Result	RL Units	Dilution	RL
Total Dissolved Solids		3740	mg/L	5	10.00

Sample: 62966 - SSWWC2811R3N2

Analysis: Cr, Total
QC Batch: 18392
Prep Batch: 16103

Analytical Method: S 6010B
Date Analyzed: 2005-05-26
Sample Preparation: 2005-05-23

Prep Method: S 3010A
Analyzed By: RR
Prepared By: TP

Parameter	Flag	Result	Units	Dilution	RL
Total Chromium		0.0530	mg/L	1	0.0100

Sample: 62966 - SSWWC2811R3N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	18392	Date Analyzed:	2005-05-26	Analyzed By:	RR
Prep Batch:	16103	Sample Preparation:	2005-05-23	Prepared By:	TP

Parameter	Flag	Result	Units	Dilution	RL
Total Selenium		0.0580	mg/L	1	0.0100

Sample: 62967 - SSWPZ12R3N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18135	Date Analyzed:	2005-05-17	Analyzed By:	WB
Prep Batch:	15975	Sample Preparation:	2005-05-17	Prepared By:	WB

Parameter	Flag	Result	Units	Dilution	RL
Chloride		3730	mg/L	500	0.500

Sample: 62967 - SSWPZ12R3N1

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18135	Date Analyzed:	2005-05-17	Analyzed By:	WB
Prep Batch:	15975	Sample Preparation:	2005-05-17	Prepared By:	WB

Parameter	Flag	Result	Units	Dilution	RL
Nitrate-N		8.85	mg/L	5	0.200

Sample: 62967 - SSWPZ12R3N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18135	Date Analyzed:	2005-05-17	Analyzed By:	WB
Prep Batch:	15975	Sample Preparation:	2005-05-17	Prepared By:	WB

Parameter	Flag	Result	Units	Dilution	RL
Sulfate		679	mg/L	50	0.500

Sample: 62967 - SSWPZ12R3N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	18174	Date Analyzed:	2005-05-18	Analyzed By:	WB
Prep Batch:	16006	Sample Preparation:	2005-05-17	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Total Dissolved Solids		5890	mg/L	10	10.00

Sample: 62968 - SSWPZ12R3N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	18392	Date Analyzed:	2005-05-26	Analyzed By:	RR
Prep Batch:	16103	Sample Preparation:	2005-05-23	Prepared By:	TP

Parameter	Flag	Result	RL Units	Dilution	RL
Total Chromium		0.0540	mg/L	1	0.0100

Sample: 62968 - SSWPZ12R3N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	18392	Date Analyzed:	2005-05-26	Analyzed By:	RR
Prep Batch:	16103	Sample Preparation:	2005-05-23	Prepared By:	TP

Parameter	Flag	Result	RL Units	Dilution	RL
Total Selenium		0.0510	mg/L	1	0.0100

Sample: 62969 - SSWPZ10R3N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18222	Date Analyzed:	2005-05-20	Analyzed By:	WB
Prep Batch:	16040	Sample Preparation:	2005-05-17	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		416	mg/L	10	0.500

Sample: 62969 - SSWPZ10R3N1

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18222	Date Analyzed:	2005-05-20	Analyzed By:	WB
Prep Batch:	16040	Sample Preparation:	2005-05-17	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Nitrate-N		3.63	mg/L	5	0.200

Sample: 62969 - SSWPZ10R3N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18267	Date Analyzed:	2005-05-19	Analyzed By:	WB
Prep Batch:	16082	Sample Preparation:	2005-05-19	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		572		mg/L	50	0.500

Sample: 62969 - SSWPZ10R3N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	18174	Date Analyzed:	2005-05-18	Analyzed By:	WB
Prep Batch:	16006	Sample Preparation:	2005-05-17	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		1756		mg/L	2	10.00

Sample: 62970 - SSWPZ10R3N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	18392	Date Analyzed:	2005-05-26	Analyzed By:	RR
Prep Batch:	16103	Sample Preparation:	2005-05-23	Prepared By:	TP

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		0.0370		mg/L	1	0.0100

Sample: 62970 - SSWPZ10R3N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	18392	Date Analyzed:	2005-05-26	Analyzed By:	RR
Prep Batch:	16103	Sample Preparation:	2005-05-23	Prepared By:	TP

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		0.0440		mg/L	1	0.0100

Sample: 62971 - SSWPZ7R3N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18222	Date Analyzed:	2005-05-20	Analyzed By:	WB
Prep Batch:	16040	Sample Preparation:	2005-05-17	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		42100		mg/L	5000	0.500

Sample: 62971 - SSWPZ7R3N1

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	18605	Date Analyzed:	2005-06-02	Analyzed By:	RS
Prep Batch:	16372	Sample Preparation:	2005-06-02	Prepared By:	RS

Parameter	Flag	RL Result	Units	Dilution	RL
Nitrate-N		4.02	mg/L	25	0.100

Sample: 62971 - SSWPZ7R3N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18222	Date Analyzed:	2005-05-20	Analyzed By:	WB
Prep Batch:	16040	Sample Preparation:	2005-05-17	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		2530	mg/L	500	0.500

Sample: 62971 - SSWPZ7R3N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	18174	Date Analyzed:	2005-05-18	Analyzed By:	WB
Prep Batch:	16006	Sample Preparation:	2005-05-17	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		65900	mg/L	100	10.00

Sample: 62972 - SSWPZ7R3N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	18392	Date Analyzed:	2005-05-26	Analyzed By:	RR
Prep Batch:	16103	Sample Preparation:	2005-05-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Total Chromium		0.0940	mg/L	1	0.0100

Sample: 62972 - SSWPZ7R3N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	18392	Date Analyzed:	2005-05-26	Analyzed By:	RR
Prep Batch:	16103	Sample Preparation:	2005-05-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Total Selenium		0.0820	mg/L	1	0.0100

Sample: 62973 - SSWPZ11R3N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18222	Date Analyzed:	2005-05-20	Analyzed By:	WB
Prep Batch:	16040	Sample Preparation:	2005-05-17	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		66000		mg/L	10000	0.500

Sample: 62973 - SSWPZ11R3N1

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18222	Date Analyzed:	2005-05-20	Analyzed By:	WB
Prep Batch:	16040	Sample Preparation:	2005-05-17	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N	[1]	<0.200		mg/L	1	0.200

Sample: 62973 - SSWPZ11R3N1

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	18605	Date Analyzed:	2005-06-02	Analyzed By:	RS
Prep Batch:	16372	Sample Preparation:	2005-06-02	Prepared By:	RS

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		4.63		mg/L	25	0.100

Sample: 62973 - SSWPZ11R3N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18222	Date Analyzed:	2005-05-20	Analyzed By:	WB
Prep Batch:	16040	Sample Preparation:	2005-05-17	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		2890		mg/L	1000	0.500

Sample: 62973 - SSWPZ11R3N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	18174	Date Analyzed:	2005-05-18	Analyzed By:	WB
Prep Batch:	16006	Sample Preparation:	2005-05-17	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		100000		mg/L	200	10.00

[1] *Not entered*

Sample: 62974 - SSWPZ11R3N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	18392	Date Analyzed:	2005-05-26	Analyzed By:	RR
Prep Batch:	16103	Sample Preparation:	2005-05-23	Prepared By:	TP

Parameter	Flag	Result	RL Units	Dilution	RL
Total Chromium		0.0860	mg/L	1	0.0100

Sample: 62974 - SSWPZ11R3N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	18392	Date Analyzed:	2005-05-26	Analyzed By:	RR
Prep Batch:	16103	Sample Preparation:	2005-05-23	Prepared By:	TP

Parameter	Flag	Result	RL Units	Dilution	RL
Total Selenium		0.0480	mg/L	1	0.0100

Sample: 62975 - SSWPZ11R3N1EB

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18223	Date Analyzed:	2005-05-19	Analyzed By:	WB
Prep Batch:	16044	Sample Preparation:	2005-05-18	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		12.0	mg/L	5	0.500

Sample: 62975 - SSWPZ11R3N1EB

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18223	Date Analyzed:	2005-05-19	Analyzed By:	WB
Prep Batch:	16044	Sample Preparation:	2005-05-18	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Nitrate-N		1.46	mg/L	5	0.200

Sample: 62975 - SSWPZ11R3N1EB

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18223	Date Analyzed:	2005-05-19	Analyzed By:	WB
Prep Batch:	16044	Sample Preparation:	2005-05-18	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Sulfate		17.0	mg/L	5	0.500

Sample: 62975 - SSWPZ11R3N1EB

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	18329	Date Analyzed:	2005-05-23	Analyzed By:	WB
Prep Batch:	16136	Sample Preparation:	2005-05-20	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		51.00	mg/L	1	10.00

Sample: 62976 - SSWPZ11R3N2EB

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	18392	Date Analyzed:	2005-05-26	Analyzed By:	RR
Prep Batch:	16103	Sample Preparation:	2005-05-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Total Chromium		<0.0100	mg/L	1	0.0100

Sample: 62976 - SSWPZ11R3N2EB

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	18392	Date Analyzed:	2005-05-26	Analyzed By:	RR
Prep Batch:	16103	Sample Preparation:	2005-05-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Total Selenium		<0.0100	mg/L	1	0.0100

Method Blank (1) QC Batch: 18135

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.0504	mg/L	0.5

Method Blank (1) QC Batch: 18135

Parameter	Flag	MDL Result	Units	RL
Nitrate-N		<0.00400	mg/L	0.2

Method Blank (1) QC Batch: 18135

Parameter	Flag	MDL Result	Units	RL
Sulfate		<0.450	mg/L	0.5

Method Blank (1) QC Batch: 18174

Parameter	Flag	MDL Result	Units	RL
Total Dissolved Solids		<5.000	mg/L	10

Method Blank (1) QC Batch: 18222

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.0504	mg/L	0.5

Method Blank (1) QC Batch: 18222

Parameter	Flag	MDL Result	Units	RL
Nitrate-N		<0.00400	mg/L	0.2

Method Blank (1) QC Batch: 18222

Parameter	Flag	MDL Result	Units	RL
Sulfate		<0.450	mg/L	0.5

Method Blank (1) QC Batch: 18223

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.0504	mg/L	0.5

Method Blank (1) QC Batch: 18223

Parameter	Flag	MDL Result	Units	RL
Nitrate-N		<0.00400	mg/L	0.2

Method Blank (1) QC Batch: 18223

Parameter	Flag	MDL Result	Units	RL
Sulfate		<0.450	mg/L	0.5

Method Blank (1) QC Batch: 18267

Parameter	Flag	MDL Result	Units	RL
Sulfate		<0.450	mg/L	0.5

Method Blank (1) QC Batch: 18329

Parameter	Flag	MDL Result	Units	RL
Total Dissolved Solids		<5.000	mg/L	10

Method Blank (1) QC Batch: 18392

Parameter	Flag	MDL Result	Units	RL
Total Chromium		<0.000789	mg/L	0.01

Method Blank (1) QC Batch: 18392

Parameter	Flag	MDL Result	Units	RL
Total Selenium		<0.00492	mg/L	0.01

Method Blank (1) QC Batch: 18605

Parameter	Flag	MDL Result	Units	RL
Nitrate-N		<0.0338	mg/L	0.1

Duplicate (1) QC Batch: 18174

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	3950	3740	mg/L	5	6	14.9

Duplicate (1) QC Batch: 18329

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	778.0	720.0	mg/L	2	8	14.9

Laboratory Control Spike (LCS-1) QC Batch: 18135

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.2	12.3	mg/L	1	12.5	<0.0504	98	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 18135

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	2.50	2.50	mg/L	1	2.50	<0.00400	100	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 18135

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	12.4	12.4	mg/L	1	12.5	<0.450	99	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 18222

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.5	12.5	mg/L	1	12.5	<0.0504	100	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 18222

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	2.54	2.52	mg/L	1	2.50	<0.00400	102	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 18222

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	12.5	12.8	mg/L	1	12.5	<0.450	100	2	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 18223

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.6	12.6	mg/L	1	12.5	<0.0504	101	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 18223

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	2.54	2.53	mg/L	1	2.50	<0.00400	102	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 18223

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	12.6	12.6	mg/L	1	12.5	<0.450	101	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 18267

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	12.6	12.6	mg/L	1	12.5	<0.450	101	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 18392

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Chromium	0.107	0.107	mg/L	1	0.100	<0.000789	107	0	85.7 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 18392

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Selenium	0.460	0.464	mg/L	1	0.500	<0.00492	92	1	85 - 105	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 18605

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	0.169	0.174	mg/L	1	0.160	<0.0338	106	3	80.6 - 117	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 18135 Spiked Sample: 62967

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	10600	10200	mg/L	500	12.5	3730	110	4	70.7 - 124	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 18135 Spiked Sample: 62967

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	1390	1360	mg/L	500	2.50	<2.00	111	2	78.8 - 116	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 18135 Spiked Sample: 62967

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	7560	7340	mg/L	500	12.5	1110	103	3	82.5 - 123	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 18222 Spiked Sample: 62977

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	738	747	mg/L	50	12.5	156	93	1	70.7 - 124	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 18222 Spiked Sample: 62977

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	136	135	mg/L	50	2.50	<0.200	109	1	78.8 - 116	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 18222 Spiked Sample: 62977

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	673	680	mg/L	50	12.5	55.7	99	1	82.5 - 123	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 18223 Spiked Sample: 63015

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	2630	2620	mg/L	100	12.5	1370	101	0	70.7 - 124	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 18223 Spiked Sample: 63015

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	277	278	mg/L	100	2.50	31.2	98	0	78.8 - 116	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 18223 Spiked Sample: 63015

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	2120	2120	mg/L	100	12.5	860	101	0	82.5 - 123	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 18267 Spiked Sample: 63123

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	233	233	mg/L	10	12.5	108	100	0	82.5 - 123	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 18392 Spiked Sample: 62181

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Chromium	3.03	3.05	mg/L	25	0.100	0.548	99	1	75 - 122	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 18392 Spiked Sample: 62181

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Selenium	11.8	11.9	mg/L	25	0.500	<0.123	94	1	75 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 18605 Spiked Sample: 63750

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	0.181	0.177	mg/L	1	0.160	<0.0338	113	2	69.1 - 127	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 18135

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.1	97	90 - 110	2005-05-17

Standard (ICV-1) QC Batch: 18135

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.47	99	90 - 110	2005-05-17

Standard (ICV-1) QC Batch: 18135

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.5	100	90 - 110	2005-05-17

Standard (CCV-1) QC Batch: 18135

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.4	99	90 - 110	2005-05-17

Standard (CCV-1) QC Batch: 18135

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.51	100	90 - 110	2005-05-17

Standard (CCV-1) QC Batch: 18135

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.5	100	90 - 110	2005-05-17

Standard (ICV-1) QC Batch: 18174

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1011	101	90 - 110	2005-05-18

Standard (CCV-1) QC Batch: 18174

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1023	102	90 - 110	2005-05-18

Standard (ICV-1) QC Batch: 18222

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.4	99	90 - 110	2005-05-20

Standard (ICV-1) QC Batch: 18222

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.51	100	90 - 110	2005-05-20

Standard (ICV-1) QC Batch: 18222

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.5	100	90 - 110	2005-05-20

Standard (CCV-1) QC Batch: 18222

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.4	99	90 - 110	2005-05-20

Standard (CCV-1) QC Batch: 18222

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.52	101	90 - 110	2005-05-20

Standard (CCV-1) QC Batch: 18222

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.5	100	90 - 110	2005-05-20

Standard (ICV-1) QC Batch: 18223

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.5	100	90 - 110	2005-05-19

Standard (ICV-1) QC Batch: 18223

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.54	102	90 - 110	2005-05-19

Standard (ICV-1) QC Batch: 18223

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.7	102	90 - 110	2005-05-19

Standard (CCV-1) QC Batch: 18223

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.5	100	90 - 110	2005-05-19

Standard (CCV-1) QC Batch: 18223

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.55	102	90 - 110	2005-05-19

Standard (CCV-1) QC Batch: 18223

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.7	102	90 - 110	2005-05-19

Standard (ICV-1) QC Batch: 18267

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.7	102	90 - 110	2005-05-19

Standard (CCV-1) QC Batch: 18267

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.6	101	90 - 110	2005-05-19

Standard (ICV-1) QC Batch: 18329

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1003	100	90 - 110	2005-05-23

Standard (CCV-1) QC Batch: 18329

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1013	101	90 - 110	2005-05-23

Standard (ICV-1) QC Batch: 18392

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		mg/L	1.00	1.03	103	90 - 110	2005-05-26

Standard (ICV-1) QC Batch: 18392

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1.00	1.04	104	90 - 110	2005-05-26

Standard (CCV-1) QC Batch: 18392

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		mg/L	1.00	0.962	96	90 - 110	2005-05-26

Standard (CCV-1) QC Batch: 18392

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1.00	0.960	96	90 - 110	2005-05-26

Standard (ICV-1) QC Batch: 18605

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	0.160	0.164	102	85 - 115	2005-06-02

Standard (CCV-1) QC Batch: 18605

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	0.160	0.155	97	85 - 115	2005-06-02

5051717

REQUEST FOR ANALYSIS

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED 5/16/05 RFA Control No 6347
LAB DESTINATION Trace Analysis
LABORATORY CONTACT Mike Abel
SEND LAB REPORT TO Judy Lanier C of C Control No 6347
P.O. Box 2078
Carlsbad, N.M. 88221
DATE REPORT REQUIRED 6/16/05
PROJECT CONTACT Rick Salness, WRES Hydrologist
PROJECT CONTACT PHONE NO. (505) 234-8966

SAMPLING PROGRAM WIPP/SSWMP
PURCHASE ORDER NO. 403436-3 LT 3

Sample Number	Sample Type	Sample Quantity	Preservative	Req't. Testing Program	Special Instructions
SSWC2811R3N1	Ground Water	1 liter x 1	NONE	General Chemistry	EPA 160.1, 300 62965
SSWC2811R3N2			HNO_3 pH<2	Selenium/Chromium	Method 6010B 66
SSW PZ12R3N1			NONE	General Chemistry	EPA 160.1, 300 67
SSW PZ12R3N2			HNO_3 pH<2	Selenium/Chromium	Method 6010B 68
SSW PZ10R3N1			NONE	General Chemistry	EPA 160.1, 300 69
SSW PZ10R3N2			HNO_3 pH<2	Selenium/Chromium	Method 6010B 70
SSW PZ7R3N1			NONE	General Chemistry	EPA 160.1, 300 71
SSW PZ7R3N2			HNO_3 pH<2	Selenium/Chromium	Method 6010B 72
SSW PZ11R3N1			NONE	General Chemistry	EPA 160.1, 300 73
SSW PZ11R3N2	Ground Water		HNO_3 pH<2	Selenium/Chromium	Method 6010B 74
SSW PZ11R3N1EB	EB		NONE	General Chemistry	EPA 160.1, 300 75
SSW PZ11R3N2EB	EB	1 liter x 1	HNO_3 pH<2	Selenium/Chromium	Method 6010B 76

* General Chemistry – EPA 160.1 = TDS only, EPA 300 = Chloride, Sulfate + Nitrate only

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL X RUSH _____ (Subject in rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NONHAZARD X FLAMMABLE _____ SKIN IRRITANT _____ HIGHLY TOXIC _____ BIOLOGICAL _____ OTHER _____ (Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT _____ DISPOSAL BY LAB X

FOR LAB USE ONLY

RECEIVED BY [signature] DATE/TIME 5/17/05 10:30

4°C TNM40 GL1 168435 8797 MA

WP 02-EM3001

WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

Report Date: June 7, 2005
WIPP/SSWMP

Work Order: 5051717
WIPP/SSWMP

Page Number: 22 of 23

03696

CHAIN-OF-CUSTODY RECORD

5051717

C of C Control № 6347

RFA Control № 6347

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

SAMPLING PROGRAM WIPP/SSWMP LAB DESTINATION Trace Analysis

SAMPLE TEAM MEMBERS B. Foster, R. Salness, Hydrologist CARRIER/WAYBILL NO. 903 310 247 4

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
SSWC2811R3N1	C-2811, SSW	5/16/05 07:58	Ground water	1 liter plastic x1	good 62965	
SSWC2811R3N2	C-2811, SSW	5/16/05 07:58			66	
SSWPZ12R3N1	PZ-12, SSW	08:50			67	
SSWPZ12R3N2	PZ-12, SSW	08:50			68	
SSWPZ10R3N1	PZ-10, SSW	09:32			69	
SSWPZ10R3N2	PZ-10, SSW	09:32			70	
SSWPZ7R3N1	PZ-7, SSW	10:21			71	
SSWPZ7R3N2	PZ-7, SSW	10:21			72	
SSWPZ11R3N1	PZ-11, SSW	11:01			73	
SSWPZ11R3N2	PZ-11, SSW	11:01	Ground water		74	
SSWPZ11R3N1EB	PZ-11, EB	11:20	EB		75	
SSWPZ11R3N2EB	PZ-11, EB	5/16/05 11:20	EB	1 liter plastic x1	76	

Special Instructions: NONE

Possible Sample Hazards: NONE

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Bill Foster, WRES, 5/16/05, 13:10
   Received By:
2. Relinquished By:
   Received By:
3. Relinquished By:
   Received By:
4. Relinquished By:
   Received By: 5/17/05 10:30

WP 02-EM3001

WHITE - Original to accompany samples

4°C

YELLOW - Field copy

PINK - Other

TNMH0 GL1168 4358797

Report Date: June 7, 2005
WIPP/SSWMP

Work Order: 5051717
WIPP/SSWMP

Page Number: 23 of 23

03697

Analytical and Quality Control Report

R. Salness
WRES
P.O.Box 2078
Carlsbad, NM 88221-2078

Report Date: June 7, 2005

Work Order: 5051815

Project Name: WIPP/SSWMP
Project Number: WIPP/SSWMP

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
63015	SSWC2507R3N1	water	2005-05-17	08:40	2005-05-18
63016	SSWC2507R3N2	water	2005-05-17	08:40	2005-05-18
63017	SSWPZ1R3N1	water	2005-05-17	09:29	2005-05-18
63018	SSWPZ1R3N2	water	2005-05-17	09:29	2005-05-18
63019	SSWPZ5R3N1	water	2005-05-17	10:40	2005-05-18
63020	SSWPZ5R3N2	water	2005-05-17	10:40	2005-05-18
63021	SSWPZ6R3N1	water	2005-05-17	10:08	2005-05-18
63022	SSWPZ6R3N2	water	2005-05-17	10:08	2005-05-18
63023	SSWPZ9R3N1	water	2005-05-17	07:40	2005-05-18
63024	SSWPZ9R3N2	water	2005-05-17	07:40	2005-05-18
63025	SSWPZ5R3N1EB	water	2005-05-17	11:00	2005-05-18
63026	SSWPZ5R3N2EB	water	2005-05-17	11:00	2005-05-18

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 18 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael Abel

Dr. Blair Leftwich, Director

Analytical Report

Sample: 63015 - SSWC2507R3N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18223	Date Analyzed:	2005-05-19	Analyzed By:	WB
Prep Batch:	16044	Sample Preparation:	2005-05-18	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		1370		mg/L	100	0.500

Sample: 63015 - SSWC2507R3N1

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18223	Date Analyzed:	2005-05-19	Analyzed By:	WB
Prep Batch:	16044	Sample Preparation:	2005-05-18	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		7.94		mg/L	10	0.200

Sample: 63015 - SSWC2507R3N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18223	Date Analyzed:	2005-05-19	Analyzed By:	WB
Prep Batch:	16044	Sample Preparation:	2005-05-18	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		860		mg/L	100	0.500

Sample: 63015 - SSWC2507R3N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	18329	Date Analyzed:	2005-05-23	Analyzed By:	WB
Prep Batch:	16136	Sample Preparation:	2005-05-20	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		3340		mg/L	20	10.00

Sample: 63016 - SSWC2507R3N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	18411	Date Analyzed:	2005-05-27	Analyzed By:	RR
Prep Batch:	16103	Sample Preparation:	2005-05-23	Prepared By:	TP

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		0.0630		mg/L	1	0.0100

Sample: 63016 - SSWC2507R3N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	18411	Date Analyzed:	2005-05-27	Analyzed By:	RR
Prep Batch:	16103	Sample Preparation:	2005-05-23	Prepared By:	TP

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		0.0780		mg/L	1	0.0100

Sample: 63017 - SSWPZ1R3N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18223	Date Analyzed:	2005-05-19	Analyzed By:	WB
Prep Batch:	16044	Sample Preparation:	2005-05-18	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		62300		mg/L	10000	0.500

Sample: 63017 - SSWPZ1R3N1

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18223	Date Analyzed:	2005-05-19	Analyzed By:	WB
Prep Batch:	16044	Sample Preparation:	2005-05-18	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N	[1]	<0.200		mg/L	1	0.200

Sample: 63017 - SSWPZ1R3N1

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	18605	Date Analyzed:	2005-06-02	Analyzed By:	RS
Prep Batch:	16372	Sample Preparation:	2005-06-02	Prepared By:	RS

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		1.47		mg/L	10	0.100

[1] *Not entered*

Sample: 63017 - SSWPZ1R3N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18223	Date Analyzed:	2005-05-19	Analyzed By:	WB
Prep Batch:	16044	Sample Preparation:	2005-05-18	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Sulfate		2640	mg/L	1000	0.500

Sample: 63017 - SSWPZ1R3N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	18329	Date Analyzed:	2005-05-23	Analyzed By:	WB
Prep Batch:	16136	Sample Preparation:	2005-05-20	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Total Dissolved Solids		100500	mg/L	500	10.00

Sample: 63018 - SSWPZ1R3N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	18411	Date Analyzed:	2005-05-27	Analyzed By:	RR
Prep Batch:	16103	Sample Preparation:	2005-05-23	Prepared By:	TP

Parameter	Flag	Result	RL Units	Dilution	RL
Total Chromium		0.0770	mg/L	1	0.0100

Sample: 63018 - SSWPZ1R3N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	18411	Date Analyzed:	2005-05-27	Analyzed By:	RR
Prep Batch:	16103	Sample Preparation:	2005-05-23	Prepared By:	TP

Parameter	Flag	Result	RL Units	Dilution	RL
Total Selenium		0.0600	mg/L	1	0.0100

Sample: 63019 - SSWPZ5R3N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18479	Date Analyzed:	2005-05-25	Analyzed By:	WB
Prep Batch:	16261	Sample Preparation:	2005-05-27	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		46000	mg/L	1000	0.500

Sample: 63019 - SSWPZ5R3N1

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	18605	Date Analyzed:	2005-06-02	Analyzed By:	RS
Prep Batch:	16372	Sample Preparation:	2005-06-02	Prepared By:	RS

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		2.96		mg/L	25	0.100

Sample: 63019 - SSWPZ5R3N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18479	Date Analyzed:	2005-05-25	Analyzed By:	WB
Prep Batch:	16261	Sample Preparation:	2005-05-27	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		3260		mg/L	1000	0.500

Sample: 63019 - SSWPZ5R3N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	18329	Date Analyzed:	2005-05-23	Analyzed By:	WB
Prep Batch:	16136	Sample Preparation:	2005-05-20	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		65400		mg/L	200	10.00

Sample: 63020 - SSWPZ5R3N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	18411	Date Analyzed:	2005-05-27	Analyzed By:	RR
Prep Batch:	16103	Sample Preparation:	2005-05-23	Prepared By:	TP

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		0.0670		mg/L	1	0.0100

Sample: 63020 - SSWPZ5R3N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	18411	Date Analyzed:	2005-05-27	Analyzed By:	RR
Prep Batch:	16103	Sample Preparation:	2005-05-23	Prepared By:	TP

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		0.0930		mg/L	1	0.0100

Sample: 63021 - SSWPZ6R3N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18479	Date Analyzed:	2005-05-25	Analyzed By:	WB
Prep Batch:	16261	Sample Preparation:	2005-05-27	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		109000		mg/L	10000	0.500

Sample: 63021 - SSWPZ6R3N1

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	18605	Date Analyzed:	2005-06-02	Analyzed By:	RS
Prep Batch:	16372	Sample Preparation:	2005-06-02	Prepared By:	RS

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		4.25		mg/L	25	0.100

Sample: 63021 - SSWPZ6R3N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18479	Date Analyzed:	2005-05-25	Analyzed By:	WB
Prep Batch:	16261	Sample Preparation:	2005-05-27	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		3610		mg/L	1000	0.500

Sample: 63021 - SSWPZ6R3N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	18329	Date Analyzed:	2005-05-23	Analyzed By:	WB
Prep Batch:	16136	Sample Preparation:	2005-05-20	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		160500		mg/L	500	10.00

Sample: 63022 - SSWPZ6R3N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	18411	Date Analyzed:	2005-05-27	Analyzed By:	RR
Prep Batch:	16103	Sample Preparation:	2005-05-23	Prepared By:	TP

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		0.0540		mg/L	1	0.0100

Sample: 63022 - SSWPZ6R3N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	18411	Date Analyzed:	2005-05-27	Analyzed By:	RR
Prep Batch:	16103	Sample Preparation:	2005-05-23	Prepared By:	TP

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		0.0500		mg/L	1	0.0100

Sample: 63023 - SSWPZ9R3N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18479	Date Analyzed:	2005-05-25	Analyzed By:	WB
Prep Batch:	16261	Sample Preparation:	2005-05-27	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		182000		mg/L	10000	0.500

Sample: 63023 - SSWPZ9R3N1

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	18605	Date Analyzed:	2005-06-02	Analyzed By:	RS
Prep Batch:	16372	Sample Preparation:	2005-06-02	Prepared By:	RS

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		2.82		mg/L	25	0.100

Sample: 63023 - SSWPZ9R3N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18479	Date Analyzed:	2005-05-25	Analyzed By:	WB
Prep Batch:	16261	Sample Preparation:	2005-05-27	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		5090		mg/L	1000	0.500

Sample: 63023 - SSWPZ9R3N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	18329	Date Analyzed:	2005-05-23	Analyzed By:	WB
Prep Batch:	16136	Sample Preparation:	2005-05-20	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		164000		mg/L	500	10.00

Sample: 63024 - SSWPZ9R3N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	18411	Date Analyzed:	2005-05-27	Analyzed By:	RR
Prep Batch:	16103	Sample Preparation:	2005-05-23	Prepared By:	TP

Parameter	Flag	Result	RL Units	Dilution	RL
Total Chromium		0.0710	mg/L	1	0.0100

Sample: 63024 - SSWPZ9R3N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	18411	Date Analyzed:	2005-05-27	Analyzed By:	RR
Prep Batch:	16103	Sample Preparation:	2005-05-23	Prepared By:	TP

Parameter	Flag	Result	RL Units	Dilution	RL
Total Selenium		0.0500	mg/L	1	0.0100

Sample: 63025 - SSWPZ5R3N1EB

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18223	Date Analyzed:	2005-05-19	Analyzed By:	WB
Prep Batch:	16044	Sample Preparation:	2005-05-18	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		17.7	mg/L	5	0.500

Sample: 63025 - SSWPZ5R3N1EB

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18223	Date Analyzed:	2005-05-19	Analyzed By:	WB
Prep Batch:	16044	Sample Preparation:	2005-05-18	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Nitrate-N		1.56	mg/L	5	0.200

Sample: 63025 - SSWPZ5R3N1EB

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	18223	Date Analyzed:	2005-05-19	Analyzed By:	WB
Prep Batch:	16044	Sample Preparation:	2005-05-18	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Sulfate		30.3	mg/L	5	0.500

Sample: 63025 - SSWPZ5R3N1EB

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	18329	Date Analyzed:	2005-05-23	Analyzed By:	WB
Prep Batch:	16136	Sample Preparation:	2005-05-20	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		95.00	mg/L	1	10.00

Sample: 63026 - SSWPZ5R3N2EB

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	18411	Date Analyzed:	2005-05-27	Analyzed By:	RR
Prep Batch:	16103	Sample Preparation:	2005-05-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Total Chromium		<0.0100	mg/L	1	0.0100

Sample: 63026 - SSWPZ5R3N2EB

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	18411	Date Analyzed:	2005-05-27	Analyzed By:	RR
Prep Batch:	16103	Sample Preparation:	2005-05-23	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Total Selenium		<0.0100	mg/L	1	0.0100

Method Blank (1) QC Batch: 18223

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.0504	mg/L	0.5

Method Blank (1) QC Batch: 18223

Parameter	Flag	MDL Result	Units	RL
Nitrate-N		<0.00400	mg/L	0.2

Method Blank (1) QC Batch: 18223

Parameter	Flag	MDL Result	Units	RL
Sulfate		<0.450	mg/L	0.5

Method Blank (1) QC Batch: 18329

Parameter	Flag	MDL Result	Units	RL
Total Dissolved Solids		<5.000	mg/L	10

Method Blank (1) QC Batch: 18411

Parameter	Flag	MDL Result	Units	RL
Total Chromium		<0.000789	mg/L	0.01

Method Blank (1) QC Batch: 18411

Parameter	Flag	MDL Result	Units	RL
Total Selenium		<0.00492	mg/L	0.01

Method Blank (1) QC Batch: 18479

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.0504	mg/L	0.5

Method Blank (1) QC Batch: 18479

Parameter	Flag	MDL Result	Units	RL
Sulfate		<0.450	mg/L	0.5

Method Blank (1) QC Batch: 18605

Parameter	Flag	MDL Result	Units	RL
Nitrate-N		<0.0338	mg/L	0.1

Duplicate (1) QC Batch: 18329

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	778.0	720.0	mg/L	2	8	14.9

Laboratory Control Spike (LCS-1) QC Batch: 18223

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	12.6	12.6	mg/L	1	12.5	<0.0504	101	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 18223

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	2.54	2.53	mg/L	1	2.50	<0.00400	102	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 18223

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	12.6	12.6	mg/L	1	12.5	<0.450	101	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 18411

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Chromium	0.101	0.103	mg/L	1	0.100	<0.000789	101	2	85.7 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 18411

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Selenium	0.425	0.430	mg/L	1	0.500	<0.00492	85	1	85 - 105	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 18479

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	13.7	12.3	mg/L	1	12.5	<0.0504	110	11	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 18479

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	12.8	12.9	mg/L	1	12.5	<0.450	102	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 18605

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	0.169	0.174	mg/L	1	0.160	<0.0338	106	3	80.6 - 117	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 18223 Spiked Sample: 63015

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	2630	2620	mg/L	100	12.5	1370	101	0	70.7 - 124	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 18223 Spiked Sample: 63015

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	277	278	mg/L	100	2.50	31.2	98	0	78.8 - 116	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 18223 Spiked Sample: 63015

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	2120	2120	mg/L	100	12.5	860	101	0	82.5 - 123	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 18411 Spiked Sample: 63020

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Chromium	0.163	0.160	mg/L	1	0.100	0.067	96	2	75 - 122	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 18411 Spiked Sample: 63020

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Selenium	0.493	0.498	mg/L	1	0.500	0.093	80	1	75 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 18479 Spiked Sample: 63688

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	488	473	mg/L	10	12.5	355	106	3	70.7 - 124	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 18479 Spiked Sample: 63688

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	238	230	mg/L	10	12.5	100	110	3	82.5 - 123	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 18605 Spiked Sample: 63750

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	0.181	0.177	mg/L	1	0.160	<0.0338	113	2	69.1 - 127	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 18223

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.5	100	90 - 110	2005-05-19

Standard (ICV-1) QC Batch: 18223

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.54	102	90 - 110	2005-05-19

Standard (ICV-1) QC Batch: 18223

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.7	102	90 - 110	2005-05-19

Standard (CCV-1) QC Batch: 18223

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.5	100	90 - 110	2005-05-19

Standard (CCV-1) QC Batch: 18223

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.55	102	90 - 110	2005-05-19

Standard (CCV-1) QC Batch: 18223

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.7	102	90 - 110	2005-05-19

Standard (ICV-1) QC Batch: 18329

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1003	100	90 - 110	2005-05-23

Standard (CCV-1) QC Batch: 18329

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1013	101	90 - 110	2005-05-23

Standard (ICV-1) QC Batch: 18411

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		mg/L	1.00	0.998	100	90 - 110	2005-05-27

Standard (ICV-1) QC Batch: 18411

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1.00	0.992	99	90 - 110	2005-05-27

Standard (CCV-1) QC Batch: 18411

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		mg/L	1.00	0.917	92	90 - 110	2005-05-27

Standard (CCV-1) QC Batch: 18411

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1.00	0.905	90	90 - 110	2005-05-27

Standard (ICV-1) QC Batch: 18479

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.3	98	90 - 110	2005-05-25

Standard (ICV-1) QC Batch: 18479

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.7	102	90 - 110	2005-05-25

Standard (CCV-1) QC Batch: 18479

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.3	98	90 - 110	2005-05-25

Standard (CCV-1) QC Batch: 18479

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	13.0	104	90 - 110	2005-05-25

Standard (ICV-1) QC Batch: 18605

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	0.160	0.164	102	85 - 115	2005-06-02

Standard (CCV-1) QC Batch: 18605

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	0.160	0.155	97	85 - 115	2005-06-02

CHAIN-OF-CUSTODY RECORD

5051815

C of C Control № 6348

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

RFA Control № 6348

SAMPLING PROGRAM WIPP/SSWMP LAB DESTINATION Trace Analysis

SAMPLE TEAM MEMBERS B. Foster, R. Salness (Hydrologist) CARRIER/WAYBILL NO. GL1 168 435 8808

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
SSWC2507R3N1	C-2507, SSW	5/17/05 8:40	Ground Water	1 liter plastic X1	63015	
SSWC2507R3N2	C-2507, SSW	8:40			16	
SSW PZ1R3N1	PZ-1, SSW	9:29			17	
SSW PZ1 R3N2	PZ-1, SSW	9:29			18	
SSW PZ5R3N1	PZ-5, SSW	10:40			19	
SSWPZ5R3N2	PZ-5, SSW	10:40			20	
SSWPZ6R3N1	PZ-6, SSW	10:08			21	
SSW PZ6R3N2	PZ-6, SSW	10:08			22	
SSWPZ9R3N1	PZ-9, SSW	07:40			23	
SSW PZ9R3N2	PZ-9, SSW DUP	07:40	Ground Water		24	
SSWPZ5R3N1EB	PZ-5, ~~SSW~~ EB	11:00	EB		25	
SSWPZ5R3N2EB	PZ-5, EB	5/17/05 11:00	EB	1 liter plastic X1	26	

N/A

Special Instructions: NONE

Possible Sample Hazards: NONE

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Bill Foster, WRES, 5/17/05, 13:00
   Received By: _____
2. Relinquished By: _____
   Received By: _____
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: [signature] 5/18/05 9:30

WP 02-EM3001 WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

RP 3°C GM - G21168435 8808

Report Date: June 7, 2005
WIPP/SSWMP

Work Order: 5051815
WIPP/SSWMP

Page Number: 17 of 18

03714

5051815

REQUEST FOR ANALYSIS

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED 5/17/05 RFA Control No 6348
LAB DESTINATION Trace Analysis
LABORATORY CONTACT Mike Abel
SEND LAB REPORT TO Judy Lavier C of C Control No 6348
P.O. Box 2078
Carlsbad, N.M. 88221
DATE REPORT REQUIRED 6/17/05
PROJECT CONTACT Rick Salness (Hydrologist)
PROJECT CONTACT PHONE NO. (505) 234-8566

SAMPLING PROGRAM WIPP/SSWMP
PURCHASE ORDER NO. 403436-5 KI-5

Sample Number	Sample Type	Sample Quantity	Preservative	Req't. Testing Program	Special Instructions	
SSWC2507R3N1	Ground Water	1 liter x 1	NONE	General Chemistry*	EPA 160.1, 300	15
SSWC2507R3N2	↑	↑	HNO_3 pH<2	Selenium/Chromium	Method 6010B	16
SSWPZ1R3N1			NONE	General Chemistry	EPA 160.1, 300	17
SSWPZ1R3N2			HNO_3 pH<2	Selenium/Chromium	Method 6010B	18
SSWPZ5R3N1			NONE	General Chemistry	EPA 160.1, 300	19
SSWPZ5R3N2			HNO_3 pH<2	Selenium/Chromium	Method 6010B	20
SSWPZ6R3N1			NONE	General Chemistry	EPA 160.1, 300	21
SSWPZ6R3N2			HNO_3 pH<2	Selenium/Chromium	Method 6010B	22
SSWPZ9R3N1			NONE	General Chemistry	EPA 160.1, 300	23
SSWPZ9R3N2	Ground Water		HNO_3 pH<2	Selenium/Chromium	Method 6010B	24
SSWPZ5R3N1EB	EB	↓	NONE	General Chemistry	EPA 160.1, 300	25
SSWPZ5R3N2EB	EB	1 liter x 1	HNO_3 pH<2	Selenium/Chromium	Method 6010B	26

* General Chemistry – EPA 160.1 = TDS only, EPA 300 = Chloride, Sulfate, + Nitrate only

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL X RUSH _____ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NONHAZARD X FLAMMABLE _____ SKIN IRRITANT _____ HIGHLY TOXIC _____ BIOLOGICAL _____ OTHER _____ (Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT _____ DISPOSAL BY LAB X

FOR LAB USE ONLY

RECEIVED BY Jessica Kuykendall DATE/TIME 5/18/05 9:30

WP 02-EM3001 WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

Report Date: June 7, 2005
WIPP/SSWMP

Work Order: 5051815
WIPP/SSWMP

Page Number: 18 of 18

03715

Summary Report

R. Salness
WRES
P.O.Box 2078
Carlsbad, NM 88221-2078

Report Date: June 7, 2005
Work Order: 5051815

Project Name: WIPP/SSWMP

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
63015	SSWC2507R3N1	water	2005-05-17	08:40	2005-05-18
63016	SSWC2507R3N2	water	2005-05-17	08:40	2005-05-18
63017	SSWPZ1R3N1	water	2005-05-17	09:29	2005-05-18
63018	SSWPZ1R3N2	water	2005-05-17	09:29	2005-05-18
63019	SSWPZ5R3N1	water	2005-05-17	10:40	2005-05-18
63020	SSWPZ5R3N2	water	2005-05-17	10:40	2005-05-18
63021	SSWPZ6R3N1	water	2005-05-17	10:08	2005-05-18
63022	SSWPZ6R3N2	water	2005-05-17	10:08	2005-05-18
63023	SSWPZ9R3N1	water	2005-05-17	07:40	2005-05-18
63024	SSWPZ9R3N2	water	2005-05-17	07:40	2005-05-18
63025	SSWPZ5R3N1EB	water	2005-05-17	11:00	2005-05-18
63026	SSWPZ5R3N2EB	water	2005-05-17	11:00	2005-05-18

Sample: 63015 - SSWC2507R3N1

Param	Flag	Result	Units	RL
Chloride		1370	mg/L	0.500
Nitrate-N		7.94	mg/L	0.200
Sulfate		860	mg/L	0.500
Total Dissolved Solids		3340	mg/L	10.00

Sample: 63016 - SSWC2507R3N2

Param	Flag	Result	Units	RL
Total Chromium		0.0630	mg/L	0.0100
Total Selenium		0.0780	mg/L	0.0100

Sample: 63017 - SSWPZ1R3N1

Param	Flag	Result	Units	RL
Chloride		62300	mg/L	0.500
Nitrate-N		<0.200	mg/L	0.200

continued ...

sample 63017 continued ...

Param	Flag	Result	Units	RL
Nitrate-N		1.47	mg/L	0.100
Sulfate		2640	mg/L	0.500
Total Dissolved Solids		100500	mg/L	10.00

Sample: 63018 - SSWPZ1R3N2

Param	Flag	Result	Units	RL
Total Chromium		0.0770	mg/L	0.0100
Total Selenium		0.0600	mg/L	0.0100

Sample: 63019 - SSWPZ5R3N1

Param	Flag	Result	Units	RL
Chloride		46000	mg/L	0.500
Nitrate-N		2.96	mg/L	0.100
Sulfate		3260	mg/L	0.500
Total Dissolved Solids		65400	mg/L	10.00

Sample: 63020 - SSWPZ5R3N2

Param	Flag	Result	Units	RL
Total Chromium		0.0670	mg/L	0.0100
Total Selenium		0.0930	mg/L	0.0100

Sample: 63021 - SSWPZ6R3N1

Param	Flag	Result	Units	RL
Chloride		109000	mg/L	0.500
Nitrate-N		4.25	mg/L	0.100
Sulfate		3610	mg/L	0.500
Total Dissolved Solids		160500	mg/L	10.00

Sample: 63022 - SSWPZ6R3N2

Param	Flag	Result	Units	RL
Total Chromium		0.0540	mg/L	0.0100
Total Selenium		0.0500	mg/L	0.0100

Sample: 63023 - SSWPZ9R3N1

Param	Flag	Result	Units	RL
Chloride		182000	mg/L	0.500
Nitrate-N		2.82	mg/L	0.100
Sulfate		5090	mg/L	0.500

continued ...

sample 63023 continued ...

Param	Flag	Result	Units	RL
Total Dissolved Solids		164000	mg/L	10.00

Sample: 63024 - SSWPZ9R3N2

Param	Flag	Result	Units	RL
Total Chromium		0.0710	mg/L	0.0100
Total Selenium		0.0500	mg/L	0.0100

Sample: 63025 - SSWPZ5R3N1EB

Param	Flag	Result	Units	RL
Chloride		17.7	mg/L	0.500
Nitrate-N		1.56	mg/L	0.200
Sulfate		30.3	mg/L	0.500
Total Dissolved Solids		95.00	mg/L	10.00

Sample: 63026 - SSWPZ5R3N2EB

Param	Flag	Result	Units	RL
Total Chromium		<0.0100	mg/L	0.0100
Total Selenium		<0.0100	mg/L	0.0100

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

JAN 3 1 2005

RECEIVED
FEB 0 4 2005

Mr. Clint Marshall
Ground Water Pollution Prevention Section
New Mexico Environment Department
P.O. Box 26110
Santa Fe, NM 87502

Subject: Semi-Annual Discharge Monitoring Report for July 1, 2004 through December 31, 2004

Dear Mr. Marshall:

Enclosed is the Waste Isolation Pilot Plant Discharge Monitoring Report for the period of July 1, 2004, through December 31, 2004. This report is required by Discharge Plan 831.

It is noted in Section 3.0 of the enclosed report No. 43 that pumping of water over the banks of Evaporation Baskin A, Pond 1 and Pond 2 occurred during this reporting period. DOE has filed a Notice of Discharge for these events pursuant to 20.6.2.1203 NMAC.

If you have any questions about this report or require any additional information, please contact Mr. H. L. Plum at (505) 234-7462.

Sincerely,

Dr. Inés R. Triay
Acting Manager

Enclosure

cc: w/o enclosure
J. Bearzi, NMED *ED
J. Kieling, NMED ED

*ED denotes electronic distribution
CBFO:AMO:HLP:GS:05-0208:UFC 5487.00

WASTE ISOLATION PILOT PLANT (WIPP) SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PLAN DP-831

REPORT NUMBER 43: July 1, 2004 through December 31, 2004

SPECIFIC REQUIREMENTS OF DP-831

1.0 DISCHARGE VOLUMES:

Facultative Lagoon System	(Based on Total Domestic Water Usage)	635,032 gallons
Miscellaneous Water Discharged to the Facultative Lagoon System		None
Facultative Lagoon System Evaporation Pond B		None
H-19 Evaporation Pond		172,220 gallons

2.0 WATER QUALITY ANALYSIS

Table 1 contains the water quality analytical results for the Facultative Lagoon System and the H-19 Evaporation Pond. The laboratory data sheets are included in Attachment 1. Table 2 contains the water quality analytical results for the four storm water run-off evaporation ponds and the Salt Storage Extension Evaporation Basin, which constitute the infiltration controls approved in the December 22, 2003, Discharge Plan Modification. The laboratory data sheets are included in Attachment 2.

Staff gauges have been manufactured for installation in the ponds to facilitate accurate field measurements of the water levels to one-hundredth of a foot in accordance with DP-831. The unusually high precipitation rates and volume of water in the Salt Pile Evaporation Pond and Salt Storage Extension Basin have prevented the installation of the staff gauges to date. To determine the water level and volume measurements, standard field survey techniques were used to measure the elevation of the water level to determine the volume in Pond 1, Pond 2, and Evaporation Basin A.

3.0 INFILTRATION CONTROL ACTIVITIES (DECEMBER 22, 2003, MODIFICATION)

The previous Discharge Monitoring Report for January through June 2004 reported the completion of the cap for the old salt storage area, Cell A of the Salt Storage Extension Area, and the Salt Storage Extension Evaporation Basin. The remaining work for installing the infiltration controls was anticipated to be complete by late September; however, above average rainfall has delayed construction activities. Pond 1, Pond 2, and Evaporation Basin A were de-watered by pumping water over the pond banks to facilitate meeting the construction deadlines established in DP-831; however, continued rainfall precluded completing the lining of Basin A by November 2004 and a request for an extension was submitted to NMED on November 12, 2004. The remaining work includes the lining of the salt pile run-off ditches with HDPE, the placement of native soils and vegetative cover on the old Salt Pile, and the lining of Evaporation Basin A, Pond 1, and Pond 2 with HDPE. The completion of the construction of the remaining infiltration controls are anticipated to be complete by April 2005 in accordance with the extension granted by your office in a letter dated November 18, 2004.

4.0 SUMMARY OF ACTIVITIES RELATED TO THE SHALLOW SUBSURFACE WATER (SSW) MONITORING AND SAMPLING PROGRAM

Water levels in the shallow wells (PZ-1 through PZ-12, C-2505, C-2506, and C-2507) were obtained on September 17 and December 9, 2004, and are included in Table 3. These were taken on the quarterly milestones outlined in Table 2, Ground Water Monitoring Schedule, in the December 22, 2003, DP-831 Modification. Figure 1 represents a potentiometric surface map for the December 2004 monitoring data.

WQSP-6A was sampled on May 26, 2004, and in November 2004 as part of the WIPP Hazardous Waste Facility Permit Detection Monitoring Program (DMP) (Table 3). Only WQSP-6A data for the May sampling event are provided in this report because the results for the November event were not available at the time of submittal. The November WQSP-6A analytical data will be provided in the July 31, 2005, Semi-annual Discharge Monitoring Report. The signed laboratory reports for WQSP-6A are included in Attachment 3.

Concentrations for selenium and chromium in the WQSP-6A sample were below the method detection limits of 0.0250 mg/l. Sulfate, chloride, and total dissolved solids (TDS) concentrations were detected at concentrations exceeding standards of 20.6.2.3103 NMAC, *Standards for Ground Water of 10,000 mg/l TDS Concentration or Less* for Human Health and Domestic Water Supply. Although the concentrations were higher than the standards, they are less than background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285). The Dewey Lake groundwater in WQSP-6A has not been impacted by the shallow subsurface water identified at the WIPP site.

The shallow wells were sampled for field and general chemistry parameters in November 2004 as required by the December 22, 2003, modification to DP-831. Five wells were sampled on November 8, 2004, while the remaining wells were sampled on November 9, 2004. Results for the field sampling parameters and laboratory analyses are presented in Table 3. Laboratory reports for all shallow well analyses are included in Attachment 3. Chloride concentrations exceeded values listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply in all shallow wells sampled. The maximum concentration was 92,400 mg/l in PZ-9, while the minimum concentration was 353 mg/l in PZ-10. Total dissolved solids concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in all shallow wells sampled with the maximum concentration of 144,000 mg/l in PZ-9. Nitrate concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in one well, PZ-12, with a concentration of 19.8 mg/l. Sulfate concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in nine wells sampled with a maximum concentration of 14,500 mg/l in PZ-9. Chromium concentrations were below the detection limit in all but one of the SSW wells sampled. Well C-2507 had a chromium concentration of 0.0140 mg/l. Selenium was detected in nine wells sampled, all exceeding concentrations identified in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply.

Table 1: Sewage Lagoon and H-19 Semi-Annual Analytical Results								
Analyte	Influent to Facultative Lagoon System		Evaporation Pond B		Evaporation Pond C		H-19 Evaporation Pond	
Nitrate (mg/l)	<1.00	NA	<0.10		NA		NA	
TKN (mg/l)	16.5	NA	19		NA		NA	
TDS (mg/l)	444	NA	500		7,040		64,500	
	Activity	TPU 2 σ	Activity	TPU 2 σ	Activity	TPU 2 σ	Activity	TPU 2 σ
$U^{233/234}$ Bq/l)	6.40E-02	5.95E-03	1.64E-02	3.09E-03	1.80E-02	3.00E-03	1.74E-01	1.11E-02
U^{235} (Bq/l)	1.50E-03	9.67E-04	3.45E-04	1.42E-03	1.37E-04	3.17E-04	3.35E-03	1.48E-03
U^{238} (Bq/l)	2.14E-02	3.28E-03	7.49E-03	2.07E-03	5.16E-03	1.59E-03	3.71E-02	4.56E-03
Pu^{238} (Bq/l)	1.17E-04	3.82E-04	-2.48E-05	3.14E-04	1.56E-04	4.60E-04	2.81E-04	5.11E-04
$Pu^{239/240}$ (Bq/l)	6.95E-05	2.61E-04	5.36E-05	2.57E-04	-3.37E-05	1.19E-04	5.24E-05	4.33E-04
Am^{241} (Bq/l)	1.84E-04	4.31E-04	2.74E-04	4.58E-04	1.24E-04	3.75E-04	1.71E-05	3.08E-04
Sr^{90} (Bq/l)	2.68E-02	2.95E-02	1.13E-02	2.68E-02	1.89E-02	2.94E-02	5.67E-03	2.58E-02
TPU 2 σ = total propagated uncertainty at 2-sigma (95% confidence interval)								
NA: The analytical parameter is not required.								
NS: Not Sampled								

Table 2: Infiltration Control Evaporation Ponds Annual Analytical Results							
Evaporation Pond	Chloride mg/l	Nitrate-N mg/l	Sulfate mg/l	TDS mg/l	Selenium mg/l	Chromium mg/l	Water Depth (ft)/Volume (ft^3)
SPEP	10000	< 20.0	220	18400	< 0.0500	< 0.250	NM
Salt Storage Extension Evaporation Basin	92100	1.26	10400	128000	< 0.0500	< 0.250	NM
Pond 1	8.70	1.09	8.86	218.0	<0.0100	< 0.0500	1.8 / 24,190
Pond 2	75.0	1.11	10.3	244.0	<0.0100	< 0.0500	5.2 / 194,671
Pond A	120	<1.00	12.1	312	< 0.0500	< 0.250	2.9 / 550,000
"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply							

Table 3
SUMMARY OF SHALLOW SUBSURFACE WATER LEVELS, FIELD PARAMETERS, AND ANALYTICAL RESULTS

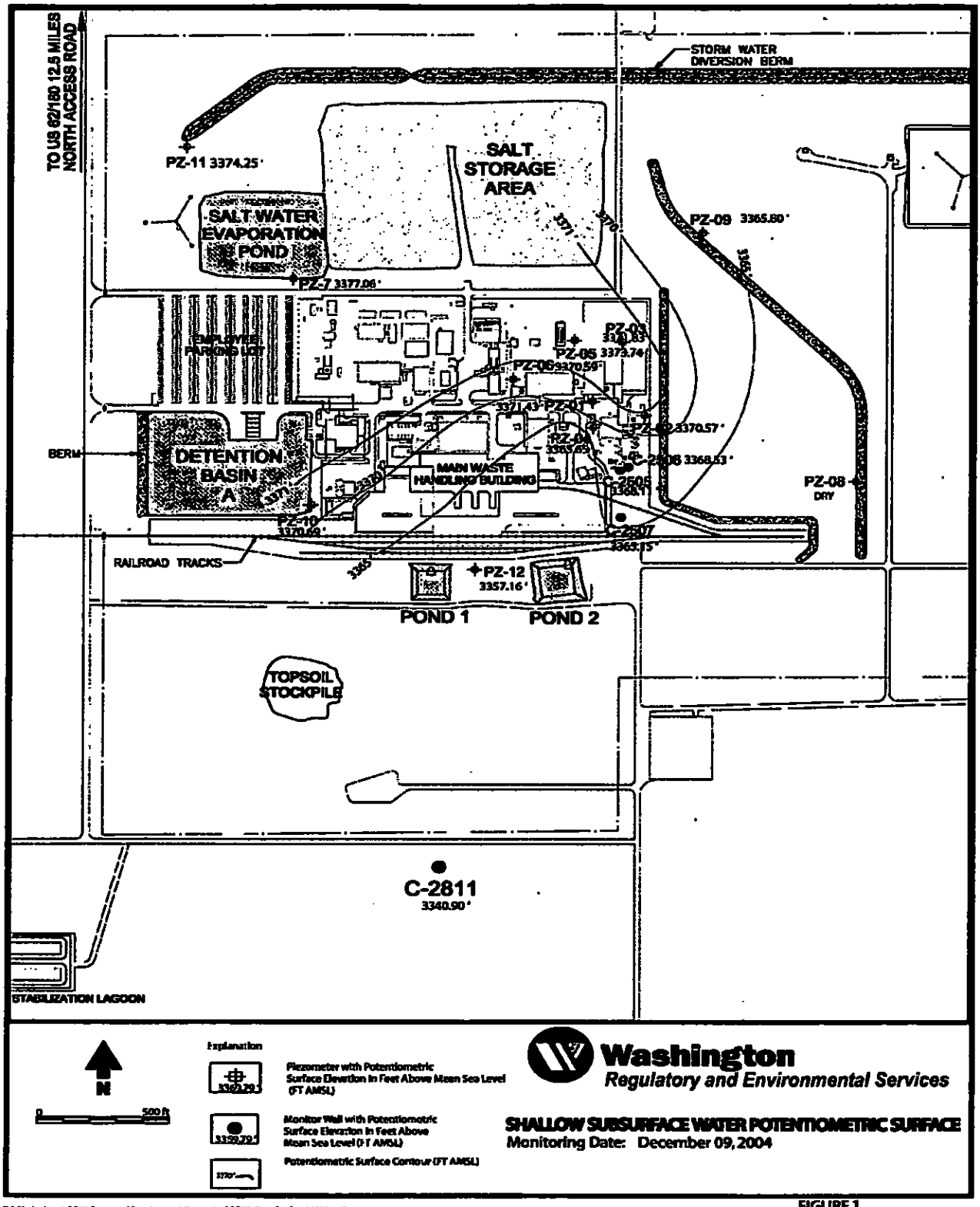
	Water Level Monitoring (Ft AMSL)		Field Parameters			General Chemistry Parameters					Trace Metals	
Monitoring Site	09/17/04	12/09/04	pH (SU)	Temp. (^{0}C)	Electrical Conductivity @25 ^{0}C (µS/cm)	Sample Date	Nitrate (mg/l)	Sulfate (mg/l)	Chloride (mg/l)	TDS (mg/l)	Selenium (mg/l)	Chromium (mg/l)
PZ-1	3371.18	3371.43	6.20	21.2	>3999	11/09/04	1.30	**6530**	**45700**	**85800**	**0.106**	<0.0100
PZ-2	3369.99	3370.57	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
PZ-3	3371.51	3371.83	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
PZ-4	3364.85	3365.65	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
PZ-5	3372.95	3373.74	6.65	21.5	>3999	11/09/04	<2.50	**1820**	**47800**	**86000**	**0.0940**	<0.0100
PZ-5 Dup.	NA	NA	6.65	21.5	>3999	11/09/04	3.59	**12000**	**58600**	**77800**	**0.0890**	<0.0100
PZ-6	3369.78	3370.59	6.65	21.5	>3999	11/09/04	4.89	**13000**	**75400**	**113000**	**0.0600**	<0.0100
PZ-7	3376.70	3377.06	6.52	21.5	>3999	11/08/04	2.89	**7460**	**43600**	**80400**	**0.0880**	<0.0100
PZ-8	DRY	DRY	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
PZ-9	3364.95	3365.80	5.90	21.9	>3999	11/09/04	1.40	**14500**	**92400**	**144000**	**0.0660**	<0.0100
PZ-10	3367.92	3370.69	7.22	20.9	2328	11/08/04	3.69	431	**353**	**1576**	<0.0500	<0.0100
PZ-11	3373.93	3374.25	6.45	22.3	>3999	11/08/04	3.15	**13000**	**84100**	**119000**	<0.0500	<0.0100
PZ-12	3355.74	3357.16	6.98	21.0	>3999	11/08/04	**19.8**	**879**	**7170**	**9540**	**0.0660**	<0.0100
C-2811	3339.69	3340.90	7.26	20.4	3371	11/08/04	7.63	305	**1030**	**1996**	**0.0540**	<0.0100
C-2505	3367.53	3368.11	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
C-2506	3367.96	3368.53	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
C-2507	3364.58	3365.15	6.65	18.6	>3999	11/09/04	7.58	**824**	**1380**	**3350**	**0.0800**	0.0140
WQSP-6a	3197.30 [1]	3197.14 [2]	NA	NA	NA	05/26/04	9.61	**2000**	**416**	**3698**	<0.0250	<0.0250

Explanation: [1] **Water Level Measurement Taken on 3/09/04**

[2] **Water Level Measurement Taken on 6/09/04**

NS: Not Sampled as per permit conditions

"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply



D:\Hydrology\ SSW Program\Semiannual Reporting\SSW_Pot_Surf_121103.pdf

FIGURE 1

Attachment 1

Laboratory Data Summary Sheets for the Sewage Lagoon System

CHAIN-OF-CUSTODY RECORD

4102615

C of C Control № 6104

RFA Control № 6104

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

SAMPLING PROGRAM ENV. MONIT. - DP-831 LAB DESTINATION TRACE ANALYSIS

SAMPLE TEAM MEMBERS R. SIMMONS, D. GILBERT, A. RIVAS ENV. TECH'S III CARRIER/WAYBILL NO. HAND CARRY

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
EC-SWL-2004/1025-1.16	POND 2A	10-25-04 0910	SEWAGE	1 LITER PLASTIC	GOOD	47068
2.16	POND 2A	0919		500mL		69
3.16	POND 2A	0925		500mL		70
4.16	POND 2A	0927	↓	500mL		71
5.16	BLANK	0942	BLANK	1 LITER		72
6.16	POND A	1000	SEWAGE	500mL		73
7.16	POND B	1011		500mL		74
8.16	POND C	1020		500mL		75
↓ ↓ ↓ 9.16	POND H-19	↓ 1047	↓	500mL ↓	/	76
	n/a 10-25-04 ENS					

Special Instructions: n/a

Possible Sample Hazards: BIOHAZARD 1° CAUS

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: D Dilbert WTS 10-26-04 1110 CST
   Received By: Vicki Kemsley 10.26.04 11.10
2. Relinquished By: _____
   Received By: _____
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: _____

WP 02-EM3001 WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

Report Date: November 17, 2004
Env Monit-DP-831
Work Order: 4102615
Page Number: 8 of 8

03726

Summary Report

J. Siegel
WRES
P.O.Box 2078
Carlsbad, NM 88221-2078

Report Date: November 17, 2004

Work Order: 4102615

Project Number: Env Monit-DP-831

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
47068	EC-SWL-2004 1025-1.16	water	2004-10-25	09:10	2004-10-26
47069	EC-SWL-2004 1025-2.16	water	2004-10-25	09:19	2004-10-26
47070	EC-SWL-2004 1025-3.16	water	2004-10-25	09:25	2004-10-26
47071	EC-SWL-2004 1025-4.16	water	2004-10-25	09:27	2004-10-26
47072	EC-SWL-2004 1025-5.16	water	2004-10-25	09:42	2004-10-26
47073	EC-SWL-2004 1025-6.16	water	2004-10-25	10:00	2004-10-26
47074	EC-SWL-2004 1025-7.16	water	2004-10-25	10:11	2004-10-26
47075	EC-SWL-2004 1025-8.16	water	2004-10-25	10:20	2004-10-26
47076	EC-SWL-2004 1025-9.16	water	2004-10-25	10:47	2004-10-26

Sample: 47068 - EC-SWL-2004 1025-1.16

Param	Flag	Result	Units	RL
Nitrate-N		<1.00	mg/L	0.200

Sample: 47069 - EC-SWL-2004 1025-2.16

Param	Flag	Result	Units	RL
Total Kjeldahl Nitrogen - N		16.5	mg/L	4.00

Sample: 47070 - EC-SWL-2004 1025-3.16

Param	Flag	Result	Units	RL
Total Dissolved Solids		444.0	mg/L	10.00

Sample: 47071 - EC-SWL-2004 1025-4.16

Param	Flag	Result	Units	RL
Total Dissolved Solids		<1000	mg/L	10.00

Sample: 47072 - EC-SWL-2004 1025-5.16

Param	Flag	Result	Units	RL
Nitrate-N		<2.00	mg/L	0.200

Sample: 47073 - EC-SWL-2004 1025-6.16

Param	Flag	Result	Units	RL
Total Dissolved Solids		2550	mg/L	10.00

Sample: 47074 - EC-SWL-2004 1025-7.16

Param	Flag	Result	Units	RL
Total Dissolved Solids		10800	mg/L	10.00

Sample: 47075 - EC-SWL-2004 1025-8.16

Param	Flag	Result	Units	RL
Total Dissolved Solids		7040	mg/L	10.00

Sample: 47076 - EC-SWL-2004 1025-9.16

Param	Flag	Result	Units	RL
Total Dissolved Solids		64500	mg/L	10.00

Narrative Entered by 11/30/04 Date

Approved by 11-30-04 Date

SECTION 3

Case Narrative

SDG: **2004-452** Client: **Environmental Monitoring**

SAMPLE ID			Chain of	Sample	Matrix	Collection		Date
Lab		Client	Custody #	Description		Date	Time	Received
C713	EC	SWL-20041025-10.16	6105	Pond 2A	Sewage Lagoon	10/25/04	9:35	10/27/04
C714	EC	SWL-20041025-11.16	6105	Pond A	Sewage Lagoon	10/25/04	10:08	10/27/04
C715	EC	SWL-20041025-12.16	6105	Pond B	Sewage Lagoon	10/25/04	10:15	10/27/04
C716	EC	SWL-20041025-13.16	6105	Pond C	Sewage Lagoon	10/25/04	10:25	10/27/04
C717	EC	SWL-20041025-14.16	6105	Pond 2A	Sewage Lagoon	10/25/04	9:36	10/27/04
C718	EC	SWL-20041025-15.16	6105	H-19	Sewage Lagoon	10/25/04	10:54	10/27/04
C719	EC	SWL-20041025-16.16	6105	Blank	Sewage Lagoon	10/25/04	9:45	10/27/04

Data presented herein is validated and verified in compliance with Management Control Procedures WP 12-RL3002, Data Validation and Verification and WP 12-RL3003,"Data Reduction and Reporting".

Procedure Number	Revision
WP 12-RL3002	5
WP 12-RL3003	4

Sample Prep Summary

All sample preparation performed in accordance with WP 12-RL1010, "Sample Preparation".

Procedure Number	Revision
WP 12-RL1010	5

Measuring Instrumentation

Alpha Spectrometers

System Name	Instrument ID	Procedure Number	Revision	Used for these samples
Canberra Alpha Analyst	ALP-001	WP 12-RL1015	7	YES
Canberra Alpha Analyst	ALP-002	WP 12-RL1002	3	NO

Gas Proportional Counters

System Name	Instrument ID	Procedure Number	Revision	Used for these samples
Tennelec LB 4100	GAB-002	WP 12-RL1340	6	YES
Tennelec Series 5	GAB-003	WP 12-RL1016	4	NO

Gamma Spectrometers

System Name	Instrument ID	Procedure Number	Revision	Used for these samples
Canberra	GAM-001-1	WP 12-RL1332	3	NO
Canberra	GAM-001-3	WP 12-RL1332	3	NO
Canberra	GAM-002-1	WP 12-RL1332	3	YES
Canberra	GAM-002-2	WP 12-RL1332	3	YES

COPY

MK 11-30-04
Data Input by Date

MKWhitford 11-30-04
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: **2004-452**
Batch: **SP04-8-11**
Client: **Environmental Monitoring**
Lab Id: **C713**
Client Id: **EC SWL-20041025-10.16**
Matrix: **Sewage Lagoon**
Collect Date: **10/25/2004**
Collect Time: **9:35**

ISOTOPE	Activity	TPU 2 s	TPU 1 s	MDC	RDL	Units	Qualifier
$^{233/234}U$	6.40E-02	5.95E-03	3.03E-03	1.33E-03	NA	Bq/L	=
^{235}U	1.50E-03	9.67E-04	4.94E-04	6.03E-04	NA	Bq/L	=
^{238}U	2.14E-02	3.28E-03	1.67E-03	8.20E-04	NA	Bq/L	=
^{238}Pu	1.17E-04	3.82E-04	1.95E-04	3.81E-04	NA	Bq/L	U
$^{239/240}Pu$	6.95E-05	2.61E-04	1.33E-04	3.81E-04	NA	Bq/L	U
^{241}Am	1.84E-04	4.31E-04	2.20E-04	4.25E-04	NA	Bq/L	U
^{90}Sr	2.68E-02	2.95E-02	1.50E-02	1.45E-02	NA	Bq/L	U
^{40}K	1.57E+00	1.31E+00	6.68E-01	1.98E+00	NA	Bq/L	U
^{60}Co	-1.65E-01	3.18E-01	1.62E-01	3.37E-01	NA	Bq/L	U
^{137}Cs	-1.21E-01	2.41E-01	1.23E-01	2.70E-01	NA	Bq/L	U

ISOTOPE	TPU 2 s	TPU /	CV 1.96	TPU 1 s
$^{233/234}U$	5.95E-03	/	1.96	3.03E-03
^{235}U	9.67E-04	/	1.96	4.94E-04
^{238}U	3.28E-03	/	1.96	1.67E-03
^{238}Pu	3.82E-04	/	1.96	1.95E-04
$^{239/240}Pu$	2.61E-04	/	1.96	1.33E-04
^{241}Am	4.31E-04	/	1.96	2.20E-04
^{90}Sr	2.95E-02	/	1.96	1.50E-02
^{40}K	1.31E+00	/	1.96	6.68E-01
^{60}Co	3.18E-01	/	1.96	1.62E-01
^{137}Cs	2.41E-01	/	1.96	1.23E-01

COPY

MK 11-30-04
Data Input by Date

MRWhitaford 11-30-04
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: **2004-452**
Batch: **SP04-8-11**
Client: **Environmental Monitoring**
Lab Id: **C714**
Client Id: **EC SWL-20041025-11.16**
Matrix: **Sewage Lagoon**
Collect Date: **10/25/2004**
Collect Time: **10:08**

ISOTOPE	Activity	TPU 2 s	TPU 1 s	MDC	RDL	Units	Qualifier
$^{233/234}U$	5.69E-03	1.59E-03	8.09E-04	1.29E-03	NA	Bq/L	=
^{235}U	9.88E-05	3.08E-04	1.57E-04	5.61E-04	NA	Bq/L	U
^{238}U	2.42E-03	1.04E-03	5.30E-04	7.85E-04	NA	Bq/L	=
^{238}Pu	1.70E-05	3.97E-04	2.03E-04	4.74E-04	NA	Bq/L	U
$^{239/240}Pu$	3.57E-04	5.47E-04	2.79E-04	4.74E-04	NA	Bq/L	U
^{241}Am	1.60E-04	4.57E-04	2.33E-04	4.33E-04	NA	Bq/L	U
^{90}Sr	-7.43E-03	2.74E-02	1.40E-02	1.26E-02	NA	Bq/L	U
^{40}K	1.09E+01	5.38E+00	2.74E+00	6.18E+00	NA	Bq/L	U
^{60}Co	-1.16E-01	5.03E-01	2.57E-01	5.38E-01	NA	Bq/L	U
^{137}Cs	-3.78E-01	4.76E-01	2.43E-01	5.11E-01	NA	Bq/L	U

ISOTOPE	TPU 2 s		1.96	TPU 1 s
$^{233/234}U$	1.59E-03	/	1.96	8.09E-04
^{235}U	3.08E-04	/	1.96	1.57E-04
^{238}U	1.04E-03	/	1.96	5.30E-04
^{238}Pu	3.97E-04	/	1.96	2.03E-04
$^{239/240}Pu$	5.47E-04	/	1.96	2.79E-04
^{241}Am	4.57E-04	/	1.96	2.33E-04
^{90}Sr	2.74E-02	/	1.96	1.40E-02
^{40}K	5.38E+00	/	1.96	2.74E+00
^{60}Co	5.03E-01	/	1.96	2.57E-01
^{137}Cs	4.76E-01	/	1.96	2.43E-01

COPY

MK 11-30-04
Data Input by Date

MRwhitford 11-30-04
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: **2004-452**
Batch: **SP04-8-11**
Client: **Environmental Monitoring**
Lab Id: **C715**
Client Id: **EC SWL-20041025-12.16**
Matrix: **Sewage Lagoon**
Collect Date: **10/25/2004**
Collect Time: **10:15**

ISOTOPE	Activity	TPU 2 s	TPU 1 s	MDC	TRDL	Units	Qualifier
$^{233/234}U$	1.64E-02	3.09E-03	1.57E-03	1.38E-03	NA	Bq/L	=
^{235}U	3.45E-04	5.06E-04	2.58E-04	6.71E-04	NA	Bq/L	U
^{238}U	7.49E-03	2.07E-03	1.05E-03	8.75E-04	NA	Bq/L	=
^{238}Pu	-2.48E-05	3.14E-04	1.60E-04	3.65E-04	NA	Bq/L	U
$^{239/240}Pu$	5.36E-05	2.57E-04	1.31E-04	3.65E-04	NA	Bq/L	U
^{241}Am	2.74E-04	4.58E-04	2.33E-04	4.64E-04	NA	Bq/L	U
^{90}Sr	1.13E-02	2.68E-02	1.37E-02	1.28E-02	NA	Bq/L	U
^{40}K	1.47E+01	3.42E+00	1.74E+00	2.77E+00	NA	Bq/L	=
^{60}Co	1.04E-01	3.21E-01	1.64E-01	3.75E-01	NA	Bq/L	U
^{137}Cs	-7.88E-02	2.29E-01	1.17E-01	2.61E-01	NA	Bq/L	U

ISOTOPE	TPU 2 s	/	1.96	TPU 1 s
$^{233/234}U$	3.09E-03	/	1.96	1.57E-03
^{235}U	5.06E-04	/	1.96	2.58E-04
^{238}U	2.07E-03	/	1.96	1.05E-03
^{238}Pu	3.14E-04	/	1.96	1.60E-04
$^{239/240}Pu$	2.57E-04	/	1.96	1.31E-04
^{241}Am	4.58E-04	/	1.96	2.33E-04
^{90}Sr	2.68E-02	/	1.96	1.37E-02
^{40}K	3.42E+00	/	1.96	1.74E+00
^{60}Co	3.21E-01	/	1.96	1.64E-01
^{137}Cs	2.29E-01	/	1.96	1.17E-01

COPY

MK 11-30-04
Data Input by Date

New Litsford 11-30-04
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: **2004-452**
Batch: **SP04-8-11**
Client: **Environmental Monitoring**
Lab Id: **C716**
Client Id: **EC SWL-20041025-13.16**
Matrix: **Sewage Lagoon**
Collect Date: **10/25/2004**
Collect Time: **10:25**

ISOTOPE	Activity	TPU 2 sx	TPU 1 sx	MDC	RDL	Units	Qualifier
$^{233/234}U$	1.80E-02	3.00E-03	1.53E-03	1.33E-03	NA	Bq/L	=
^{235}U	1.37E-04	3.17E-04	1.62E-04	6.02E-04	NA	Bq/L	U
^{238}U	5.16E-03	1.59E-03	8.12E-04	8.19E-04	NA	Bq/L	=
^{238}Pu	1.56E-04	4.60E-04	2.35E-04	3.71E-04	NA	Bq/L	U
$^{239/240}Pu$	-3.37E-05	1.19E-04	6.08E-05	3.71E-04	NA	Bq/L	U
^{241}Am	1.24E-04	3.75E-04	1.91E-04	5.96E-04	NA	Bq/L	U
^{90}Sr	1.89E-02	2.94E-02	1.50E-02	1.39E-02	NA	Bq/L	U
^{40}K	1.60E+01	5.12E+00	2.61E+00	6.52E+00	NA	Bq/L	=
^{60}Co	1.56E-01	4.90E-01	2.50E-01	5.44E-01	NA	Bq/L	U
^{137}Cs	-1.26E-01	4.64E-01	2.37E-01	5.19E-01	NA	Bq/L	U

ISOTOPE	TPU 2 sx		1.96	TPU 1 sx
$^{233/234}U$	3.00E-03	/	1.96	1.53E-03
^{235}U	3.17E-04	/	1.96	1.62E-04
^{238}U	1.59E-03	/	1.96	8.12E-04
^{238}Pu	4.60E-04	/	1.96	2.35E-04
$^{239/240}Pu$	1.19E-04	/	1.96	6.08E-05
^{241}Am	3.75E-04	/	1.96	1.91E-04
^{90}Sr	2.94E-02	/	1.96	1.50E-02
^{40}K	5.12E+00	/	1.96	2.61E+00
^{60}Co	4.90E-01	/	1.96	2.50E-01
^{137}Cs	4.64E-01	/	1.96	2.37E-01

COPY

ML 11-30-04
Data Input by Date

MKWhitford 11-30-04
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: 2004-452
Batch: SP04-8-11
Client: Environmental Monitoring
Lab Id: C717
Client Id: EC SWL-20041025-14.16
Matrix: Sewage Lagoon
Collect Date: 10/25/2004
Collect Time: 9:36

ISOTOPE	Activity	TPU 2 s	TPU 1 s	MDC	RDL	Units	Qualifier
$^{233/234}U$	4.64E-02	4.67E-03	2.38E-03	1.29E-03	NA	Bq/L	=
^{235}U	9.22E-04	7.11E-04	3.63E-04	5.52E-04	NA	Bq/L	=
^{238}U	1.96E-02	2.94E-03	1.50E-03	7.78E-04	NA	Bq/L	=
^{238}Pu	2.66E-04	4.53E-04	2.31E-04	3.97E-04	NA	Bq/L	U
$^{239/240}Pu$	-5.50E-05	1.59E-04	8.10E-05	3.97E-04	NA	Bq/L	U
^{241}Am	4.29E-04	6.23E-04	3.18E-04	5.97E-04	NA	Bq/L	U
^{90}Sr	5.89E-03	2.58E-02	1.32E-02	1.21E-02	NA	Bq/L	U
^{40}K	1.40E+00	1.44E+00	7.35E-01	2.26E+00	NA	Bq/L	U
^{60}Co	-1.78E-02	2.88E-01	1.47E-01	3.26E-01	NA	Bq/L	U
^{137}Cs	3.25E-03	2.19E-01	1.12E-01	2.59E-01	NA	Bq/L	U

ISOTOPE	TPU 2 s	A/T	1.96 * TPU 1 s	TPU 1 s
$^{233/234}U$	4.67E-03	/	1.96	2.38E-03
^{235}U	7.11E-04	/	1.96	3.63E-04
^{238}U	2.94E-03	/	1.96	1.50E-03
^{238}Pu	4.53E-04	/	1.96	2.31E-04
$^{239/240}Pu$	1.59E-04	/	1.96	8.10E-05
^{241}Am	6.23E-04	/	1.96	3.18E-04
^{90}Sr	2.58E-02	/	1.96	1.32E-02
^{40}K	1.44E+00	/	1.96	7.35E-01
^{60}Co	2.88E-01	/	1.96	1.47E-01
^{137}Cs	2.19E-01	/	1.96	1.12E-01

COPY

MK 11-30-04
Data Input by Date

MRWhitford 11-30-04
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: **2004-452**
Batch: **SP04-8-11**
Client: **Environmental Monitoring**
Lab Id: **C718**
Client Id: **EC SWL-20041025-15.16**
Matrix: **Sewage Lagoon**
Collect Date: **10/25/2004**
Collect Time: **10:54**

ISOTOPE	Activity	TPU 2's	TPU 1's	MDC	RDL	Units	Qualifier
$^{233/234}U$	1.74E-01	1.11E-02	5.66E-03	1.36E-03	NA	Bq/L	=
^{235}U	3.35E-03	1.48E-03	7.57E-04	6.42E-04	NA	Bq/L	=
^{238}U	3.71E-02	4.56E-03	2.33E-03	8.51E-04	NA	Bq/L	=
^{238}Pu	2.81E-04	5.11E-04	2.61E-04	5.35E-04	NA	Bq/L	U
$^{239/240}Pu$	5.24E-05	4.33E-04	2.21E-04	5.35E-04	NA	Bq/L	U
^{241}Am	1.71E-05	3.08E-04	1.57E-04	4.49E-04	NA	Bq/L	U
^{90}Sr	-5.67E-03	2.58E-02	1.32E-02	1.12E-02	NA	Bq/L	U
^{40}K	7.22E+01	1.29E+01	6.58E+00	6.68E+00	NA	Bq/L	=
^{60}Co	6.40E-01	4.76E-01	2.43E-01	5.50E-01	NA	Bq/L	U
^{137}Cs	-4.92E-01	4.90E-01	2.50E-01	5.17E-01	NA	Bq/L	U

ISOTOPE	TPU 2's			TPU 1's
$^{233/234}U$	1.11E-02	/	1.96	5.66E-03
^{235}U	1.48E-03	/	1.96	7.57E-04
^{238}U	4.56E-03	/	1.96	2.33E-03
^{238}Pu	5.11E-04	/	1.96	2.61E-04
$^{239/240}Pu$	4.33E-04	/	1.96	2.21E-04
^{241}Am	3.08E-04	/	1.96	1.57E-04
^{90}Sr	2.58E-02	/	1.96	1.32E-02
^{40}K	1.29E+01	/	1.96	6.58E+00
^{60}Co	4.76E-01	/	1.96	2.43E-01
^{137}Cs	4.90E-01	/	1.96	2.50E-01

COPY

MK 11-30-04
Data Input by Date

M R Whiteford 11-30-04
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: 2004-452
Batch: SP04-8-11
Client: Environmental Monitoring
Lab Id: C719
Client Id: EC SWL-20041025-16.16
Matrix: Sewage Lagoon
Collect Date: 10/25/2004
Collect Time: 9:45

ISOTOPE	Activity	TPU 2 s	TPU 1 s	MDC	RDL	Units	Qualifier
$^{233/234}U$	2.63E-04	5.61E-04	2.86E-04	1.48E-03	NA	Bq/L	U
^{235}U	-5.55E-05	2.17E-04	1.11E-04	7.87E-04	NA	Bq/L	U
^{238}U	-5.75E-05	1.99E-04	1.01E-04	9.68E-04	NA	Bq/L	U
^{238}Pu	7.97E-05	3.38E-04	1.72E-04	4.63E-04	NA	Bq/L	U
$^{239/240}Pu$	-7.44E-05	2.02E-04	1.03E-04	4.63E-04	NA	Bq/L	U
^{241}Am	-1.59E-05	4.08E-04	2.08E-04	5.25E-04	NA	Bq/L	U
^{90}Sr	-4.49E-03	2.62E-02	1.34E-02	1.31E-02	NA	Bq/L	U
^{40}K	9.44E-01	3.00E+00	1.53E+00	3.53E+00	NA	Bq/L	U
^{60}Co	-5.59E-02	3.01E-01	1.54E-01	3.35E-01	NA	Bq/L	U
^{137}Cs	1.88E-01	2.14E-01	1.09E-01	2.65E-01	NA	Bq/L	U

ISOTOPE	TPU 2 s		1.96	TPU 1 s
$^{233/234}U$	5.61E-04	/	1.96	2.86E-04
^{235}U	2.17E-04	/	1.96	1.11E-04
^{238}U	1.99E-04	/	1.96	1.01E-04
^{238}Pu	3.38E-04	/	1.96	1.72E-04
$^{239/240}Pu$	2.02E-04	/	1.96	1.03E-04
^{241}Am	4.08E-04	/	1.96	2.08E-04
^{90}Sr	2.62E-02	/	1.96	1.34E-02
^{40}K	3.00E+00	/	1.96	1.53E+00
^{60}Co	3.01E-01	/	1.96	1.54E-01
^{137}Cs	2.14E-01	/	1.96	1.09E-01

COPY

Attachment 2

Laboratory Data Summary Reports for the Infiltration Control Evaporation Ponds

4102614

CHAIN-OF-CUSTODY RECORD

C of C Control № 6106

RFA Control № 6106

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

SAMPLING PROGRAM ENV. MONIT. - DP-831 LAB DESTINATION TRACE Analysis

SAMPLE TEAM MEMBERS R. Simmons, D. Gilbert, A. Rivas (ENV-TECH III) CARRIER/WAYBILL NO. HAND CARRY

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
WR-SWL-2004/025-1.11	Salt Pile Evap. Pond	10-25-04 1300	Water Runoff	1 Liter Plastic	good	47057
2.11	Extension Evap. Basin	1245		1 Liter	"	58
3.11	Extension Evap. Basin	1245		1 Liter	"	59
4.11	Basin A	1325		1 Liter	"	60
5.11	Salt Pile Evap Pond	1310		500 mL	"	61
6.11	Extension Evap. Basin	1251		500 mL	"	62
7.11	Basin A	1330		500 mL	"	63
8.11	Salt Pile Evap. Pond	1315		500 mL	"	64
9.11	Extension Evap. Basin	1251		500 mL	"	65
10.11	Basin A	1335		500 mL	"	66
11.11	Salt Pile Evap. Pond	1315	Blank	500 mL	"	67
		10-25-04 ALL				

Special Instructions: N/A

Possible Sample Hazards: N/A 10. Caustic

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: D. Gilbert, WP 10-26-04 1140 EST
   Received By: Vicki Hussey 10-26-04 11:10
2. Relinquished By: _____
   Received By: _____
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: _____

WP 02-EM3001 WHITE - Original to accompany samples YELLOW - Field copy PINK - Other (NICHOLS PRINTING INC.)

03738

Analytical and Quality Control Report

Koreen Guillermo
WRES
P.O.Box 2078
Carlsbad, NM 88221-2078

Report Date: November 3, 2004

Work Order: 4100808

Project Number: 402560

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description		Matrix	Date Taken	Time Taken	Date Received
45370	WST-04-061		water	2004-10-07	08:59	2004-10-08
45371	WST-04-062	RETENTION	water	2004-10-07	09:00	2004-10-08
45372	WST-04-063		water	2004-10-07	09:07	2004-10-08
45373	WST-04-064	POND A	water	2004-10-07	09:09	2004-10-08
45374	WST-04-065		water	2004-10-07	09:11	2004-10-08
45375	WST-04-066		water	2004-10-07	09:11	2004-10-08
45376	WST-04-067		water	2004-10-07	09:34	2004-10-08
45377	WST-04-068	WATERSHED	water	2004-10-07	09:36	2004-10-08
45378	WST-04-069	C	water	2004-10-07	09:38	2004-10-08
45379	WST-04-070	POND 1	water	2004-10-07	09:40	2004-10-08
45380	WST-04-071		water	2004-10-07	09:41	2004-10-08
45381	WST-04-072		water	2004-10-07	09:41	2004-10-08
45382	WST-04-073		water	2004-10-07	09:57	2004-10-08
45383	WST-04-074	WATERSHED	water	2004-10-07	09:59	2004-10-08
45384	WST-04-075	C	water	2004-10-07	10:03	2004-10-08
45385	WST-04-076	POND	water	2004-10-07	10:04	2004-10-08
45386	WST-04-077	2	water	2004-10-07	10:05	2004-10-08
45387	WST-04-078		water	2004-10-07	10:05	2004-10-08

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 38 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael Abel

Dr. Blair Leftwich, Director

Analytical Report

Sample: 45370 - WST-04-061

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	13191	Date Analyzed:	2004-10-09	Analyzed By:	JG
Prep Batch:	11659	Date Prepared:	2004-10-09	Prepared By:	JG

Parameter	Flag	Result	RL Units	Dilution	RL
Bromochloromethane		<1.00	µg/L	1	1.00
Dichlorodifluoromethane		<1.00	µg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	µg/L	1	1.00
Vinyl Chloride		<1.00	µg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	µg/L	1	5.00
Chloroethane		<1.00	µg/L	1	1.00
Trichlorofluoromethane		<1.00	µg/L	1	1.00
Acetone		13.7	µg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	µg/L	1	5.00
Carbon Disulfide		<1.00	µg/L	1	1.00
Acrylonitrile		<1.00	µg/L	1	1.00
2-Butanone (MEK)		<5.00	µg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	µg/L	1	5.00
2-Hexanone		<5.00	µg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	µg/L	1	10.0
1,1-Dichloroethene		<1.00	µg/L	1	1.00
Methylene chloride		<5.00	µg/L	1	5.00
MTBE		<1.00	µg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	µg/L	1	1.00
1,1-Dichloroethane		<1.00	µg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	µg/L	1	1.00
2,2-Dichloropropane		<1.00	µg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	µg/L	1	1.00
Chloroform		<1.00	µg/L	1	1.00
1,1,1-Trichloroethane		<1.00	µg/L	1	1.00
1,1-Dichloropropene		<1.00	µg/L	1	1.00
Benzene		<1.00	µg/L	1	1.00
Carbon Tetrachloride		<1.00	µg/L	1	1.00
1,2-Dichloropropane		<1.00	µg/L	1	1.00
Trichloroethene (TCE)		<1.00	µg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	µg/L	1	1.00
Bromodichloromethane		<1.00	µg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	µg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	µg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	µg/L	1	1.00
Toluene		<1.00	µg/L	1	1.00
1,1,2-Trichloroethane		<1.00	µg/L	1	1.00
1,3-Dichloropropane		<1.00	µg/L	1	1.00
Dibromochloromethane		<1.00	µg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	µg/L	1	1.00
Tetrachloroethene (PCE)		<1.00	µg/L	1	1.00
Chlorobenzene		<1.00	µg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1	1.00
Ethylbenzene		<1.00	µg/L	1	1.00
m,p-Xylene		<1.00	µg/L	1	1.00

continued ...

sample 45370 continued ...

Parameter	Flag	Result	RL	Units	Dilution	RL
Bromoform		<1.00		µg/L	1	1.00
Styrene		<1.00		µg/L	1	1.00
o-Xylene		<1.00		µg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00		µg/L	1	1.00
2-Chlorotoluene		<1.00		µg/L	1	1.00
1,2,3-Trichloropropane		<1.00		µg/L	1	1.00
Isopropylbenzene		<1.00		µg/L	1	1.00
Bromobenzene		<1.00		µg/L	1	1.00
n-Propylbenzene		<1.00		µg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00		µg/L	1	1.00
tert-Butylbenzene		<1.00		µg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00		µg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00		µg/L	1	1.00
sec-Butylbenzene		<1.00		µg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00		µg/L	1	1.00
p-Isopropyltoluene		<1.00		µg/L	1	1.00
4-Chlorotoluene		<1.00		µg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00		µg/L	1	1.00
n-Butylbenzene		<1.00		µg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00		µg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00		µg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00		µg/L	1	5.00
Naphthalene		<5.00		µg/L	1	5.00
Hexachlorobutadiene		<5.00		µg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		54.4	µg/L	1	50.0	109	70 - 130
Toluene-d8		48.0	µg/L	1	50.0	96	70 - 130
4-Bromofluorobenzene (4-BFB)		44.5	µg/L	1	50.0	89	70 - 130

Sample: 45371 - WST-04-062

Analysis:	TOC	Analytical Method:	E 415.1	Prep Method:	N/A
QC Batch:	13212	Date Analyzed:	2004-10-19	Analyzed By:	RC
Prep Batch:	11674	Date Prepared:	2004-10-19	Prepared By:	RC

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Organic Carbon		1.31		mg/L	1	1.00

Sample: 45372 - WST-04-063

Analysis:	Semivolatiles	Analytical Method:	S 8270C	Prep Method:	S 3510C
QC Batch:	13383	Date Analyzed:	2004-10-17	Analyzed By:	RC
Prep Batch:	11816	Date Prepared:	2004-10-14	Prepared By:	RC

Parameter	Flag	Result	RL	Units	Dilution	RL
Pyridine		<0.00500		mg/L	0.001	5.00
n-Nitrosodimethylamine		<0.00500		mg/L	0.001	5.00
2-Picoline		<0.00500		mg/L	0.001	5.00
Methyl methanesulfonate		<0.00500		mg/L	0.001	5.00
Ethyl methanesulfonate		<0.00500		mg/L	0.001	5.00
Phenol		<0.00500		mg/L	0.001	5.00
Aniline		<0.00500		mg/L	0.001	5.00
bis(2-chloroethyl)ether		<0.00500		mg/L	0.001	5.00
2-Chlorophenol		<0.00500		mg/L	0.001	5.00
1,3-Dichlorobenzene (meta)		<0.00500		mg/L	0.001	5.00
1,4-Dichlorobenzene (para)		<0.00500		mg/L	0.001	5.00
Benzyl alcohol		<0.00500		mg/L	0.001	5.00
1,2-Dichlorobenzene (ortho)		<0.00500		mg/L	0.001	5.00
2-Methylphenol		<0.00500		mg/L	0.001	5.00
bis(2-chloroisopropyl)ether		<0.00500		mg/L	0.001	5.00
4-Methylphenol / 3-Methylphenol		<0.00500		mg/L	0.001	5.00
n-Nitrosodi-n-propylamine		<0.00500		mg/L	0.001	5.00
Hexachloroethane		<0.00500		mg/L	0.001	5.00
Acetophenone		<0.00500		mg/L	0.001	5.00
Nitrobenzene		<0.00500		mg/L	0.001	5.00
n-Nitrosopiperidine		<0.00500		mg/L	0.001	5.00
Isophorone		<0.00500		mg/L	0.001	5.00
2-Nitrophenol		<0.00500		mg/L	0.001	5.00
2,4-Dimethylphenol		<0.00500		mg/L	0.001	5.00
bis(2-chloroethoxy)methane		<0.00500		mg/L	0.001	5.00
2,4-Dichlorophenol		<0.00500		mg/L	0.001	5.00
1,2,4-Trichlorobenzene		<0.00500		mg/L	0.001	5.00
Benzoic acid		<0.0200		mg/L	0.001	20.0
Naphthalene		<0.00500		mg/L	0.001	5.00
a,a-Dimethylphenethylamine		<0.00500		mg/L	0.001	5.00
4-Chloroaniline		<0.00500		mg/L	0.001	5.00
2,6-Dichlorophenol		<0.00500		mg/L	0.001	5.00
Hexachlorobutadiene		<0.00500		mg/L	0.001	5.00
n-Nitroso-di-n-butylamine		<0.00500		mg/L	0.001	5.00
4-Chloro-3-methylphenol		<0.00500		mg/L	0.001	5.00
2-Methylnaphthalene		<0.00500		mg/L	0.001	5.00
1-Methylnaphthalene		<0.00500		mg/L	0.001	5.00
1,2,4,5-Tetrachlorobenzene		<0.00500		mg/L	0.001	5.00
Hexachlorocyclopentadiene		<0.00500		mg/L	0.001	5.00
2,4,6-Trichlorophenol		<0.00500		mg/L	0.001	5.00
2,4,5-Trichlorophenol		<0.00500		mg/L	0.001	5.00
2-Chloronaphthalene		<0.00500		mg/L	0.001	5.00
1-Chloronaphthalene		<0.00500		mg/L	0.001	5.00
2-Nitroaniline		<0.00500		mg/L	0.001	5.00
Dimethylphthalate		<0.00500		mg/L	0.001	5.00
Acenaphthylene		<0.00500		mg/L	0.001	5.00
2,6-Dinitrotoluene		<0.00500		mg/L	0.001	5.00
3-Nitroaniline		<0.00500		mg/L	0.001	5.00
Acenaphthene		<0.00500		mg/L	0.001	5.00
2,4-Dinitrophenol		<0.0200		mg/L	0.001	20.0
Dibenzofuran		<0.00500		mg/L	0.001	5.00
Pentachlorobenzene		<0.00500		mg/L	0.001	5.00

continued ...

sample 45372 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
4-Nitrophenol		<0.00500	mg/L	0.001	5.00
2,4-Dinitrotoluene		<0.00500	mg/L	0.001	5.00
1-Naphthylamine		<0.00500	mg/L	0.001	5.00
2,3,4,6-Tetrachlorophenol		<0.00500	mg/L	0.001	5.00
2-Naphthylamine		<0.00500	mg/L	0.001	5.00
Fluorene		<0.00500	mg/L	0.001	5.00
4-Chlorophenyl-phenylether		<0.00500	mg/L	0.001	5.00
Diethylphthalate		<0.00500	mg/L	0.001	5.00
4-Nitroaniline		<0.00500	mg/L	0.001	5.00
Diphenylhydrazine		<0.00500	mg/L	0.001	5.00
4,6-Dinitro-2-methylphenol		<0.00500	mg/L	0.001	5.00
Diphenylamine		<0.00500	mg/L	0.001	5.00
4-Bromophenyl-phenylether		<0.00500	mg/L	0.001	5.00
Phenacetin		<0.00500	mg/L	0.001	5.00
Hexachlorobenzene		<0.00500	mg/L	0.001	5.00
4-Aminobiphenyl		<0.00500	mg/L	0.001	5.00
Pentachlorophenol		<0.00500	mg/L	0.001	5.00
Anthracene		<0.00500	mg/L	0.001	5.00
Pentachloronitrobenzene		<0.00500	mg/L	0.001	5.00
Pronamide		<0.00500	mg/L	0.001	5.00
Phenanthrene		<0.00500	mg/L	0.001	5.00
Di-n-butylphthalate		<0.00500	mg/L	0.001	5.00
Fluoranthene		<0.00500	mg/L	0.001	5.00
Benzidine		<0.0150	mg/L	0.001	15.0
Pyrene		<0.00500	mg/L	0.001	5.00
p-Dimethylaminoazobenzene		<0.00500	mg/L	0.001	5.00
Butylbenzylphthalate		<0.00500	mg/L	0.001	5.00
Benzo(a)anthracene		<0.00500	mg/L	0.001	5.00
3,3-Dichlorobenzidine		<0.00500	mg/L	0.001	5.00
Chrysene		<0.00500	mg/L	0.001	5.00
bis(2-ethylhexyl)phthalate		<0.0100	mg/L	0.001	10.0
Di-n-octylphthalate		<0.00500	mg/L	0.001	5.00
Benzo(b)fluoranthene		<0.00500	mg/L	0.001	5.00
Benzo(k)fluoranthene		<0.00500	mg/L	0.001	5.00
7,12-Dimethylbenz(a)anthracene		<0.00500	mg/L	0.001	5.00
Benzo(a)pyrene		<0.00500	mg/L	0.001	5.00
3-Methylcholanthrene		<0.00500	mg/L	0.001	5.00
Dibenzo(a,j)acridine		<0.00500	mg/L	0.001	5.00
Indeno(1,2,3-cd)pyrene		<0.00500	mg/L	0.001	5.00
Dibenzo(a,h)anthracene		<0.00500	mg/L	0.001	5.00
Benzo(g,h,i)perylene		<0.00500	mg/L	0.001	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		0.0209	mg/L	0.001	80.0	26	0 - 69.3
Phenol-d5		0.0127	mg/L	0.001	80.0	16	0 - 52.5
Nitrobenzene-d5		0.0395	mg/L	0.001	80.0	49	21.1 - 93.6
2-Fluorobiphenyl		0.0415	mg/L	0.001	80.0	52	25.4 - 87
2,4,6-Tribromophenol		0.0446	mg/L	0.001	80.0	56	14.9 - 110
Terphenyl-d14		0.0472	mg/L	0.001	80.0	59	28.9 - 124

Sample: 45373 - WST-04-064

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13234	Date Analyzed:	2004-10-08	Analyzed By:	WB
Prep Batch:	11690	Date Prepared:	2004-10-08	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride	[1]	125	mg/L	5	0.500

Sample: 45373 - WST-04-064

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13234	Date Analyzed:	2004-10-08	Analyzed By:	WB
Prep Batch:	11690	Date Prepared:	2004-10-08	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Nitrate-N	[2]	1.01	mg/L	5	0.200

Sample: 45373 - WST-04-064

Analysis:	pH	Analytical Method:	SM 4500-H+	Prep Method:	N/A
QC Batch:	13209	Date Analyzed:	2004-10-08	Analyzed By:	RS
Prep Batch:	11679	Date Prepared:	2004-10-08	Prepared By:	RS

Parameter	Flag	Result	RL Units	Dilution	RL
pH		7.69	s.u.	1	0.00

Sample: 45373 - WST-04-064

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13268	Date Analyzed:	2004-10-12	Analyzed By:	WB
Prep Batch:	11720	Date Prepared:	2004-10-12	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Sulfate		6.77	mg/L	5	0.500

Sample: 45373 - WST-04-064

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	13272	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11727	Date Prepared:	2004-10-12	Prepared By:	WB

[1]Matrix % EA is 92 and Matrix RPD is 1 for chloride.
[2]Matrix % EA is 100 and Matrix RPD is 1 for nitrate.

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		325.0	mg/L	1	10.00

Sample: 45373 - WST-04-064

Analysis:	TSS	Analytical Method:	SM 2540D	Prep Method:	N/A
QC Batch:	13277	Date Analyzed:	2004-10-14	Analyzed By:	RS
Prep Batch:	11733	Date Prepared:	2004-10-13	Prepared By:	RS

Parameter	Flag	RL Result	Units	Dilution	RL
Total Suspended Solids		7.00	mg/L	1	1.00

Sample: 45374 - WST-04-065

Analysis:	Total 8 Metals	Analytical Method:	S 7470A	Prep Method:	N/A
QC Batch:	13293	Date Analyzed:	2004-10-14	Analyzed By:	TP
Prep Batch:	11746	Date Prepared:	2004-10-14	Prepared By:	TP
Analysis:	Total 8 Metals	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	13576	Date Analyzed:	2004-10-26	Analyzed By:	RR
Prep Batch:	11667	Date Prepared:	2004-10-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Total Silver	[3]	<0.00300	mg/L	1	0.00300
Total Arsenic		<0.00500	mg/L	1	0.00500
Total Barium		0.0700	mg/L	1	0.0100
Total Cadmium		<0.00100	mg/L	1	0.00100
Total Chromium		<0.00500	mg/L	1	0.00500
Total Mercury		<0.000200	mg/L	1	0.000200
Total Lead		<0.00500	mg/L	1	0.00500
Total Selenium		<0.0100	mg/L	1	0.0100

Sample: 45374 - WST-04-065

Analysis:	Zn, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	13576	Date Analyzed:	2004-10-26	Analyzed By:	RR
Prep Batch:	11667	Date Prepared:	2004-10-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Total Zinc		0.0100	mg/L	1	0.0100

Sample: 45375 - WST-04-066

Analysis:	Total 8 Metals	Analytical Method:	S 7470A	Prep Method:	N/A
QC Batch:	13293	Date Analyzed:	2004-10-14	Analyzed By:	TP

[3] Matrix spike being rerun due to poor recovery.

Prep Batch: 11746 Date Prepared: 2004-10-14 Prepared By: TP
Analysis: Total 8 Metals Analytical Method: S 6010B Prep Method: S 3010A
QC Batch: 13576 Date Analyzed: 2004-10-26 Analyzed By: RR
Prep Batch: 11667 Date Prepared: 2004-10-11 Prepared By: TP

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Silver		<0.00300		mg/L	1	0.00300
Total Arsenic		<0.00500		mg/L	1	0.00500
Total Barium		0.0710		mg/L	1	0.0100
Total Cadmium		<0.00100		mg/L	1	0.00100
Total Chromium		<0.00500		mg/L	1	0.00500
Total Mercury		<0.000200		mg/L	1	0.000200
Total Lead		<0.00500		mg/L	1	0.00500
Total Selenium		<0.0100		mg/L	1	0.0100

Sample: 45375 - WST-04-066

Analysis: Zn, Total Analytical Method: S 6010B Prep Method: S 3010A
QC Batch: 13576 Date Analyzed: 2004-10-26 Analyzed By: RR
Prep Batch: 11667 Date Prepared: 2004-10-11 Prepared By: TP

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Zinc		0.0100		mg/L	1	0.0100

Sample: 45376 - WST-04-067

Analysis: Volatiles Analytical Method: S 8260B Prep Method: S 5030B
QC Batch: 13191 Date Analyzed: 2004-10-09 Analyzed By: JG
Prep Batch: 11659 Date Prepared: 2004-10-09 Prepared By: JG

Parameter	Flag	Result	RL	Units	Dilution	RL
Bromochloromethane		<1.00		µg/L	1	1.00
Dichlorodifluoromethane		<1.00		µg/L	1	1.00
Chloromethane (methyl chloride)		<1.00		µg/L	1	1.00
Vinyl Chloride		<1.00		µg/L	1	1.00
Bromomethane (methyl bromide)		<5.00		µg/L	1	5.00
Chloroethane		<1.00		µg/L	1	1.00
Trichlorofluoromethane		<1.00		µg/L	1	1.00
Acetone		<10.0		µg/L	1	10.0
Iodomethane (methyl iodide)		<5.00		µg/L	1	5.00
Carbon Disulfide		<1.00		µg/L	1	1.00
Acrylonitrile		<1.00		µg/L	1	1.00
2-Butanone (MEK)		<5.00		µg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00		µg/L	1	5.00
2-Hexanone		<5.00		µg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0		µg/L	1	10.0
1,1-Dichloroethene		<1.00		µg/L	1	1.00
Methylene chloride		<5.00		µg/L	1	5.00
MTBE		<1.00		µg/L	1	1.00

continued ...

sample 45376 continued ...

Parameter	Flag	Result	RL	Units	Dilution	RL
trans-1,2-Dichloroethene		<1.00		µg/L	1	1.00
1,1-Dichloroethane		<1.00		µg/L	1	1.00
cis-1,2-Dichloroethene		<1.00		µg/L	1	1.00
2,2-Dichloropropane		<1.00		µg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00		µg/L	1	1.00
Chloroform		<1.00		µg/L	1	1.00
1,1,1-Trichloroethane		<1.00		µg/L	1	1.00
1,1-Dichloropropene		<1.00		µg/L	1	1.00
Benzene		<1.00		µg/L	1	1.00
Carbon Tetrachloride		<1.00		µg/L	1	1.00
1,2-Dichloropropane		<1.00		µg/L	1	1.00
Trichloroethene (TCE)		<1.00		µg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00		µg/L	1	1.00
Bromodichloromethane		<1.00		µg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00		µg/L	1	5.00
cis-1,3-Dichloropropene		<1.00		µg/L	1	1.00
trans-1,3-Dichloropropene		<1.00		µg/L	1	1.00
Toluene		<1.00		µg/L	1	1.00
1,1,2-Trichloroethane		<1.00		µg/L	1	1.00
1,3-Dichloropropane		<1.00		µg/L	1	1.00
Dibromochloromethane		<1.00		µg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00		µg/L	1	1.00
Tetrachloroethene (PCE)		<1.00		µg/L	1	1.00
Chlorobenzene		<1.00		µg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00		µg/L	1	1.00
Ethylbenzene		<1.00		µg/L	1	1.00
m,p-Xylene		<1.00		µg/L	1	1.00
Bromoform		<1.00		µg/L	1	1.00
Styrene		<1.00		µg/L	1	1.00
o-Xylene		<1.00		µg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00		µg/L	1	1.00
2-Chlorotoluene		<1.00		µg/L	1	1.00
1,2,3-Trichloropropane		<1.00		µg/L	1	1.00
Isopropylbenzene		<1.00		µg/L	1	1.00
Bromobenzene		<1.00		µg/L	1	1.00
n-Propylbenzene		<1.00		µg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00		µg/L	1	1.00
tert-Butylbenzene		<1.00		µg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00		µg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00		µg/L	1	1.00
sec-Butylbenzene		<1.00		µg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00		µg/L	1	1.00
p-Isopropyltoluene		<1.00		µg/L	1	1.00
4-Chlorotoluene		<1.00		µg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00		µg/L	1	1.00
n-Butylbenzene		<1.00		µg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00		µg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00		µg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00		µg/L	1	5.00
Naphthalene		<5.00		µg/L	1	5.00
Hexachlorobutadiene		<5.00		µg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		54.4	µg/L	1	50.0	109	70 - 130
Toluene-d8		47.8	µg/L	1	50.0	96	70 - 130
4-Bromofluorobenzene (4-BFB)		44.4	µg/L	1	50.0	89	70 - 130

Sample: 45377 - WST-04-068

Analysis:	TOC	Analytical Method:	E 415.1	Prep Method:	N/A
QC Batch:	13212	Date Analyzed:	2004-10-19	Analyzed By:	RC
Prep Batch:	11674	Date Prepared:	2004-10-19	Prepared By:	RC

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Organic Carbon		2.28		mg/L	1	1.00

Sample: 45378 - WST-04-069

Analysis:	Semivolatiles	Analytical Method:	S 8270C	Prep Method:	S 3510C
QC Batch:	13383	Date Analyzed:	2004-10-17	Analyzed By:	RC
Prep Batch:	11816	Date Prepared:	2004-10-14	Prepared By:	RC

Parameter	Flag	Result	RL	Units	Dilution	RL
Pyridine		<0.00500		mg/L	0.001	5.00
n-Nitrosodimethylamine		<0.00500		mg/L	0.001	5.00
2-Picoline		<0.00500		mg/L	0.001	5.00
Methyl methanesulfonate		<0.00500		mg/L	0.001	5.00
Ethyl methanesulfonate		<0.00500		mg/L	0.001	5.00
Phenol		<0.00500		mg/L	0.001	5.00
Aniline		<0.00500		mg/L	0.001	5.00
bis(2-chloroethyl)ether		<0.00500		mg/L	0.001	5.00
2-Chlorophenol		<0.00500		mg/L	0.001	5.00
1,3-Dichlorobenzene (meta)		<0.00500		mg/L	0.001	5.00
1,4-Dichlorobenzene (para)		<0.00500		mg/L	0.001	5.00
Benzyl alcohol		<0.00500		mg/L	0.001	5.00
1,2-Dichlorobenzene (ortho)		<0.00500		mg/L	0.001	5.00
2-Methylphenol		<0.00500		mg/L	0.001	5.00
bis(2-chloroisopropyl)ether		<0.00500		mg/L	0.001	5.00
4-Methylphenol / 3-Methylphenol		<0.00500		mg/L	0.001	5.00
n-Nitrosodi-n-propylamine		<0.00500		mg/L	0.001	5.00
Hexachloroethane		<0.00500		mg/L	0.001	5.00
Acetophenone		<0.00500		mg/L	0.001	5.00
Nitrobenzene		<0.00500		mg/L	0.001	5.00
n-Nitrosopiperidine		<0.00500		mg/L	0.001	5.00
Isophorone		<0.00500		mg/L	0.001	5.00
2-Nitrophenol		<0.00500		mg/L	0.001	5.00
2,4-Dimethylphenol		<0.00500		mg/L	0.001	5.00
bis(2-chloroethoxy)methane		<0.00500		mg/L	0.001	5.00
2,4-Dichlorophenol		<0.00500		mg/L	0.001	5.00
1,2,4-Trichlorobenzene		<0.00500		mg/L	0.001	5.00
Benzoic acid		<0.0200		mg/L	0.001	20.0

continued ...

sample 45378 continued ...

Parameter	Flag	Result	RL	Units	Dilution	RL
Naphthalene		<0.00500		mg/L	0.001	5.00
a,a-Dimethylphenethylamine		<0.00500		mg/L	0.001	5.00
4-Chloroaniline		<0.00500		mg/L	0.001	5.00
2,6-Dichlorophenol		<0.00500		mg/L	0.001	5.00
Hexachlorobutadiene		<0.00500		mg/L	0.001	5.00
n-Nitroso-di-n-butylamine		<0.00500		mg/L	0.001	5.00
4-Chloro-3-methylphenol		<0.00500		mg/L	0.001	5.00
2-Methylnaphthalene		<0.00500		mg/L	0.001	5.00
1-Methylnaphthalene		<0.00500		mg/L	0.001	5.00
1,2,4,5-Tetrachlorobenzene		<0.00500		mg/L	0.001	5.00
Hexachlorocyclopentadiene		<0.00500		mg/L	0.001	5.00
2,4,6-Trichlorophenol		<0.00500		mg/L	0.001	5.00
2,4,5-Trichlorophenol		<0.00500		mg/L	0.001	5.00
2-Chloronaphthalene		<0.00500		mg/L	0.001	5.00
1-Chloronaphthalene		<0.00500		mg/L	0.001	5.00
2-Nitroaniline		<0.00500		mg/L	0.001	5.00
Dimethylphthalate		<0.00500		mg/L	0.001	5.00
Acenaphthylene		<0.00500		mg/L	0.001	5.00
2,6-Dinitrotoluene		<0.00500		mg/L	0.001	5.00
3-Nitroaniline		<0.00500		mg/L	0.001	5.00
Acenaphthene		<0.00500		mg/L	0.001	5.00
2,4-Dinitrophenol		<0.0200		mg/L	0.001	20.0
Dibenzofuran		<0.00500		mg/L	0.001	5.00
Pentachlorobenzene		<0.00500		mg/L	0.001	5.00
4-Nitrophenol		<0.00500		mg/L	0.001	5.00
2,4-Dinitrotoluene		<0.00500		mg/L	0.001	5.00
1-Naphthylamine		<0.00500		mg/L	0.001	5.00
2,3,4,6-Tetrachlorophenol		<0.00500		mg/L	0.001	5.00
2-Naphthylamine		<0.00500		mg/L	0.001	5.00
Fluorene		<0.00500		mg/L	0.001	5.00
4-Chlorophenyl-phenylether		<0.00500		mg/L	0.001	5.00
Diethylphthalate		<0.00500		mg/L	0.001	5.00
4-Nitroaniline		<0.00500		mg/L	0.001	5.00
Diphenylhydrazine		<0.00500		mg/L	0.001	5.00
4,6-Dinitro-2-methylphenol		<0.00500		mg/L	0.001	5.00
Diphenylamine		<0.00500		mg/L	0.001	5.00
4-Bromophenyl-phenylether		<0.00500		mg/L	0.001	5.00
Phenacetin		<0.00500		mg/L	0.001	5.00
Hexachlorobenzene		<0.00500		mg/L	0.001	5.00
4-Aminobiphenyl		<0.00500		mg/L	0.001	5.00
Pentachlorophenol		<0.00500		mg/L	0.001	5.00
Anthracene		<0.00500		mg/L	0.001	5.00
Pentachloronitrobenzene		<0.00500		mg/L	0.001	5.00
Pronamide		<0.00500		mg/L	0.001	5.00
Phenanthrene		<0.00500		mg/L	0.001	5.00
Di-n-butylphthalate		<0.00500		mg/L	0.001	5.00
Fluoranthene		<0.00500		mg/L	0.001	5.00
Benzidine		<0.0150		mg/L	0.001	15.0
Pyrene		<0.00500		mg/L	0.001	5.00
p-Dimethylaminoazobenzene		<0.00500		mg/L	0.001	5.00
Butylbenzylphthalate		<0.00500		mg/L	0.001	5.00

continued ...

sample 45378 continued...

Parameter	Flag	Result	RL	Units	Dilution	RL
Benzo(a)anthracene		<0.00500		mg/L	0.001	5.00
3,3-Dichlorobenzidine		<0.00500		mg/L	0.001	5.00
Chrysene		<0.00500		mg/L	0.001	5.00
bis(2-ethylhexyl)phthalate		<0.0100		mg/L	0.001	10.0
Di-n-octylphthalate		<0.00500		mg/L	0.001	5.00
Benzo(b)fluoranthene		<0.00500		mg/L	0.001	5.00
Benzo(k)fluoranthene		<0.00500		mg/L	0.001	5.00
7,12-Dimethylbenz(a)anthracene		<0.00500		mg/L	0.001	5.00
Benzo(a)pyrene		<0.00500		mg/L	0.001	5.00
3-Methylcholanthrene		<0.00500		mg/L	0.001	5.00
Dibenzo(a,j)acridine		<0.00500		mg/L	0.001	5.00
Indeno(1,2,3-cd)pyrene		<0.00500		mg/L	0.001	5.00
Dibenzo(a,h)anthracene		<0.00500		mg/L	0.001	5.00
Benzo(g,h,i)perylene		<0.00500		mg/L	0.001	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		0.0183	mg/L	0.001	80.0	23	0 - 69.3
Phenol-d5		0.0117	mg/L	0.001	80.0	15	0 - 52.5
Nitrobenzene-d5		0.0356	mg/L	0.001	80.0	44	21.1 - 93.6
2-Fluorobiphenyl		0.0365	mg/L	0.001	80.0	46	25.4 - 87
2,4,6-Tribromophenol		0.0420	mg/L	0.001	80.0	52	14.9 - 110
Terphenyl-d14		0.0410	mg/L	0.001	80.0	51	28.9 - 124

Sample: 45379 - WST-04-070

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 13234 Date Analyzed: 2004-10-08 Analyzed By: WB
Prep Batch: 11690 Date Prepared: 2004-10-08 Prepared By: WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride	[4]	8.70		mg/L	2	0.500

Sample: 45379 - WST-04-070

Analysis: NO3 (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 13234 Date Analyzed: 2004-10-08 Analyzed By: WB
Prep Batch: 11690 Date Prepared: 2004-10-08 Prepared By: WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N	[5]	1.09		mg/L	2	0.200

Sample: 45379 - WST-04-070

[4]Matrix % EA is 92 and Matrix RPD is 1 for chloride.
[5]Matrix % EA is 100 and Matrix RPD is 1 for nitrate.

Analysis:	pH	Analytical Method:	SM 4500-H+	Prep Method:	N/A
QC Batch:	13209	Date Analyzed:	2004-10-08	Analyzed By:	RS
Prep Batch:	11679	Date Prepared:	2004-10-08	Prepared By:	RS

Parameter	Flag	Result	RL	Units	Dilution	RL
pH		7.96		s.u.	1	0.00

Sample: 45379 - WST-04-070

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13268	Date Analyzed:	2004-10-12	Analyzed By:	WB
Prep Batch:	11720	Date Prepared:	2004-10-12	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		8.86		mg/L	2	0.500

Sample: 45379 - WST-04-070

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	13272	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11727	Date Prepared:	2004-10-12	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		218.0		mg/L	1	10.00

Sample: 45379 - WST-04-070

Analysis:	TSS	Analytical Method:	SM 2540D	Prep Method:	N/A
QC Batch:	13277	Date Analyzed:	2004-10-14	Analyzed By:	RS
Prep Batch:	11733	Date Prepared:	2004-10-13	Prepared By:	RS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Suspended Solids		50.0		mg/L	1	1.00

Sample: 45380 - WST-04-071

Analysis:	Total 8 Metals	Analytical Method:	S 7470A	Prep Method:	N/A
QC Batch:	13293	Date Analyzed:	2004-10-14	Analyzed By:	TP
Prep Batch:	11746	Date Prepared:	2004-10-14	Prepared By:	TP
Analysis:	Total 8 Metals	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	13576	Date Analyzed:	2004-10-26	Analyzed By:	RR
Prep Batch:	11667	Date Prepared:	2004-10-11	Prepared By:	TP

continued ...

sample 45380 continued . . .

Parameter	Flag	RL Result	Units	Dilution	RL

Parameter	Flag	RL Result	Units	Dilution	RL
Total Silver		<0.00300	mg/L	1	0.00300
Total Arsenic		<0.00500	mg/L	1	0.00500
Total Barium		0.105	mg/L	1	0.0100
Total Cadmium		<0.00100	mg/L	1	0.00100
Total Chromium		<0.00500	mg/L	1	0.00500
Total Mercury		<0.000200	mg/L	1	0.000200
Total Lead		<0.00500	mg/L	1	0.00500
Total Selenium		<0.0100	mg/L	1	0.0100

Sample: 45380 - WST-04-071

Analysis:	Zn, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	13576	Date Analyzed:	2004-10-26	Analyzed By:	RR
Prep Batch:	11667	Date Prepared:	2004-10-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Total Zinc		0.0280	mg/L	1	0.0100

Sample: 45381 - WST-04-072

Analysis:	Total 8 Metals	Analytical Method:	S 7470A	Prep Method:	N/A
QC Batch:	13293	Date Analyzed:	2004-10-14	Analyzed By:	TP
Prep Batch:	11746	Date Prepared:	2004-10-14	Prepared By:	TP
Analysis:	Total 8 Metals	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	13576	Date Analyzed:	2004-10-26	Analyzed By:	RR
Prep Batch:	11667	Date Prepared:	2004-10-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Total Silver		<0.00300	mg/L	1	0.00300
Total Arsenic		<0.00500	mg/L	1	0.00500
Total Barium		0.108	mg/L	1	0.0100
Total Cadmium		<0.00100	mg/L	1	0.00100
Total Chromium		<0.00500	mg/L	1	0.00500
Total Mercury		<0.000200	mg/L	1	0.000200
Total Lead		<0.00500	mg/L	1	0.00500
Total Selenium		<0.0100	mg/L	1	0.0100

Sample: 45381 - WST-04-072

Analysis:	Zn, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	13576	Date Analyzed:	2004-10-26	Analyzed By:	RR
Prep Batch:	11667	Date Prepared:	2004-10-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Total Zinc		0.0280	mg/L	1	0.0100

Sample: 45382 - WST-04-073

Analysis:	Volatiles	Analytical Method:	S 8260B	Prep Method:	S 5030B
QC Batch:	13191	Date Analyzed:	2004-10-09	Analyzed By:	JG
Prep Batch:	11659	Date Prepared:	2004-10-09	Prepared By:	JG

Parameter	Flag	RL Result	Units	Dilution	RL
Bromochloromethane		<1.00	µg/L	1	1.00
Dichlorodifluoromethane		<1.00	µg/L	1	1.00
Chloromethane (methyl chloride)		<1.00	µg/L	1	1.00
Vinyl Chloride		<1.00	µg/L	1	1.00
Bromomethane (methyl bromide)		<5.00	µg/L	1	5.00
Chloroethane		<1.00	µg/L	1	1.00
Trichlorofluoromethane		<1.00	µg/L	1	1.00
Acetone		<10.0	µg/L	1	10.0
Iodomethane (methyl iodide)		<5.00	µg/L	1	5.00
Carbon Disulfide		<1.00	µg/L	1	1.00
Acrylonitrile		<1.00	µg/L	1	1.00
2-Butanone (MEK)		<5.00	µg/L	1	5.00
4-Methyl-2-pentanone (MIBK)		<5.00	µg/L	1	5.00
2-Hexanone		<5.00	µg/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	µg/L	1	10.0
1,1-Dichloroethene		<1.00	µg/L	1	1.00
Methylene chloride		<5.00	µg/L	1	5.00
MTBE		<1.00	µg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	µg/L	1	1.00
1,1-Dichloroethane		<1.00	µg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	µg/L	1	1.00
2,2-Dichloropropane		<1.00	µg/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	µg/L	1	1.00
Chloroform		<1.00	µg/L	1	1.00
1,1,1-Trichloroethane		<1.00	µg/L	1	1.00
1,1-Dichloropropene		<1.00	µg/L	1	1.00
Benzene		<1.00	µg/L	1	1.00
Carbon Tetrachloride		<1.00	µg/L	1	1.00
1,2-Dichloropropane		<1.00	µg/L	1	1.00
Trichloroethene (TCE)		<1.00	µg/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	µg/L	1	1.00
Bromodichloromethane		<1.00	µg/L	1	1.00
2-Chloroethyl vinyl ether		<5.00	µg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	µg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	µg/L	1	1.00
Toluene		<1.00	µg/L	1	1.00
1,1,2-Trichloroethane		<1.00	µg/L	1	1.00
1,3-Dichloropropane		<1.00	µg/L	1	1.00
Dibromochloromethane		<1.00	µg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	µg/L	1	1.00
Tetrachloroethene (PCE)		<1.00	µg/L	1	1.00

continued ...

sample 45382 continued...

Parameter	Flag	Result	RL Units	Dilution	RL
Chlorobenzene		<1.00	µg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1	1.00
Ethylbenzene		<1.00	µg/L	1	1.00
m,p-Xylene		<1.00	µg/L	1	1.00
Bromoform		<1.00	µg/L	1	1.00
Styrene		<1.00	µg/L	1	1.00
o-Xylene		<1.00	µg/L	1	1.00
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1	1.00
2-Chlorotoluene		<1.00	µg/L	1	1.00
1,2,3-Trichloropropane		<1.00	µg/L	1	1.00
Isopropylbenzene		<1.00	µg/L	1	1.00
Bromobenzene		<1.00	µg/L	1	1.00
n-Propylbenzene		<1.00	µg/L	1	1.00
1,3,5-Trimethylbenzene		<1.00	µg/L	1	1.00
tert-Butylbenzene		<1.00	µg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	µg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	µg/L	1	1.00
sec-Butylbenzene		<1.00	µg/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1	1.00
p-Isopropyltoluene		<1.00	µg/L	1	1.00
4-Chlorotoluene		<1.00	µg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1	1.00
n-Butylbenzene		<1.00	µg/L	1	1.00
1,2-Dibromo-3-chloropropane		<5.00	µg/L	1	5.00
1,2,3-Trichlorobenzene		<5.00	µg/L	1	5.00
1,2,4-Trichlorobenzene		<5.00	µg/L	1	5.00
Naphthalene		<5.00	µg/L	1	5.00
Hexachlorobutadiene		<5.00	µg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		54.8	µg/L	1	50.0	110	70 - 130
Toluene-d8		47.9	µg/L	1	50.0	96	70 - 130
4-Bromofluorobenzene (4-BFB)		43.9	µg/L	1	50.0	88	70 - 130

Sample: 45383 - WST-04-074

Analysis:	TOC	Analytical Method:	E 415.1	Prep Method:	N/A
QC Batch:	13212	Date Analyzed:	2004-10-19	Analyzed By:	RC
Prep Batch:	11674	Date Prepared:	2004-10-19	Prepared By:	RC

Parameter	Flag	Result	RL Units	Dilution	RL
Total Organic Carbon		2.46	mg/L	1	1.00

Sample: 45384 - WST-04-075

Analysis:	Semivolatiles	Analytical Method:	S 8270C	Prep Method:	S 3510C

QC Batch: 13383 Date Analyzed: 2004-10-17 Analyzed By: RC
Prep Batch: 11816 Date Prepared: 2004-10-14 Prepared By: RC

Parameter	Flag	Result	RL	Units	Dilution	RL
Pyridine		<0.00500		mg/L	0.001	5.00
n-Nitrosodimethylamine		<0.00500		mg/L	0.001	5.00
2-Picoline		<0.00500		mg/L	0.001	5.00
Methyl methanesulfonate		<0.00500		mg/L	0.001	5.00
Ethyl methanesulfonate		<0.00500		mg/L	0.001	5.00
Phenol		<0.00500		mg/L	0.001	5.00
Aniline		<0.00500		mg/L	0.001	5.00
bis(2-chloroethyl)ether		<0.00500		mg/L	0.001	5.00
2-Chlorophenol		<0.00500		mg/L	0.001	5.00
1,3-Dichlorobenzene (meta)		<0.00500		mg/L	0.001	5.00
1,4-Dichlorobenzene (para)		<0.00500		mg/L	0.001	5.00
Benzyl alcohol		<0.00500		mg/L	0.001	5.00
1,2-Dichlorobenzene (ortho)		<0.00500		mg/L	0.001	5.00
2-Methylphenol		<0.00500		mg/L	0.001	5.00
bis(2-chloroisopropyl)ether		<0.00500		mg/L	0.001	5.00
4-Methylphenol / 3-Methylphenol		<0.00500		mg/L	0.001	5.00
n-Nitrosodi-n-propylamine		<0.00500		mg/L	0.001	5.00
Hexachloroethane		<0.00500		mg/L	0.001	5.00
Acetophenone		<0.00500		mg/L	0.001	5.00
Nitrobenzene		<0.00500		mg/L	0.001	5.00
n-Nitrosopiperidine		<0.00500		mg/L	0.001	5.00
Isophorone		<0.00500		mg/L	0.001	5.00
2-Nitrophenol		<0.00500		mg/L	0.001	5.00
2,4-Dimethylphenol		<0.00500		mg/L	0.001	5.00
bis(2-chloroethoxy)methane		<0.00500		mg/L	0.001	5.00
2,4-Dichlorophenol		<0.00500		mg/L	0.001	5.00
1,2,4-Trichlorobenzene		<0.00500		mg/L	0.001	5.00
Benzoic acid		<0.0200		mg/L	0.001	20.0
Naphthalene		<0.00500		mg/L	0.001	5.00
a,a-Dimethylphenethylamine		<0.00500		mg/L	0.001	5.00
4-Chloroaniline		<0.00500		mg/L	0.001	5.00
2,6-Dichlorophenol		<0.00500		mg/L	0.001	5.00
Hexachlorobutadiene		<0.00500		mg/L	0.001	5.00
n-Nitroso-di-n-butylamine		<0.00500		mg/L	0.001	5.00
4-Chloro-3-methylphenol		<0.00500		mg/L	0.001	5.00
2-Methylnaphthalene		<0.00500		mg/L	0.001	5.00
1-Methylnaphthalene		<0.00500		mg/L	0.001	5.00
1,2,4,5-Tetrachlorobenzene		<0.00500		mg/L	0.001	5.00
Hexachlorocyclopentadiene		<0.00500		mg/L	0.001	5.00
2,4,6-Trichlorophenol		<0.00500		mg/L	0.001	5.00
2,4,5-Trichlorophenol		<0.00500		mg/L	0.001	5.00
2-Chloronaphthalene		<0.00500		mg/L	0.001	5.00
1-Chloronaphthalene		<0.00500		mg/L	0.001	5.00
2-Nitroaniline		<0.00500		mg/L	0.001	5.00
Dimethylphthalate		<0.00500		mg/L	0.001	5.00
Acenaphthylene		<0.00500		mg/L	0.001	5.00
2,6-Dinitrotoluene		<0.00500		mg/L	0.001	5.00
3-Nitroaniline		<0.00500		mg/L	0.001	5.00
Acenaphthene		<0.00500		mg/L	0.001	5.00
2,4-Dinitrophenol		<0.0200		mg/L	0.001	20.0

continued ...

sample 45384 continued ...

Parameter	Flag	Result	Units	Dilution	RL
Dibenzofuran		<0.00500	mg/L	0.001	5.00
Pentachlorobenzene		<0.00500	mg/L	0.001	5.00
4-Nitrophenol		<0.00500	mg/L	0.001	5.00
2,4-Dinitrotoluene		<0.00500	mg/L	0.001	5.00
1-Naphthylamine		<0.00500	mg/L	0.001	5.00
2,3,4,6-Tetrachlorophenol		<0.00500	mg/L	0.001	5.00
2-Naphthylamine		<0.00500	mg/L	0.001	5.00
Fluorene		<0.00500	mg/L	0.001	5.00
4-Chlorophenyl-phenylether		<0.00500	mg/L	0.001	5.00
Diethylphthalate		<0.00500	mg/L	0.001	5.00
4-Nitroaniline		<0.00500	mg/L	0.001	5.00
Diphenylhydrazine		<0.00500	mg/L	0.001	5.00
4,6-Dinitro-2-methylphenol		<0.00500	mg/L	0.001	5.00
Diphenylamine		<0.00500	mg/L	0.001	5.00
4-Bromophenyl-phenylether		<0.00500	mg/L	0.001	5.00
Phenacetin		<0.00500	mg/L	0.001	5.00
Hexachlorobenzene		<0.00500	mg/L	0.001	5.00
4-Aminobiphenyl		<0.00500	mg/L	0.001	5.00
Pentachlorophenol		<0.00500	mg/L	0.001	5.00
Anthracene		<0.00500	mg/L	0.001	5.00
Pentachloronitrobenzene		<0.00500	mg/L	0.001	5.00
Pronamide		<0.00500	mg/L	0.001	5.00
Phenanthrene		<0.00500	mg/L	0.001	5.00
Di-n-butylphthalate		<0.00500	mg/L	0.001	5.00
Fluoranthene		<0.00500	mg/L	0.001	5.00
Benzidine		<0.0150	mg/L	0.001	15.0
Pyrene		<0.00500	mg/L	0.001	5.00
p-Dimethylaminoazobenzene		<0.00500	mg/L	0.001	5.00
Butylbenzylphthalate		<0.00500	mg/L	0.001	5.00
Benzo(a)anthracene		<0.00500	mg/L	0.001	5.00
3,3-Dichlorobenzidine		<0.00500	mg/L	0.001	5.00
Chrysene		<0.00500	mg/L	0.001	5.00
bis(2-ethylhexyl)phthalate		<0.0100	mg/L	0.001	10.0
Di-n-octylphthalate		<0.00500	mg/L	0.001	5.00
Benzo(b)fluoranthene		<0.00500	mg/L	0.001	5.00
Benzo(k)fluoranthene		<0.00500	mg/L	0.001	5.00
7,12-Dimethylbenz(a)anthracene		<0.00500	mg/L	0.001	5.00
Benzo(a)pyrene		<0.00500	mg/L	0.001	5.00
3-Methylcholanthrene		<0.00500	mg/L	0.001	5.00
Dibenzo(a,j)acridine		<0.00500	mg/L	0.001	5.00
Indeno(1,2,3-cd)pyrene		<0.00500	mg/L	0.001	5.00
Dibenzo(a,h)anthracene		<0.00500	mg/L	0.001	5.00
Benzo(g,h,i)perylene		<0.00500	mg/L	0.001	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		0.00612	mg/L	0.001	80.0	8	0 - 69.3
Phenol-d5		0.00347	mg/L	0.001	80.0	4	0 - 52.5
Nitrobenzene-d5	[6]	0.0162	mg/L	0.001	80.0	20	21.1 - 93.6

continued ...

[6]Sample surrogate recovery out of limits due to sample matrix.

sample continued ...

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorobiphenyl	[7]	0.0165	mg/L	0.001	80.0	21	25.4 - 87
2,4,6-Tribromophenol		0.0179	mg/L	0.001	80.0	22	14.9 - 110
Terphenyl-d14	[8]	0.0211	mg/L	0.001	80.0	26	28.9 - 124

Sample: 45385 - WST-04-076

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13234	Date Analyzed:	2004-10-08	Analyzed By:	WB
Prep Batch:	11690	Date Prepared:	2004-10-08	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride	[9]	75.0	mg/L	5	0.500

Sample: 45385 - WST-04-076

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13234	Date Analyzed:	2004-10-08	Analyzed By:	WB
Prep Batch:	11690	Date Prepared:	2004-10-08	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Nitrate-N	[10]	1.11	mg/L	5	0.200

Sample: 45385 - WST-04-076

Analysis:	pH	Analytical Method:	SM 4500-H+	Prep Method:	N/A
QC Batch:	13209	Date Analyzed:	2004-10-08	Analyzed By:	RS
Prep Batch:	11679	Date Prepared:	2004-10-08	Prepared By:	RS

Parameter	Flag	Result	RL Units	Dilution	RL
pH		7.85	s.u.	1	0.00

Sample: 45385 - WST-04-076

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13437	Date Analyzed:	2004-10-19	Analyzed By:	WB
Prep Batch:	11878	Date Prepared:	2004-10-19	Prepared By:	WB

continued ...

[7]Sample surrogate recovery out of limits due to sample matrix.
[8]Sample surrogate recovery out of limits due to sample matrix.
[9]Matrix % EA is 92 and Matrix RPD is 1 for chloride.
[10]Matrix % EA is 100 and Matrix RPD is 1 for nitrate.

sample 45385 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		10.3	mg/L	5	0.500

Sample: 45385 - WST-04-076

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	13272	Date Analyzed:	2004-10-13	Analyzed By:	WB
Prep Batch:	11727	Date Prepared:	2004-10-12	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		244.0	mg/L	1	10.00

Sample: 45385 - WST-04-076

Analysis:	TSS	Analytical Method:	SM 2540D	Prep Method:	N/A
QC Batch:	13277	Date Analyzed:	2004-10-14	Analyzed By:	RS
Prep Batch:	11733	Date Prepared:	2004-10-13	Prepared By:	RS

Parameter	Flag	RL Result	Units	Dilution	RL
Total Suspended Solids		11.0	mg/L	1	1.00

Sample: 45386 - WST-04-077

Analysis:	Total 8 Metals	Analytical Method:	S 7470A	Prep Method:	N/A
QC Batch:	13293	Date Analyzed:	2004-10-14	Analyzed By:	TP
Prep Batch:	11746	Date Prepared:	2004-10-14	Prepared By:	TP
Analysis:	Total 8 Metals	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	13576	Date Analyzed:	2004-10-26	Analyzed By:	RR
Prep Batch:	11667	Date Prepared:	2004-10-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Total Silver		<0.00300	mg/L	1	0.00300
Total Arsenic		<0.00500	mg/L	1	0.00500
Total Barium		0.102	mg/L	1	0.0100
Total Cadmium		<0.00100	mg/L	1	0.00100
Total Chromium		<0.00500	mg/L	1	0.00500
Total Mercury		<0.000200	mg/L	1	0.000200
Total Lead		<0.00500	mg/L	1	0.00500
Total Selenium		<0.0100	mg/L	1	0.0100

Sample: 45386 - WST-04-077

Analysis:	Zn, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	13576	Date Analyzed:	2004-10-26	Analyzed By:	RR
Prep Batch:	11667	Date Prepared:	2004-10-11	Prepared By:	TP

Parameter	Flag	Result	RL Units	Dilution	RL
Total Zinc		0.0140	mg/L	1	0.0100

Sample: 45387 - WST-04-078

Analysis:	Total 8 Metals	Analytical Method:	S 7470A	Prep Method:	N/A
QC Batch:	13293	Date Analyzed:	2004-10-14	Analyzed By:	TP
Prep Batch:	11746	Date Prepared:	2004-10-14	Prepared By:	TP
Analysis:	Total 8 Metals	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	13576	Date Analyzed:	2004-10-26	Analyzed By:	RR
Prep Batch:	11667	Date Prepared:	2004-10-11	Prepared By:	TP

Parameter	Flag	Result	RL Units	Dilution	RL
Total Silver		<0.00300	mg/L	1	0.00300
Total Arsenic		<0.00500	mg/L	1	0.00500
Total Barium		0.102	mg/L	1	0.0100
Total Cadmium		<0.00100	mg/L	1	0.00100
Total Chromium		<0.00500	mg/L	1	0.00500
Total Mercury		<0.000200	mg/L	1	0.000200
Total Lead		<0.00500	mg/L	1	0.00500
Total Selenium		<0.0100	mg/L	1	0.0100

Sample: 45387 - WST-04-078

Analysis:	Zn, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	13576	Date Analyzed:	2004-10-26	Analyzed By:	RR
Prep Batch:	11667	Date Prepared:	2004-10-11	Prepared By:	TP

Parameter	Flag	Result	RL Units	Dilution	RL
Total Zinc		<0.0100	mg/L	1	0.0100

Method Blank (1) QC Batch: 13191

Parameter	Flag	Result	Units	RL
Bromochloromethane		<1.00	µg/L	1
Dichlorodifluoromethane		<1.00	µg/L	1
Chloromethane (methyl chloride)		<1.00	µg/L	1
Vinyl Chloride		<1.00	µg/L	1
Bromomethane (methyl bromide)		<5.00	µg/L	5
Chloroethane		<1.00	µg/L	1

continued ...

method blank continued ...

Parameter	Flag	Result	Units	RL
Trichlorofluoromethane		<1.00	µg/L	1
Acetone		<10.0	µg/L	10
Iodomethane (methyl iodide)		<5.00	µg/L	5
Carbon Disulfide		<1.00	µg/L	1
Acrylonitrile		<1.00	µg/L	1
2-Butanone (MEK)		<5.00	µg/L	5
4-Methyl-2-pentanone (MIBK)		<5.00	µg/L	5
2-Hexanone		<5.00	µg/L	5
trans 1,4-Dichloro-2-butene		<10.0	µg/L	10
1,1-Dichloroethene		<1.00	µg/L	1
Methylene chloride		<5.00	µg/L	5
MTBE		<1.00	µg/L	1
trans-1,2-Dichloroethene		<1.00	µg/L	1
1,1-Dichloroethane		<1.00	µg/L	1
cis-1,2-Dichloroethene		<1.00	µg/L	1
2,2-Dichloropropane		<1.00	µg/L	1
1,2-Dichloroethane (EDC)		<1.00	µg/L	1
Chloroform		<1.00	µg/L	1
1,1,1-Trichloroethane		<1.00	µg/L	1
1,1-Dichloropropene		<1.00	µg/L	1
Benzene		<1.00	µg/L	1
Carbon Tetrachloride		<1.00	µg/L	1
1,2-Dichloropropane		<1.00	µg/L	1
Trichloroethene (TCE)		<1.00	µg/L	1
Dibromomethane (methylene bromide)		<1.00	µg/L	1
Bromodichloromethane		<1.00	µg/L	1
2-Chloroethyl vinyl ether		<5.00	µg/L	5
cis-1,3-Dichloropropene		<1.00	µg/L	1
trans-1,3-Dichloropropene		<1.00	µg/L	1
Toluene		<1.00	µg/L	1
1,1,2-Trichloroethane		<1.00	µg/L	1
1,3-Dichloropropane		<1.00	µg/L	1
Dibromochloromethane		<1.00	µg/L	1
1,2-Dibromoethane (EDB)		<1.00	µg/L	1
Tetrachloroethene (PCE)		<1.00	µg/L	1
Chlorobenzene		<1.00	µg/L	1
1,1,1,2-Tetrachloroethane		<1.00	µg/L	1
Ethylbenzene		<1.00	µg/L	1
m,p-Xylene		<1.00	µg/L	1
Bromoform		<1.00	µg/L	1
Styrene		<1.00	µg/L	1
o-Xylene		<1.00	µg/L	1
1,1,2,2-Tetrachloroethane		<1.00	µg/L	1
2-Chlorotoluene		<1.00	µg/L	1
1,2,3-Trichloropropane		<1.00	µg/L	1
Isopropylbenzene		<1.00	µg/L	1
Bromobenzene		<1.00	µg/L	1
n-Propylbenzene		<1.00	µg/L	1
1,3,5-Trimethylbenzene		<1.00	µg/L	1
tert-Butylbenzene		<1.00	µg/L	1
1,2,4-Trimethylbenzene		<1.00	µg/L	1
1,4-Dichlorobenzene (para)		<1.00	µg/L	1

continued ...

method blank continued ...

Parameter	Flag	Result	Units	RL
sec-Butylbenzene		<1.00	µg/L	1
1,3-Dichlorobenzene (meta)		<1.00	µg/L	1
p-Isopropyltoluene		<1.00	µg/L	1
4-Chlorotoluene		<1.00	µg/L	1
1,2-Dichlorobenzene (ortho)		<1.00	µg/L	1
n-Butylbenzene		<1.00	µg/L	1
1,2-Dibromo-3-chloropropane		<5.00	µg/L	5
1,2,3-Trichlorobenzene		<5.00	µg/L	5
1,2,4-Trichlorobenzene		<5.00	µg/L	5
Naphthalene		<5.00	µg/L	5
Hexachlorobutadiene		<5.00	µg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		50.5	µg/L	1	50.0	101	70 - 130
Toluene-d8		48.8	µg/L	1	50.0	98	70 - 130
4-Bromofluorobenzene (4-BFB)		47.3	µg/L	1	50.0	95	70 - 130

Method Blank (1) **QC Batch: 13212**

Parameter	Flag	Result	Units	RL
Total Organic Carbon		<1.00	mg/L	1

Method Blank (1) **QC Batch: 13234**

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) **QC Batch: 13234**

Parameter	Flag	Result	Units	RL
Nitrate-N		<0.200	mg/L	0.2

Method Blank (1) **QC Batch: 13268**

Parameter	Flag	Result	Units	RL
Sulfate		<0.500	mg/L	0.5

Method Blank (1) **QC Batch: 13272**

Parameter	Flag	Result	Units	RL
Total Dissolved Solids		<10.00	mg/L	10

Method Blank (1) **QC Batch: 13277**

Parameter	Flag	Result	Units	RL
Total Suspended Solids		<1.00	mg/L	1

Method Blank (1) **QC Batch: 13293**

Parameter	Flag	Result	Units	RL
Total Mercury		<0.000200	mg/L	0.0002

Method Blank (1) **QC Batch: 13383**

Parameter	Flag	Result	Units	RL
Pyridine		<0.00500	mg/L	5
n-Nitrosodimethylamine		<0.00500	mg/L	5
2-Picoline		<0.00500	mg/L	5
Methyl methanesulfonate		<0.00500	mg/L	5
Ethyl methanesulfonate		<0.00500	mg/L	5
Phenol		<0.00500	mg/L	5
Aniline		<0.00500	mg/L	5
bis(2-chloroethyl)ether		<0.00500	mg/L	5
2-Chlorophenol		<0.00500	mg/L	5
1,3-Dichlorobenzene (meta)		<0.00500	mg/L	5
1,4-Dichlorobenzene (para)		<0.00500	mg/L	5
Benzyl alcohol		<0.00500	mg/L	5
1,2-Dichlorobenzene (ortho)		<0.00500	mg/L	5
2-Methylphenol		<0.00500	mg/L	5
bis(2-chloroisopropyl)ether		<0.00500	mg/L	5
4-Methylphenol / 3-Methylphenol		<0.00500	mg/L	5
n-Nitrosodi-n-propylamine		<0.00500	mg/L	5
Hexachloroethane		<0.00500	mg/L	5
Acetophenone		<0.00500	mg/L	5
Nitrobenzene		<0.00500	mg/L	5
n-Nitrosopiperidine		<0.00500	mg/L	5
Isophorone		<0.00500	mg/L	5
2-Nitrophenol		<0.00500	mg/L	5
2,4-Dimethylphenol		<0.00500	mg/L	5
bis(2-chloroethoxy)methane		<0.00500	mg/L	5
2,4-Dichlorophenol		<0.00500	mg/L	5
1,2,4-Trichlorobenzene		<0.00500	mg/L	5
Benzoic acid		<0.0200	mg/L	20
Naphthalene		<0.00500	mg/L	5
a,a-Dimethylphenethylamine		<0.00500	mg/L	5

continued ...

method blank continued ...

Parameter	Flag	Result	Units	RL
4-Chloroaniline		<0.00500	mg/L	5
2,6-Dichlorophenol		<0.00500	mg/L	5
Hexachlorobutadiene		<0.00500	mg/L	5
n-Nitroso-di-n-butylamine		<0.00500	mg/L	5
4-Chloro-3-methylphenol		<0.00500	mg/L	5
2-Methylnaphthalene		<0.00500	mg/L	5
1-Methylnaphthalene		<0.00500	mg/L	5
1,2,4,5-Tetrachlorobenzene		<0.00500	mg/L	5
Hexachlorocyclopentadiene		<0.00500	mg/L	5
2,4,6-Trichlorophenol		<0.00500	mg/L	5
2,4,5-Trichlorophenol		<0.00500	mg/L	5
2-Chloronaphthalene		<0.00500	mg/L	5
1-Chloronaphthalene		<0.00500	mg/L	5
2-Nitroaniline		<0.00500	mg/L	5
Dimethylphthalate		<0.00500	mg/L	5
Acenaphthylene		<0.00500	mg/L	5
2,6-Dinitrotoluene		<0.00500	mg/L	5
3-Nitroaniline		<0.00500	mg/L	5
Acenaphthene		<0.00500	mg/L	5
2,4-Dinitrophenol		<0.0200	mg/L	20
Dibenzofuran		<0.00500	mg/L	5
Pentachlorobenzene		<0.00500	mg/L	5
4-Nitrophenol		<0.00500	mg/L	5
2,4-Dinitrotoluene		<0.00500	mg/L	5
1-Naphthylamine		<0.00500	mg/L	5
2,3,4,6-Tetrachlorophenol		<0.00500	mg/L	5
2-Naphthylamine		<0.00500	mg/L	5
Fluorene		<0.00500	mg/L	5
4-Chlorophenyl-phenylether		<0.00500	mg/L	5
Diethylphthalate		<0.00500	mg/L	5
4-Nitroaniline		<0.00500	mg/L	5
Diphenylhydrazine		<0.00500	mg/L	5
4,6-Dinitro-2-methylphenol		<0.00500	mg/L	5
Diphenylamine		<0.00500	mg/L	5
4-Bromophenyl-phenylether		<0.00500	mg/L	5
Phenacetin		<0.00500	mg/L	5
Hexachlorobenzene		<0.00500	mg/L	5
4-Aminobiphenyl		<0.00500	mg/L	5
Pentachlorophenol		<0.00500	mg/L	5
Anthracene		<0.00500	mg/L	5
Pentachloronitrobenzene		<0.00500	mg/L	5
Pronamide		<0.00500	mg/L	5
Phenanthrene		<0.00500	mg/L	5
Di-n-butylphthalate		<0.00500	mg/L	5
Fluoranthene		<0.00500	mg/L	5
Benzidine		<0.0150	mg/L	15
Pyrene		<0.00500	mg/L	5
p-Dimethylaminoazobenzene		<0.00500	mg/L	5
Butylbenzylphthalate		<0.00500	mg/L	5
Benzo(a)anthracene		<0.00500	mg/L	5
3,3-Dichlorobenzidine		<0.00500	mg/L	5
Chrysene		<0.00500	mg/L	5

continued ...

method blank continued ...

Parameter	Flag	Result	Units	RL
bis(2-ethylhexyl)phthalate		<0.0100	mg/L	10
Di-n-octylphthalate		<0.00500	mg/L	5
Benzo(b)fluoranthene		<0.00500	mg/L	5
Benzo(k)fluoranthene		<0.00500	mg/L	5
7,12-Dimethylbenz(a)anthracene		<0.00500	mg/L	5
Benzo(a)pyrene		<0.00500	mg/L	5
3-Methylcholanthrene		<0.00500	mg/L	5
Dibenzo(a,j)acridine		<0.00500	mg/L	5
Indeno(1,2,3-cd)pyrene		<0.00500	mg/L	5
Dibenzo(a,h)anthracene		<0.00500	mg/L	5
Benzo(g,h,i)perylene		<0.00500	mg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
2-Fluorophenol		0.0185	mg/L	0.001	80.0	23	0 - 69.3
Phenol-d5		0.0116	mg/L	0.001	80.0	14	0 - 52.5
Nitrobenzene-d5		0.0453	mg/L	0.001	80.0	57	21.1 - 93.6
2-Fluorobiphenyl		0.0481	mg/L	0.001	80.0	60	25.4 - 87
2,4,6-Tribromophenol		0.0486	mg/L	0.001	80.0	61	14.9 - 110
Terphenyl-d14		0.0533	mg/L	0.001	80.0	67	28.9 - 124

Method Blank (1) **QC Batch: 13437**

Parameter	Flag	Result	Units	RL
Sulfate		<0.500	mg/L	0.5

Method Blank (1) **QC Batch: 13576**

Parameter	Flag	Result	Units	RL
Total Zinc		<0.0100	mg/L	0.01

Method Blank (1) **QC Batch: 13576**

Parameter	Flag	Result	Units	RL
Total Silver		<0.00300	mg/L	0.003
Total Arsenic		<0.00500	mg/L	0.005
Total Barium		<0.0100	mg/L	0.01
Total Cadmium		<0.00100	mg/L	0.001
Total Chromium		<0.00500	mg/L	0.005
Total Lead		<0.00500	mg/L	0.005
Total Selenium		<0.0100	mg/L	0.01

Duplicate (1) **QC Batch: 13209**

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH	8.69	8.69	s.u.	1	0	0.4

Duplicate (1) QC Batch: 13272

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	1180	1196	mg/L	2	1	8.7

Duplicate (1) QC Batch: 13277

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Suspended Solids	82.0	86.0	mg/L	2	5	12.4

Laboratory Control Spike (LCS-1) QC Batch: 13191

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
1,1-Dichloroethene	94.0	94.6	µg/L	1	100	<0.136	94	1	70 - 130	20
Benzene	98.4	97.1	µg/L	1	100	<0.146	98	1	70 - 130	20
Trichloroethene (TCE)	94.0	93.4	µg/L	1	100	<0.117	94	1	70 - 130	20
Toluene	95.3	94.9	µg/L	1	100	<0.0600	95	0	70 - 130	20
Chlorobenzene	95.0	93.6	µg/L	1	100	<0.0540	95	1	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Dibromofluoromethane	49.2	49.2	µg/L	1	50.0	98	98	70 - 130
Toluene-d8	49.5	49.1	µg/L	1	50.0	99	98	70 - 130
4-Bromofluorobenzene (4-BFB)	49.1	47.9	µg/L	1	50.0	98	96	70 - 130

Laboratory Control Spike (LCS-1) QC Batch: 13212

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Organic Carbon	4.85	4.86	mg/L	1	5.00	<0.382	97	0	77 - 122	13

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13234

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	11.5	11.6	mg/L	1	12.5	<0.337	92	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13234

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	2.39	2.40	mg/L	1	2.50	<0.0217	96	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13268

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	12.1	11.9	mg/L	1	12.5	<0.409	97	2	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13277

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Suspended Solids	94.0	95.0	mg/L	1	100	<1.00	94	1	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13293

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Mercury	0.000990	0.000980	mg/L	1	0.00100	<0.0000329	99	1	82 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13383

Param		LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Phenol		5.64	5.60	mg/L	1	80.0	<0.490	7	1	0 - 52.1	20
2-Chlorophenol		19.5	19.7	mg/L	1	80.0	<1.63	24	1	9.7 - 98.2	20
1,4-Dichlorobenzene (para)		18.0	18.2	mg/L	1	80.0	<1.93	22	1	18.1 - 111	20
n-Nitrosodi-n-propylamine	[11][12]	21.7	24.2	mg/L	1	80.0	<2.26	27	11	36.6 - 121	20
1,2,4-Trichlorobenzene		22.3	21.7	mg/L	1	80.0	<1.52	28	3	20.8 - 112	20
4-Chloro-3-methylphenol		21.5	21.2	mg/L	1	80.0	<1.60	27	1	14.3 - 102	20
Acenaphthene		30.1	29.5	mg/L	1	80.0	<1.58	38	2	32.6 - 123	20
4-Nitrophenol		10.2	9.86	mg/L	1	80.0	<3.83	13	3	0 - 51.9	20
2,4-Dinitrotoluene		49.4	47.8	mg/L	1	80.0	<2.09	62	3	32.6 - 138	20
Pentachlorophenol		44.2	43.8	mg/L	1	80.0	<3.04	55	1	0 - 121	20
Pyrene		61.9	61.8	mg/L	1	80.0	<1.81	77	0	38.4 - 146	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

[11]The average of the spike compounds shows that the process is in control.
[12]The average of the spike compounds shows that the process is in control.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
2-Fluorophenol	9.59	9.84	mg/L	1	80.0	12	12	0 - 69.3
Phenol-d5	6.30	6.10	mg/L	1	80.0	8	8	0 - 52.5
Nitrobenzene-d5	23.0	22.2	mg/L	1	80.0	29	28	21.1 - 93.6
2-Fluorobiphenyl	24.5	23.9	mg/L	1	80.0	31	30	25.4 - 87
2,4,6-Tribromophenol	39.7	39.0	mg/L	1	80.0	50	49	14.9 - 110
Terphenyl-d14	55.1	55.2	mg/L	1	80.0	69	69	28.9 - 124

Laboratory Control Spike (LCS-1) QC Batch: 13437

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	12.4	12.5	mg/L	1	12.5	<0.409	99	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13576

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Zinc	0.240	0.240	mg/L	1	0.250	<0.00300	96	0	85 - 115	20

Percent recovery is based on the spike result: RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13576

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Silver	0.122	0.122	mg/L	1	0.125	<0.00274	98	0	85 - 115	20
Total Arsenic	0.494	0.493	mg/L	1	0.500	<0.00489	99	0	85 - 115	20
Total Barium	0.971	0.980	mg/L	1	1.00	<0.000450	97	1	85 - 114	20
Total Cadmium	0.245	0.245	mg/L	1	0.250	<0.000268	98	0	86 - 115	20
Total Chromium	0.102	0.100	mg/L	1	0.100	<0.00357	102	2	85 - 115	20
Total Lead	0.501	0.499	mg/L	1	0.500	<0.00310	100	0	86.1 - 112	20
Total Selenium	0.467	0.475	mg/L	1	0.500	<0.00556	93	2	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 13191

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
1,1-Dichloroethene	105	106	µg/L	1	100	<0.136	105	1	70 - 130	20
Benzene	94.9	94.0	µg/L	1	100	<0.146	95	1	70 - 130	20
Trichloroethene (TCE)	92.8	91.2	µg/L	1	100	<0.117	93	2	70 - 130	20
Toluene	93.5	92.3	µg/L	1	100	<0.0600	94	1	70 - 130	20
Chlorobenzene	95.2	92.9	µg/L	1	100	<0.0540	95	2	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Dibromofluoromethane	54.1	53.5	µg/L	1	50	108	107	70 - 130
Toluene-d8	48.0	46.7	µg/L	1	50	96	93	70 - 130
4-Bromofluorobenzene (4-BFB)	43.9	42.2	µg/L	1	50	88	84	70 - 130

Matrix Spike (MS-1) QC Batch: 13212

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Organic Carbon	8.69	8.73	mg/L	1	5.00	<0.382	174	0	24 - 207	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 13268

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	67100	67300	mg/L	5000	12.5	9080	93	0	77.8 - 112	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 13293

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Mercury	0.000960	0.000850	mg/L	1	0.00100	<0.0000329	96	12	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 13437

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	1130	1140	mg/L	50	12.5	519	98	1	77.8 - 112	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (CCV-1) QC Batch: 13191

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/L	50.0	44.3	89	80 - 120	2004-10-09
1,1-Dichloroethene		µg/L	50.0	47.1	94	80 - 120	2004-10-09
Chloroform		µg/L	50.0	50.2	100	80 - 120	2004-10-09
1,2-Dichloropropane		µg/L	50.0	53.2	106	80 - 120	2004-10-09
Toluene		µg/L	50.0	52.9	106	80 - 120	2004-10-09
Chlorobenzene		µg/L	50.0	52.1	104	80 - 120	2004-10-09
Ethylbenzene		µg/L	50.0	55.5	111	80 - 120	2004-10-09

Standard (ICV-1) QC Batch: 13209

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7.00	6.97	100	98 - 102	2004-10-08

Standard (CCV-1) QC Batch: 13209

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7.00	6.96	99	98 - 102	2004-10-08

Standard (ICV-1) QC Batch: 13212

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Organic Carbon		mg/L	5.00	4.84	97	85 - 115	2004-10-19

Standard (CCV-1) QC Batch: 13212

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Organic Carbon		mg/L	5.00	4.87	97	85 - 115	2004-10-19

Standard (ICV-1) QC Batch: 13234

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.4	91	90 - 110	2004-10-08

Standard (ICV-1) QC Batch: 13234

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.39	96	90 - 110	2004-10-08

Standard (CCV-1) QC Batch: 13234

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.5	92	90 - 110	2004-10-08

Standard (CCV-1) QC Batch: 13234

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.39	96	90 - 110	2004-10-08

Standard (ICV-1) **QC Batch: 13268**

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	11.8	94	90 - 110	2004-10-12

Standard (CCV-1) **QC Batch: 13268**

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.1	97	90 - 110	2004-10-12

Standard (ICV-1) **QC Batch: 13272**

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1014	101	90 - 110	2004-10-13

Standard (CCV-1) **QC Batch: 13272**

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1009	101	90 - 110	2004-10-13

Standard (ICV-1) **QC Batch: 13293**

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.00100	0.00105	105	80 - 120	2004-10-14

Standard (CCV-1) **QC Batch: 13293**

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.00100	0.000980	98	80 - 120	2004-10-14

Standard (CCV-1) **QC Batch: 13383**

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Phenol		mg/L	60.0	57.3	96	80 - 120	2004-10-17
1,4-Dichlorobenzene (para)		mg/L	60.0	64.1	107	80 - 120	2004-10-17
2-Nitrophenol		mg/L	60.0	56.7	94	80 - 120	2004-10-17
2,4-Dichlorophenol		mg/L	60.0	57.3	96	80 - 120	2004-10-17
Hexachlorobutadiene		mg/L	60.0	71.2	119	80 - 120	2004-10-17
4-Chloro-3-methylphenol		mg/L	60.0	55.6	93	80 - 120	2004-10-17
2,4,6-Trichlorophenol		mg/L	60.0	51.9	86	80 - 120	2004-10-17
Acenaphthene		mg/L	60.0	51.9	86	80 - 120	2004-10-17
Diphenylamine		mg/L	60.0	60.1	100	80 - 120	2004-10-17
Pentachlorophenol		mg/L	60.0	68.7	114	80 - 120	2004-10-17
Fluoranthene		mg/L	60.0	59.8	100	80 - 120	2004-10-17
Di-n-octylphthalate		mg/L	60.0	69.7	116	80 - 120	2004-10-17
Benzo(a)pyrene		mg/L	60.0	65.8	110	80 - 120	2004-10-17

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limit
2-Fluorophenol		57.4	mg/L	1	60.0	96	80 - 120
Phenol-d5		61.0	mg/L	1	60.0	102	80 - 120
Nitrobenzene-d5		55.2	mg/L	1	60.0	92	80 - 120
2-Fluorobiphenyl		54.5	mg/L	1	60.0	91	80 - 120
2,4,6-Tribromophenol		57.4	mg/L	1	60.0	96	80 - 120
Terphenyl-d14		70.2	mg/L	1	60.0	117	80 - 120

Standard (ICV-1) QC Batch: 13437

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.2	98	90 - 110	2004-10-19

Standard (CCV-1) QC Batch: 13437

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.4	99	90 - 110	2004-10-19

Standard (ICV-1) QC Batch: 13576

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Zinc		mg/L	1.00	0.997	100	90 - 110	2004-10-26

Standard (ICV-1) QC Batch: 13576

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Silver		mg/L	0.125	0.124	99	90 - 110	2004-10-26
Total Arsenic		mg/L	1.00	0.998	100	90 - 110	2004-10-26
Total Barium		mg/L	1.00	0.991	99	90 - 110	2004-10-26
Total Cadmium		mg/L	1.00	0.996	100	90 - 110	2004-10-26
Total Chromium		mg/L	1.00	0.994	99	90 - 110	2004-10-26
Total Lead		mg/L	1.00	0.989	99	90 - 110	2004-10-26
Total Selenium		mg/L	1.00	0.994	99	90 - 110	2004-10-26

Standard (CCV-1) **QC Batch: 13576**

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Zinc		mg/L	1.00	0.990	99	90 - 110	2004-10-26

Standard (CCV-1) **QC Batch: 13576**

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Silver		mg/L	0.125	0.124	99	90 - 110	2004-10-26
Total Arsenic		mg/L	1.00	0.991	99	90 - 110	2004-10-26
Total Barium		mg/L	1.00	0.994	99	90 - 110	2004-10-26
Total Cadmium		mg/L	1.00	0.990	99	90 - 110	2004-10-26
Total Chromium		mg/L	1.00	0.994	99	90 - 110	2004-10-26
Total Lead		mg/L	1.00	0.989	99	90 - 110	2004-10-26
Total Selenium		mg/L	1.00	0.982	98	90 - 110	2004-10-26

Attachment 3

Laboratory Data Summary Sheets for WQSP 6a

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: TraceAnalysis, Inc.

SDG No.: 4052621

WIPP Sample No.	Lab Sample ID.
WQ6ADLR18N7	T35281
WQ6ADLR18N7D	T35282
WQ6ADLR18N12	T35285
WQ6ADLR18N12D	T35286
WQ6ADLR18N13	T35287
WQ6ADLR18N13D	T35288

Were ICP Interelement corrections applied? Yes/No No

Were ICP backgrounds corrections applied? Yes/No Yes

If yes-were raw data generated before application of background corrections? Yes/No Yes

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Michael Abel

Date: 7/21/04

Name: Blair Leftwich

Title: Managing Director

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

SECTION II
WIPP SAMPLE NO.

WQ6ADLR18N7D

Lab Name: TraceAnalysis, Inc.

SDG No.: 4052621

Matrix (soil/water): Water

Lab Sample ID: T35282

Date Received: 05/26/04

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Analysis Date	Q	RL	M
7440-36-0	Antimony	0.25	U	06/01/04		0.25	P
7440-38-2	Arsenic	0.1	U	06/01/04		0.1	P
7440-39-3	Barium	0.1	U	06/01/04		0.1	P
7440-41-7	Beryllium	0.010	U	06/01/04		0.010	P
7440-43-9	Cadmium	0.010	U	06/01/04		0.010	P
7440-47-3	Chromium	0.025	U	06/01/04		0.025	P
7439-89-6	Iron	0.500	U	06/01/04		0.500	P
7439-92-1	Lead	0.05	U	06/01/04		0.05	P
7439-97-6	Mercury	0.0002	U	06/03/04		0.0002	CV
7440-02-0	Nickel	0.05	U	06/01/04		0.05	P
7782-49-2	Selenium	0.025	U	06/01/04		0.025	P
7440-22-4	Silver	0.025	U	06/01/04		0.025	P
7440-28-0	Thallium	0.025	U	06/01/04		0.025	P
7440-62-2	Vanadium	0.05	U	06/01/04		0.05	P

Comments:

FORM I - IN

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

Lab Name: TraceAnalysis, Inc.

SDG No.: 4052621

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 05/26/04

WIPP Round No. 18

WIPP Well No. 6A

Concentration Units (mg/L or mg/Kg dry weight): mg/L

WIPP Sample No.	Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
WQ6ADLR18N8	T35283		Alkalinity	104.0		6/3/04	SM 2320 B	4.0
WQ6ADLR18N8	T35283	7782-50-5	Chloride	416		5/27/04	300.0	2.0
WQ6ADLR18N8	T35283		Density	1.00		5/26/04	ASTM D 854-92	N/A
WQ6ADLR18N8	T35283	7727-37-9	Nitrate (as N)	9.61	*	5/27/04	353.3	0.10
WQ6ADLR18N8	T35283		pH	7.40		5/26/04	150.1	4-10
WQ6ADLR18N8	T35283		Conductivity	4080		6/3/04	SM2510B	
WQ6ADLR18N8	T35283		Sulfate	1970		5/27/04	300.0	2
WQ6ADLR18N5	T35277		Total Dissolved Solids (TDS)	3646		5/29/04	160.1	10
WQ6ADLR18N4	T35275		Total Organic Carbon (TOC)	1.00	U	6/2/04	415.1	1.0
WQ6ADLR18N8	T35283		Total Organic Halogen (TOX)	1.10		6/11/04	5320B/9020B	0.005
			Total Suspended Solids (TSS)	1.00	U	6/2/04	160.2	1.0

(Density reported in g/mL, pH reported in s.u., Conductivity reported in uMHOs/cm, all other analytes reported in mg/L)
(pH ran as soon as received in laboratory)

Comments:
TOX ran by ATEL
pH received out of hold time.
*NO NO2 present.

TRACEANALYSIS
FORM 1
CLASSICALS ANALYSIS DATA SHEET

Lab Name: TraceAnalysis, Inc.

SDG No.: 4052621

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 05/26/04

Concentration Units (mg/L or mg/Kg dry weight): mg/L

WIPP Round No.	18
WIPP Well No.	6A

WIPP Sample No.	Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
WQ6ADLR18N8D	T35284		Alkalinity	104.0		6/3/04	SM 2320 B	4.0
WQ6ADLR18N8D	T35284	7782-50-5	Chloride	393		5/27/04	300.0	2.0
WQ6ADLR18N8D	T35284		Density	1.001		5/26/04	ASTM D 854-92	N/A
WQ6ADLR18N8D	T35284	7727-37-9	Nitrate (as N)	9.61	*	5/27/04	353.3	0.10
WQ6ADLR18N8D	T35284		pH	7.38		5/26/04	150.1	4-10
WQ6ADLR18N8D	T35284		Conductivity	4100		6/3/04	SM2510B	
WQ6ADLR18N8D	T35284		Sulfate	2000		5/27/04	300.0	2
WQ6ADLR18N8D	T35284		Total Dissolved Solids (TDS)	3698		5/29/04	160.1	10
WQ6ADLR18N5D	T35278		Total Organic Carbon (TOC)	1.00	U	6/2/04	415.1	1.0
WQ6ADLR18N4D	T35276		Total Organic Halogen (TOX)	0.79		6/11/04	5320B/9020B	0.005
WQ6ADLR18N8D	T35284		Total Suspended Solids (TSS)	1.00	U	6/2/04	160.2	1.0

(Density reported in g/mL, pH reported in s.u., Conductivity reported in uMHOs/cm, all other analytes reported in mg/L)
(pH ran as soon as received in laboratory)

Comments:
TOX ran by ATEL
pH received out of hold time.
*NO NO2 present.

SECTION I
Page 3

Attachment 4

Laboratory Data Summary Sheets for Subsurface Shallow Water Wells

Summary Report

R. Salness
WRES
P.O.Box 2078
Carlsbad, NM 88221-2078

Report Date: November 15, 2004

Work Order: 4110913

Project Name: WIPP/SSWMP

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
48062	SSWC2811 R2N1	water	2004-11-08	08:00	2004-11-09
48063	SSWC2811 R2N2	water	2004-11-08	08:05	2004-11-09
48064	SSWPZ12 R2N1	water	2004-11-08	09:05	2004-11-09
48065	SSWPZ12 R2N2	water	2004-11-08	09:10	2004-11-09
48066	SSWPZ10 R2N1	water	2004-11-08	10:05	2004-11-09
48067	SSWPZ10 R2N2	water	2004-11-08	10:10	2004-11-09
48068	SSWPZ7 R2N1	water	2004-11-08	10:55	2004-11-09
48069	SSWPZ7 R2N2	water	2004-11-08	11:00	2004-11-09
48070	SSWPZ11 R2N1	water	2004-11-08	11:35	2004-11-09
48071	SSWPZ11 R2N2	water	2004-11-08	11:40	2004-11-09
48072	SSWPZ11 R2N1EB	water	2004-11-08	11:45	2004-11-09
48073	SSWPZ11 R2N2EB	water	2004-11-08	11:50	2004-11-09

Sample: 48062 - SSWC2811 R2N1

Param	Flag	Result	Units	RL
Chloride		1030	mg/L	0.500
Nitrate-N		7.63	mg/L	0.200
Sulfate		305	mg/L	0.500
Total Dissolved Solids		1996	mg/L	10.00

Sample: 48063 - SSWC2811 R2N2

Param	Flag	Result	Units	RL
Total Chromium		<0.0100	mg/L	0.0100
Total Selenium		0.0540	mg/L	0.0500

Sample: 48064 - SSWPZ12 R2N1

Param	Flag	Result	Units	RL
Chloride		7170	mg/L	0.500
Nitrate-N		19.8	mg/L	0.200

continued ...

sample 48064 continued ...

Param	Flag	Result	Units	RL
Sulfate		879	mg/L	0.500
Total Dissolved Solids		9540	mg/L	10.00

Sample: 48065 - SSWPZ12 R2N2

Param	Flag	Result	Units	RL
Total Chromium		<0.0100	mg/L	0.0100
Total Selenium		0.0660	mg/L	0.0500

Sample: 48066 - SSWPZ10 R2N1

Param	Flag	Result	Units	RL
Chloride		353	mg/L	0.500
Nitrate-N		3.69	mg/L	0.200
Sulfate		431	mg/L	0.500
Total Dissolved Solids		1576	mg/L	10.00

Sample: 48067 - SSWPZ10 R2N2

Param	Flag	Result	Units	RL
Total Chromium		<0.0100	mg/L	0.0100
Total Selenium		<0.0500	mg/L	0.0500

Sample: 48068 - SSWPZ7 R2N1

Param	Flag	Result	Units	RL
Chloride		43600	mg/L	0.500
Nitrate-N		2.89	mg/L	0.100
Sulfate		7460	mg/L	0.500
Total Dissolved Solids		80400	mg/L	10.00

Sample: 48069 - SSWPZ7 R2N2

Param	Flag	Result	Units	RL
Total Chromium		<0.0100	mg/L	0.0100
Total Selenium		0.0880	mg/L	0.0500

Sample: 48070 - SSWPZ11 R2N1

Param	Flag	Result	Units	RL
Chloride		84100	mg/L	0.500
Nitrate-N		3.15	mg/L	0.100
Sulfate		13000	mg/L	0.500
Total Dissolved Solids		119000	mg/L	10.00

Sample: 48071 - SSWPZ11 R2N2

Param	Flag	Result	Units	RL
Total Chromium		<0.0100	mg/L	0.0100
Total Selenium		<0.0500	mg/L	0.0500

Sample: 48072 - SSWPZ11 R2N1EB

Param	Flag	Result	Units	RL
Chloride		42.4	mg/L	0.500
Nitrate-N		1.50	mg/L	0.200
Sulfate		26.0	mg/L	0.500
Total Dissolved Solids		124.0	mg/L	10.00

Sample: 48073 - SSWPZ11 R2N2EB

Param	Flag	Result	Units	RL
Total Chromium		<0.0100	mg/L	0.0100
Total Selenium		<0.0500	mg/L	0.0500

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

R. Salness
WRES
P.O.Box 2078
Carlsbad, NM 88221-2078

Report Date: November 15, 2004

Work Order: 4110913

Project Name: WIPP/SSWMP
Project Number: WIPP/SSWMP

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
48062	SSWC2811 R2N1	water	2004-11-08	08:00	2004-11-09
48063	SSWC2811 R2N2	water	2004-11-08	08:05	2004-11-09
48064	SSWPZ12 R2N1	water	2004-11-08	09:05	2004-11-09
48065	SSWPZ12 R2N2	water	2004-11-08	09:10	2004-11-09
48066	SSWPZ10 R2N1	water	2004-11-08	10:05	2004-11-09
48067	SSWPZ10 R2N2	water	2004-11-08	10:10	2004-11-09
48068	SSWPZ7 R2N1	water	2004-11-08	10:55	2004-11-09
48069	SSWPZ7 R2N2	water	2004-11-08	11:00	2004-11-09
48070	SSWPZ11 R2N1	water	2004-11-08	11:35	2004-11-09
48071	SSWPZ11 R2N2	water	2004-11-08	11:40	2004-11-09
48072	SSWPZ11 R2N1EB	water	2004-11-08	11:45	2004-11-09
48073	SSWPZ11 R2N2EB	water	2004-11-08	11:50	2004-11-09

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 16 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Analytical Report

Sample: 48062 - SSWC2811 R2N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13969	Date Analyzed:	2004-11-09	Analyzed By:	WB
Prep Batch:	12345	Date Prepared:	2004-11-09	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1030	mg/L	100	0.500

Sample: 48062 - SSWC2811 R2N1

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13969	Date Analyzed:	2004-11-09	Analyzed By:	WB
Prep Batch:	12345	Date Prepared:	2004-11-09	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Nitrate-N		7.63	mg/L	10	0.200

Sample: 48062 - SSWC2811 R2N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13969	Date Analyzed:	2004-11-09	Analyzed By:	WB
Prep Batch:	12345	Date Prepared:	2004-11-09	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		305	mg/L	10	0.500

Sample: 48062 - SSWC2811 R2N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	14030	Date Analyzed:	2004-11-12	Analyzed By:	WB
Prep Batch:	12398	Date Prepared:	2004-11-11	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		1996	mg/L	2	10.00

Sample: 48063 - SSWC2811 R2N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	13997	Date Analyzed:	2004-11-12	Analyzed By:	RR
Prep Batch:	12330	Date Prepared:	2004-11-10	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Total Chromium		<0.0100	mg/L	1	0.0100

Sample: 48063 - SSWC2811 R2N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	13997	Date Analyzed:	2004-11-12	Analyzed By:	RR
Prep Batch:	12330	Date Prepared:	2004-11-10	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Total Selenium		0.0540	mg/L	1	0.0500

Sample: 48064 - SSWPZ12 R2N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13969	Date Analyzed:	2004-11-09	Analyzed By:	WB
Prep Batch:	12345	Date Prepared:	2004-11-09	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		7170	mg/L	500	0.500

Sample: 48064 - SSWPZ12 R2N1

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13969	Date Analyzed:	2004-11-09	Analyzed By:	WB
Prep Batch:	12345	Date Prepared:	2004-11-09	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Nitrate-N		19.8	mg/L	50	0.200

Sample: 48064 - SSWPZ12 R2N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13969	Date Analyzed:	2004-11-09	Analyzed By:	WB
Prep Batch:	12345	Date Prepared:	2004-11-09	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		879	mg/L	50	0.500

Sample: 48064 - SSWPZ12 R2N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	14030	Date Analyzed:	2004-11-12	Analyzed By:	WB

Prep Batch: 12398 Date Prepared: 2004-11-11 Prepared By: WB

Parameter	Flag	Result	Units	Dilution	RL
Total Dissolved Solids		9540	mg/L	20	10.00

Sample: 48065 - SSWPZ12 R2N2

Analysis: Cr, Total Analytical Method: S 6010B Prep Method: S 3010A
QC Batch: 13997 Date Analyzed: 2004-11-12 Analyzed By: RR
Prep Batch: 12330 Date Prepared: 2004-11-10 Prepared By: TP

Parameter	Flag	Result	Units	Dilution	RL
Total Chromium		<0.0100	mg/L	1	0.0100

Sample: 48065 - SSWPZ12 R2N2

Analysis: Se, Total Analytical Method: S 6010B Prep Method: S 3010A
QC Batch: 13997 Date Analyzed: 2004-11-12 Analyzed By: RR
Prep Batch: 12330 Date Prepared: 2004-11-10 Prepared By: TP

Parameter	Flag	Result	Units	Dilution	RL
Total Selenium		0.0660	mg/L	1	0.0500

Sample: 48066 - SSWPZ10 R2N1

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 13969 Date Analyzed: 2004-11-09 Analyzed By: WB
Prep Batch: 12345 Date Prepared: 2004-11-09 Prepared By: WB

Parameter	Flag	Result	Units	Dilution	RL
Chloride		353	mg/L	50	0.500

Sample: 48066 - SSWPZ10 R2N1

Analysis: NO3 (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 13969 Date Analyzed: 2004-11-09 Analyzed By: WB
Prep Batch: 12345 Date Prepared: 2004-11-09 Prepared By: WB

Parameter	Flag	Result	Units	Dilution	RL
Nitrate-N		3.69	mg/L	5	0.200

Sample: 48066 - SSWPZ10 R2N1

Analysis: SO4 (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 13969 | Date Analyzed: 2004-11-09 | Analyzed By: WB
Prep Batch: 12345 | Date Prepared: 2004-11-09 | Prepared By: WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		431		mg/L	50	0.500

Sample: 48066 - SSWPZ10 R2N1

Analysis: TDS | Analytical Method: SM 2540C | Prep Method: N/A
QC Batch: 14030 | Date Analyzed: 2004-11-12 | Analyzed By: WB
Prep Batch: 12398 | Date Prepared: 2004-11-11 | Prepared By: WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		1576		mg/L	1	10.00

Sample: 48067 - SSWPZ10 R2N2

Analysis: Cr, Total | Analytical Method: S 6010B | Prep Method: S 3010A
QC Batch: 13997 | Date Analyzed: 2004-11-12 | Analyzed By: RR
Prep Batch: 12330 | Date Prepared: 2004-11-10 | Prepared By: TP

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.0100		mg/L	1	0.0100

Sample: 48067 - SSWPZ10 R2N2

Analysis: Se, Total | Analytical Method: S 6010B | Prep Method: S 3010A
QC Batch: 13997 | Date Analyzed: 2004-11-12 | Analyzed By: RR
Prep Batch: 12330 | Date Prepared: 2004-11-10 | Prepared By: TP

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		<0.0500		mg/L	1	0.0500

Sample: 48068 - SSWPZ7 R2N1

Analysis: Chloride (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 13969 | Date Analyzed: 2004-11-09 | Analyzed By: WB
Prep Batch: 12345 | Date Prepared: 2004-11-09 | Prepared By: WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		43600		mg/L	5000	0.500

Sample: 48068 - SSWPZ7 R2N1

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	14124	Date Analyzed:	2004-11-18	Analyzed By:	RS
Prep Batch:	12491	Date Prepared:	2004-11-18	Prepared By:	RS

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		2.89		mg/L	25	0.100

Sample: 48068 - SSWPZ7 R2N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13969	Date Analyzed:	2004-11-09	Analyzed By:	WB
Prep Batch:	12345	Date Prepared:	2004-11-09	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		7460		mg/L	5000	0.500

Sample: 48068 - SSWPZ7 R2N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	14030	Date Analyzed:	2004-11-12	Analyzed By:	WB
Prep Batch:	12398	Date Prepared:	2004-11-11	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		80400		mg/L	200	10.00

Sample: 48069 - SSWPZ7 R2N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	13997	Date Analyzed:	2004-11-12	Analyzed By:	RR
Prep Batch:	12330	Date Prepared:	2004-11-10	Prepared By:	TP

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.0100		mg/L	1	0.0100

Sample: 48069 - SSWPZ7 R2N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	13997	Date Analyzed:	2004-11-12	Analyzed By:	RR
Prep Batch:	12330	Date Prepared:	2004-11-10	Prepared By:	TP

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		0.0880		mg/L	1	0.0500

Sample: 48070 - SSWPZ11 R2N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13969	Date Analyzed:	2004-11-09	Analyzed By:	WB
Prep Batch:	12345	Date Prepared:	2004-11-09	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		84100		mg/L	10000	0.500

Sample: 48070 - SSWPZ11 R2N1

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	14124	Date Analyzed:	2004-11-18	Analyzed By:	RS
Prep Batch:	12491	Date Prepared:	2004-11-18	Prepared By:	RS

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		3.15		mg/L	25	0.100

Sample: 48070 - SSWPZ11 R2N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13969	Date Analyzed:	2004-11-09	Analyzed By:	WB
Prep Batch:	12345	Date Prepared:	2004-11-09	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		13000		mg/L	10000	0.500

Sample: 48070 - SSWPZ11 R2N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	14030	Date Analyzed:	2004-11-12	Analyzed By:	WB
Prep Batch:	12398	Date Prepared:	2004-11-11	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		119000		mg/L	500	10.00

Sample: 48071 - SSWPZ11 R2N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	13997	Date Analyzed:	2004-11-12	Analyzed By:	RR
Prep Batch:	12330	Date Prepared:	2004-11-10	Prepared By:	TP

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.0100		mg/L	1	0.0100

Sample: 48071 - SSWPZ11 R2N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	13997	Date Analyzed:	2004-11-12	Analyzed By:	RR
Prep Batch:	12330	Date Prepared:	2004-11-10	Prepared By:	TP

Parameter	Flag	Result	RL Units	Dilution	RL
Total Selenium		<0.0500	mg/L	1	0.0500

Sample: 48072 - SSWPZ11 R2N1EB

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13969	Date Analyzed:	2004-11-09	Analyzed By:	WB
Prep Batch:	12345	Date Prepared:	2004-11-09	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		42.4	mg/L	5	0.500

Sample: 48072 - SSWPZ11 R2N1EB

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13969	Date Analyzed:	2004-11-09	Analyzed By:	WB
Prep Batch:	12345	Date Prepared:	2004-11-09	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Nitrate-N		1.50	mg/L	5	0.200

Sample: 48072 - SSWPZ11 R2N1EB

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13969	Date Analyzed:	2004-11-09	Analyzed By:	WB
Prep Batch:	12345	Date Prepared:	2004-11-09	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Sulfate		26.0	mg/L	5	0.500

Sample: 48072 - SSWPZ11 R2N1EB

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	14030	Date Analyzed:	2004-11-12	Analyzed By:	WB
Prep Batch:	12398	Date Prepared:	2004-11-11	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Total Dissolved Solids		124.0	mg/L	1	10.00

Sample: 48073 - SSWPZ11 R2N2EB

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	13997	Date Analyzed:	2004-11-12	Analyzed By:	RR
Prep Batch:	12330	Date Prepared:	2004-11-10	Prepared By:	TP

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.0100		mg/L	1	0.0100

Sample: 48073 - SSWPZ11 R2N2EB

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	13997	Date Analyzed:	2004-11-12	Analyzed By:	RR
Prep Batch:	12330	Date Prepared:	2004-11-10	Prepared By:	TP

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		<0.0500		mg/L	1	0.0500

Method Blank (1) QC Batch: 13969

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 13969

Parameter	Flag	Result	Units	RL
Nitrate-N		<0.200	mg/L	0.2

Method Blank (1) QC Batch: 13969

Parameter	Flag	Result	Units	RL
Sulfate		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 13997

Parameter	Flag	Result	Units	RL
Total Chromium		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 13997

Parameter	Flag	Result	Units	RL
Total Selenium		<0.0500	mg/L	0.05

Method Blank (1) QC Batch: 14030

Parameter	Flag	Result	Units	RL
Total Dissolved Solids		<10.00	mg/L	10

Method Blank (1) QC Batch: 14124

Parameter	Flag	Result	Units	RL
Nitrate-N		<0.100	mg/L	0.1

Duplicate (1) QC Batch: 14030

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	1598	1576	mg/L	2	1	20

Laboratory Control Spike (LCS-1) QC Batch: 13969

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	11.8	11.8	mg/L	1	12.5	<0.337	94	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13969

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	2.37	2.37	mg/L	1	2.50	<0.0217	95	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13969

continued ...

control spikes continued ...

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	11.8	11.8	mg/L	1	12.5	<0.409	94	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13997

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Chromium	0.111	0.109	mg/L	1	0.100	<0.000437	111	2	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13997

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Selenium	0.511	0.503	mg/L	1	0.500	<0.00370	102	2	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 14124

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	0.150	0.161	mg/L	1	0.160	<0.0139	94	7	68.2 - 123	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 13969 Spiked Sample: 48072

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride [1,2]	112	111	mg/L	5	12.5	42.4	111	1	84.7 - 100.6	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 13969 Spiked Sample: 48072

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	13.1	13.1	mg/L	5	2.50	1.5	93	0	70 - 117.8	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

[1]Matrix spike difficulties.
[2]Matrix spike difficulties.

Matrix Spike (MS-1) QC Batch: 13969 Spiked Sample: 48072

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	91.2	91.0	mg/L	5	12.5	26	104	0	80.1 - 111.2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 13997 Spiked Sample:

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Chromium	0.106	0.107	mg/L	1	0.100	0.003	103	1	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 13997 Spiked Sample:

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Selenium	0.548	0.545	mg/L	1	0.500	0.054	99	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 14124 Spiked Sample: 48640

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	25.4	26.8	mg/L	100	0.160	6.38	119	5	0 - 155	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 13969

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.8	94	90 - 110	2004-11-09

Standard (ICV-1) QC Batch: 13969

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.39	96	90 - 110	2004-11-09

Standard (ICV-1) QC Batch: 13969

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	11.9	95	90 - 110	2004-11-09

Standard (CCV-1) QC Batch: 13969

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.8	94	90 - 110	2004-11-09

Standard (CCV-1) QC Batch: 13969

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.37	95	90 - 110	2004-11-09

Standard (CCV-1) QC Batch: 13969

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	11.7	94	90 - 110	2004-11-09

Standard (ICV-1) QC Batch: 13997

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		mg/L	1.00	1.02	102	90 - 110	2004-11-12

Standard (ICV-1) QC Batch: 13997

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1.00	1.02	102	90 - 110	2004-11-12

Standard (CCV-1) QC Batch: 13997

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		mg/L	1.00	1.07	107	90 - 110	2004-11-12

Standard (CCV-1) QC Batch: 13997

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1.00	1.06	106	90 - 110	2004-11-12

Standard (ICV-1) QC Batch: 14030

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1025	102	90 - 110	2004-11-12

Standard (CCV-1) QC Batch: 14030

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	969.0	97	90 - 110	2004-11-12

Standard (ICV-1) QC Batch: 14124

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	0.160	0.164	102	85 - 115	2004-11-18

Standard (CCV-1) QC Batch: 14124

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	0.160	0.164	102	85 - 115	2004-11-18

4110913

REQUEST FOR ANALYSIS

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED 11/3/04 RFA Control № 6317
LAB DESTINATION Trace Analysis
LABORATORY CONTACT Mike Abel
SEND LAB REPORT TO Judy Lanier C of C Control № 6317
P.O. Box 2078
Carlsbad, N.M. 88221
DATE REPORT REQUIRED 12/3/04
PROJECT CONTACT R. Salness
PROJECT CONTACT PHONE NO. 505 234-8966

SAMPLING PROGRAM WIPP/SSWMP
PURCHASE ORDER NO. 402599

Sample Number	Sample Type	Sample Quantity	Preservative	Req't. Testing Program	Special Instructions	
SSWC2811R2N1	Groundwater	1 liter x 1	NONE	General Chemistry*	EPA 160.1, 300.0	48062
SSWC2811R2N2	↑	↑	HNO_3 pH<2	Selenium/Chromium	Method 6010B	63
SSWPZ12R2N1			NONE	Gen. Chem	EPA 160.1, 300.0	64
SSWPZ12R2N2			HNO_3 pH<2	Selenium/Chromium	6010B	65
SSWPZ10R2N1			NONE	Gen. Chem	EPA 160.1, 300.0	66
SSWPZ10R2N2			HNO_3 pH<2	Selenium/Chromium	6010B	67
SSWPZ7R2N1			NONE	Gen. Chem	EPA 160.1, 300.0	68
SSWPZ7R2N2			HNO_3 pH<2	Selenium/Chromium	6010B	69
SSWPZ11R2N1			NONE	Gen Chem.	EPA 160.1, 300.0	70
SSWPZ11R2N2	Groundwater		HNO_3 pH<2	Selenium/Chromium	6010B	71
SSWPZ11R2N1EB	EB	↓	NONE	Gen Chem	EPA 160.1, 300.0	72
SSWPZ11R2N2EB	EB	1 liter x 1	HNO_3 pH<2	Selenium/Chromium	6010B	73

*Gen Chem EPA 160.1 = TDS only EPA 300.0 = Chloride, Sulfate + Nitrate only

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL X RUSH _____ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NONHAZARD X FLAMMABLE _____ SKIN IRRITANT _____ HIGHLY TOXIC _____ BIOLOGICAL _____ OTHER _____ (Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT _____ DISPOSAL BY LAB X

FOR LAB USE ONLY

RECEIVED BY Vicki Lindsey DATE/TIME 11-9-04 11:16

WP 02-EM3001 2'c Trimpo 903 310 246.3 WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

Report Date: November 15, 2004
WIPP/SSWMP

Work Order: 4110913
WIPP/SSWMP

Page Number: 15 of 16

03796

CHAIN-OF-CUSTODY RECORD

4110913

C of C Control № 6317

RFA Control № 6317

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

SAMPLING PROGRAM WIPP/SSWMP LAB DESTINATION Trace Analysis

SAMPLE TEAM MEMBERS R.Salness, B.Foster, R.Stockwell CARRIER/WAYBILL NO. TNMH0-903 310 246 3 2's

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
SSWC2811R2N1	C-2811, SSW	11/8/04 08:00	Groundwater	1 liter plastic x1	48062	
SSWC2811R2N2	C-2811, SSW	08:05			63	
SSWPZ12R2N1	PZ-12, SSW	09:05			64	
SSWPZ12R2N2	PZ-12, SSW	09:10			65	
SSWPZ10R2N1	PZ-10, SSW	10:05			66	
SSWPZ10R2N2	PZ-10, SSW	10:10			67	
SSWPZ7R2N1	PZ-7, SSW	10:55			68	
SSWPZ7R2N2	PZ-7, SSW	11:00			69	
SSWPZ11R2N1	PZ-11, SSW	11:55			70	
SSWPZ11R2N2	PZ-11, SSW	11:40	Groundwater		71	
SSWPZ11R2N1EB	PZ-11, EB	11:45	EB		72	
SSWPZ11R2N2EB	PZ-11, EB	11/8/04 11:50	EB	1 liter plastic x1	73	

Special Instructions: NONE

Possible Sample Hazards: NONE

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Bill Foster, WRES, 11/8/04, 13:30
   Received By: Vicki Bynaley 11-9-04 11:16
2. Relinquished By: _____
   Received By: _____
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: _____

WP 02-EM3001 2's TNMH0 903.310.246.3

WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

Report Date: November 15, 2004
WIPP/SSWMP

Work Order: 4110913
WIPP/SSWMP

Page Number: 16 of 16

03797

Summary Report

R. Salness
WRES
P.O.Box 2078
Carlsbad, NM 88221-2078

Report Date: December 1, 2004

Work Order: 4111021

Project Name: WIPP/SSWMP

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
48173	SSWPZ9R2N1	water	2004-11-09	07:40	2004-11-10
48174	SSWPZ9R2N2	water	2004-11-09	07:45	2004-11-10
48175	SSWC2507R2N1	water	2004-11-09	08:50	2004-11-10
48176	SSWC2507R2N2	water	2004-11-09	08:55	2004-11-10
48177	SSWPZ1R2N1	water	2004-11-09	09:50	2004-11-10
48178	SSWPZ1R2N2	water	2004-11-09	09:55	2004-11-10
48179	SSWPZ5R2N1	water	2004-11-09	11:25	2004-11-10
48180	SSWPZ5R2N2	water	2004-11-09	11:30	2004-11-10
48181	SSWPZ6R2N1	water	2004-11-09	10:35	2004-11-10
48182	SSWPZ6R2N2	water	2004-11-09	10:40	2004-11-10
48183	SSWPZ5R2N1D	water	2004-11-09	11:15	2004-11-10
48184	SSWPZ5R2N2D	water	2004-11-09	11:20	2004-11-10
48185	SSWPZ5R2N1EB	water	2004-11-09	11:40	2004-11-10
48186	SSWPZ5R2N2EB	water	2004-11-09	11:45	2004-11-10

Sample: 48173 - SSWPZ9R2N1

Param	Flag	Result	Units	RL
Chloride		92400	mg/L	0.500
Nitrate-N		1.40	mg/L	0.100
Sulfate		14500	mg/L	0.500
Total Dissolved Solids		144000	mg/L	10.00

Sample: 48174 - SSWPZ9R2N2

Param	Flag	Result	Units	RL
Total Chromium		<0.0100	mg/L	0.0100
Total Selenium		0.0660	mg/L	0.0500

Sample: 48175 - SSWC2507R2N1

continued ...

sample 48175 continued ...

Param	Flag	Result	Units	RL

Param	Flag	Result	Units	RL
Chloride		1380	mg/L	0.500
Nitrate-N		7.58	mg/L	0.200
Sulfate		824	mg/L	0.500
Total Dissolved Solids		3350	mg/L	10.00

Sample: 48176 - SSWC2507R2N2

Param	Flag	Result	Units	RL
Total Chromium		0.0140	mg/L	0.0100
Total Selenium		0.0800	mg/L	0.0500

Sample: 48177 - SSWPZ1R2N1

Param	Flag	Result	Units	RL
Chloride		45700	mg/L	0.500
Nitrate-N		1.30	mg/L	0.100
Sulfate		6530	mg/L	0.500
Total Dissolved Solids		85800	mg/L	10.00

Sample: 48178 - SSWPZ1R2N2

Param	Flag	Result	Units	RL
Total Chromium		<0.0100	mg/L	0.0100
Total Selenium		0.106	mg/L	0.0500

Sample: 48179 - SSWPZ5R2N1

Param	Flag	Result	Units	RL
Chloride		47800	mg/L	0.500
Nitrate-N		<2.50	mg/L	0.100
Sulfate		1820	mg/L	0.500
Total Dissolved Solids		86000	mg/L	10.00

Sample: 48180 - SSWPZ5R2N2

Param	Flag	Result	Units	RL
Total Chromium		<0.0100	mg/L	0.0100
Total Selenium		0.0940	mg/L	0.0500

Sample: 48181 - SSWPZ6R2N1

continued ...

sample 48181 continued ...

Param	Flag	Result	Units	RL

Param	Flag	Result	Units	RL
Chloride		75400	mg/L	0.500
Nitrate-N		4.89	mg/L	0.100
Sulfate		13000	mg/L	0.500
Total Dissolved Solids		113000	mg/L	10.00

Sample: 48182 - SSWPZ6R2N2

Param	Flag	Result	Units	RL
Total Chromium		<0.0100	mg/L	0.0100
Total Selenium		0.0600	mg/L	0.0500

Sample: 48183 - SSWPZ5R2N1D

Param	Flag	Result	Units	RL
Chloride		58600	mg/L	0.500
Nitrate-N		3.59	mg/L	0.100
Sulfate		12000	mg/L	0.500
Total Dissolved Solids		77800	mg/L	10.00

Sample: 48184 - SSWPZ5R2N2D

Param	Flag	Result	Units	RL
Total Chromium		<0.0100	mg/L	0.0100
Total Selenium		0.0890	mg/L	0.0500

Sample: 48185 - SSWPZ5R2N1EB

Param	Flag	Result	Units	RL
Chloride		10.6	mg/L	0.500
Nitrate-N		<1.00	mg/L	0.200
Sulfate		6.04	mg/L	0.500
Total Dissolved Solids		28.00	mg/L	10.00

Sample: 48186 - SSWPZ5R2N2EB

Param	Flag	Result	Units	RL
Total Chromium		<0.0100	mg/L	0.0100
Total Selenium		<0.0500	mg/L	0.0500

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

R. Salness
WRES
P.O.Box 2078
Carlsbad, NM 88221-2078

Report Date: December 1, 2004

Work Order: 4111021

Project Name: WIPP/SSWMP
Project Number: WIPP/SSWMP

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
48173	SSWPZ9R2N1	water	2004-11-09	07:40	2004-11-10
48174	SSWPZ9R2N2	water	2004-11-09	07:45	2004-11-10
48175	SSWC2507R2N1	water	2004-11-09	08:50	2004-11-10
48176	SSWC2507R2N2	water	2004-11-09	08:55	2004-11-10
48177	SSWPZ1R2N1	water	2004-11-09	09:50	2004-11-10
48178	SSWPZ1R2N2	water	2004-11-09	09:55	2004-11-10
48179	SSWPZ5R2N1	water	2004-11-09	11:25	2004-11-10
48180	SSWPZ5R2N2	water	2004-11-09	11:30	2004-11-10
48181	SSWPZ6R2N1	water	2004-11-09	10:35	2004-11-10
48182	SSWPZ6R2N2	water	2004-11-09	10:40	2004-11-10
48183	SSWPZ5R2N1D	water	2004-11-09	11:15	2004-11-10
48184	SSWPZ5R2N2D	water	2004-11-09	11:20	2004-11-10
48185	SSWPZ5R2N1EB	water	2004-11-09	11:40	2004-11-10
48186	SSWPZ5R2N2EB	water	2004-11-09	11:45	2004-11-10

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 19 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Analytical Report

Sample: 48173 - SSWPZ9R2N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13983	Date Analyzed:	2004-11-11	Analyzed By:	WB
Prep Batch:	12339	Date Prepared:	2004-11-10	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		92400		mg/L	10000	0.500

Sample: 48173 - SSWPZ9R2N1

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	14124	Date Analyzed:	2004-11-18	Analyzed By:	RS
Prep Batch:	12491	Date Prepared:	2004-11-18	Prepared By:	RS

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		1.40		mg/L	10	0.100

Sample: 48173 - SSWPZ9R2N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13983	Date Analyzed:	2004-11-11	Analyzed By:	WB
Prep Batch:	12339	Date Prepared:	2004-11-10	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		14500		mg/L	10000	0.500

Sample: 48173 - SSWPZ9R2N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	14030	Date Analyzed:	2004-11-12	Analyzed By:	WB
Prep Batch:	12398	Date Prepared:	2004-11-11	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		144000		mg/L	500	10.00

Sample: 48174 - SSWPZ9R2N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	14108	Date Analyzed:	2004-11-19	Analyzed By:	RR
Prep Batch:	12362	Date Prepared:	2004-11-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Total Chromium		<0.0100	mg/L	1	0.0100

Sample: 48174 - SSWPZ9R2N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	14108	Date Analyzed:	2004-11-19	Analyzed By:	RR
Prep Batch:	12362	Date Prepared:	2004-11-11	Prepared By:	TP

Parameter	Flag	RL Result	Units	Dilution	RL
Total Selenium		0.0660	mg/L	1	0.0500

Sample: 48175 - SSWC2507R2N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13983	Date Analyzed:	2004-11-11	Analyzed By:	WB
Prep Batch:	12339	Date Prepared:	2004-11-10	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1380	mg/L	100	0.500

Sample: 48175 - SSWC2507R2N1

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13983	Date Analyzed:	2004-11-11	Analyzed By:	WB
Prep Batch:	12339	Date Prepared:	2004-11-10	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Nitrate-N		7.58	mg/L	10	0.200

Sample: 48175 - SSWC2507R2N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13983	Date Analyzed:	2004-11-11	Analyzed By:	WB
Prep Batch:	12339	Date Prepared:	2004-11-10	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		824	mg/L	100	0.500

Sample: 48175 - SSWC2507R2N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	14079	Date Analyzed:	2004-11-16	Analyzed By:	WB

Prep Batch: 12452 Date Prepared: 2004-11-15 Prepared By: WB

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		3350	mg/L	5	10.00

Sample: 48176 - SSWC2507R2N2

Analysis: Cr, Total Analytical Method: S 6010B Prep Method: S 3010A
QC Batch: 14108 Date Analyzed: 2004-11-19 Analyzed By: RR
Prep Batch: 12362 Date Prepared: 2004-11-11 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Total Chromium		0.0140	mg/L	1	0.0100

Sample: 48176 - SSWC2507R2N2

Analysis: Se, Total Analytical Method: S 6010B Prep Method: S 3010A
QC Batch: 14108 Date Analyzed: 2004-11-19 Analyzed By: RR
Prep Batch: 12362 Date Prepared: 2004-11-11 Prepared By: TP

Parameter	Flag	RL Result	Units	Dilution	RL
Total Selenium		0.0800	mg/L	1	0.0500

Sample: 48177 - SSWPZ1R2N1

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 13983 Date Analyzed: 2004-11-11 Analyzed By: WB
Prep Batch: 12339 Date Prepared: 2004-11-10 Prepared By: WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		45700	mg/L	5000	0.500

Sample: 48177 - SSWPZ1R2N1

Analysis: NO3 (Spec) Analytical Method: SM 4500-NO3 E Prep Method: N/A
QC Batch: 14124 Date Analyzed: 2004-11-18 Analyzed By: RS
Prep Batch: 12491 Date Prepared: 2004-11-18 Prepared By: RS

Parameter	Flag	RL Result	Units	Dilution	RL
Nitrate-N		1.30	mg/L	10	0.100

Sample: 48177 - SSWPZ1R2N1

Analysis: SO4 (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 13983 Date Analyzed: 2004-11-11 Analyzed By: WB
Prep Batch: 12339 Date Prepared: 2004-11-10 Prepared By: WB

Parameter	Flag	Result	RL Units	Dilution	RL
Sulfate		6530	mg/L	5000	0.500

Sample: 48177 - SSWPZ1R2N1

Analysis: TDS Analytical Method: SM 2540C Prep Method: N/A
QC Batch: 14079 Date Analyzed: 2004-11-16 Analyzed By: WB
Prep Batch: 12452 Date Prepared: 2004-11-15 Prepared By: WB

Parameter	Flag	Result	RL Units	Dilution	RL
Total Dissolved Solids		85800	mg/L	1200	10.00

Sample: 48178 - SSWPZ1R2N2

Analysis: Cr, Total Analytical Method: S 6010B Prep Method: S 3010A
QC Batch: 14108 Date Analyzed: 2004-11-19 Analyzed By: RR
Prep Batch: 12362 Date Prepared: 2004-11-11 Prepared By: TP

Parameter	Flag	Result	RL Units	Dilution	RL
Total Chromium		<0.0100	mg/L	1	0.0100

Sample: 48178 - SSWPZ1R2N2

Analysis: Se, Total Analytical Method: S 6010B Prep Method: S 3010A
QC Batch: 14108 Date Analyzed: 2004-11-19 Analyzed By: RR
Prep Batch: 12362 Date Prepared: 2004-11-11 Prepared By: TP

Parameter	Flag	Result	RL Units	Dilution	RL
Total Selenium		0.106	mg/L	1	0.0500

Sample: 48179 - SSWPZ5R2N1

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 13983 Date Analyzed: 2004-11-11 Analyzed By: WB
Prep Batch: 12339 Date Prepared: 2004-11-10 Prepared By: WB

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		47800	mg/L	10000	0.500

Sample: 48179 - SSWPZ5R2N1

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	14124	Date Analyzed:	2004-11-18	Analyzed By:	RS
Prep Batch:	12491	Date Prepared:	2004-11-18	Prepared By:	RS

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		<2.50		mg/L	25	0.100

Sample: 48179 - SSWPZ5R2N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	14301	Date Analyzed:	2004-11-23	Analyzed By:	WB
Prep Batch:	12633	Date Prepared:	2004-11-23	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		1820		mg/L	100	0.500

Sample: 48179 - SSWPZ5R2N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	14079	Date Analyzed:	2004-11-16	Analyzed By:	WB
Prep Batch:	12452	Date Prepared:	2004-11-15	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		86000		mg/L	200	10.00

Sample: 48180 - SSWPZ5R2N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	14108	Date Analyzed:	2004-11-19	Analyzed By:	RR
Prep Batch:	12362	Date Prepared:	2004-11-11	Prepared By:	TP

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.0100		mg/L	1	0.0100

Sample: 48180 - SSWPZ5R2N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	14108	Date Analyzed:	2004-11-19	Analyzed By:	RR
Prep Batch:	12362	Date Prepared:	2004-11-11	Prepared By:	TP

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		0.0940		mg/L	1	0.0500

Sample: 48181 - SSWPZ6R2N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13983	Date Analyzed:	2004-11-11	Analyzed By:	WB
Prep Batch:	12339	Date Prepared:	2004-11-10	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		75400		mg/L	10000	0.500

Sample: 48181 - SSWPZ6R2N1

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	14124	Date Analyzed:	2004-11-18	Analyzed By:	RS
Prep Batch:	12491	Date Prepared:	2004-11-18	Prepared By:	RS

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		4.89		mg/L	25	0.100

Sample: 48181 - SSWPZ6R2N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13983	Date Analyzed:	2004-11-11	Analyzed By:	WB
Prep Batch:	12339	Date Prepared:	2004-11-10	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		13000		mg/L	10000	0.500

Sample: 48181 - SSWPZ6R2N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	14079	Date Analyzed:	2004-11-16	Analyzed By:	WB
Prep Batch:	12452	Date Prepared:	2004-11-15	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		113000		mg/L	200	10.00

Sample: 48182 - SSWPZ6R2N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	14108	Date Analyzed:	2004-11-19	Analyzed By:	RR
Prep Batch:	12362	Date Prepared:	2004-11-11	Prepared By:	TP

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.0100		mg/L	1	0.0100

Sample: 48182 - SSWPZ6R2N2

Analysis: Se, Total
QC Batch: 14108
Prep Batch: 12362

Analytical Method: S 6010B
Date Analyzed: 2004-11-19
Date Prepared: 2004-11-11

Prep Method: S 3010A
Analyzed By: RR
Prepared By: TP

Parameter	Flag	Result	RL Units	Dilution	RL
Total Selenium		0.0600	mg/L	1	0.0500

Sample: 48183 - SSWPZ5R2N1D

Analysis: Chloride (IC)
QC Batch: 13983
Prep Batch: 12339

Analytical Method: E 300.0
Date Analyzed: 2004-11-11
Date Prepared: 2004-11-10

Prep Method: N/A
Analyzed By: WB
Prepared By: WB

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		58600	mg/L	10000	0.500

Sample: 48183 - SSWPZ5R2N1D

Analysis: NO3 (Spec)
QC Batch: 14124
Prep Batch: 12491

Analytical Method: SM 4500-NO3 E
Date Analyzed: 2004-11-18
Date Prepared: 2004-11-18

Prep Method: N/A
Analyzed By: RS
Prepared By: RS

Parameter	Flag	Result	RL Units	Dilution	RL
Nitrate-N		3.59	mg/L	25	0.100

Sample: 48183 - SSWPZ5R2N1D

Analysis: SO4 (IC)
QC Batch: 13983
Prep Batch: 12339

Analytical Method: E 300.0
Date Analyzed: 2004-11-11
Date Prepared: 2004-11-10

Prep Method: N/A
Analyzed By: WB
Prepared By: WB

Parameter	Flag	Result	RL Units	Dilution	RL
Sulfate		12000	mg/L	10000	0.500

Sample: 48183 - SSWPZ5R2N1D

Analysis: TDS
QC Batch: 14079
Prep Batch: 12452

Analytical Method: SM 2540C
Date Analyzed: 2004-11-16
Date Prepared: 2004-11-15

Prep Method: N/A
Analyzed By: WB
Prepared By: WB

Parameter	Flag	Result	RL Units	Dilution	RL
Total Dissolved Solids		77800	mg/L	200	10.00

Sample: 48184 - SSWPZ5R2N2D

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	14108	Date Analyzed:	2004-11-19	Analyzed By:	RR
Prep Batch:	12362	Date Prepared:	2004-11-11	Prepared By:	TP

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.0100		mg/L	1	0.0100

Sample: 48184 - SSWPZ5R2N2D

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	14108	Date Analyzed:	2004-11-19	Analyzed By:	RR
Prep Batch:	12362	Date Prepared:	2004-11-11	Prepared By:	TP

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		0.0890		mg/L	1	0.0500

Sample: 48185 - SSWPZ5R2N1EB

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13983	Date Analyzed:	2004-11-11	Analyzed By:	WB
Prep Batch:	12339	Date Prepared:	2004-11-10	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		10.6		mg/L	5	0.500

Sample: 48185 - SSWPZ5R2N1EB

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13983	Date Analyzed:	2004-11-11	Analyzed By:	WB
Prep Batch:	12339	Date Prepared:	2004-11-10	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		<1.00		mg/L	5	0.200

Sample: 48185 - SSWPZ5R2N1EB

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	13983	Date Analyzed:	2004-11-11	Analyzed By:	WB
Prep Batch:	12339	Date Prepared:	2004-11-10	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		6.04		mg/L	5	0.500

Sample: 48185 - SSWPZ5R2N1EB

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	14079	Date Analyzed:	2004-11-16	Analyzed By:	WB
Prep Batch:	12452	Date Prepared:	2004-11-15	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		28.00		mg/L	1	10.00

Sample: 48186 - SSWPZ5R2N2EB

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	14108	Date Analyzed:	2004-11-19	Analyzed By:	RR
Prep Batch:	12362	Date Prepared:	2004-11-11	Prepared By:	TP

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.0100		mg/L	1	0.0100

Sample: 48186 - SSWPZ5R2N2EB

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	14108	Date Analyzed:	2004-11-19	Analyzed By:	RR
Prep Batch:	12362	Date Prepared:	2004-11-11	Prepared By:	TP

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		<0.0500		mg/L	1	0.0500

Method Blank (1) QC Batch: 13983

Parameter	Flag	Result	Units	RL
Chloride		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 13983

Parameter	Flag	Result	Units	RL
Nitrate-N		<0.200	mg/L	0.2

Method Blank (1) QC Batch: 13983

Parameter	Flag	Result	Units	RL
Sulfate		<0.500	mg/L	0.5

Method Blank (1) QC Batch: 14030

Parameter	Flag	Result	Units	RL
Total Dissolved Solids		<10.00	mg/L	10

Method Blank (1) QC Batch: 14079

Parameter	Flag	Result	Units	RL
Total Dissolved Solids		<10.00	mg/L	10

Method Blank (1) QC Batch: 14108

Parameter	Flag	Result	Units	RL
Total Chromium		<0.0100	mg/L	0.01

Method Blank (1) QC Batch: 14108

Parameter	Flag	Result	Units	RL
Total Selenium		<0.0500	mg/L	0.05

Method Blank (1) QC Batch: 14124

Parameter	Flag	Result	Units	RL
Nitrate-N		<0.100	mg/L	0.1

Method Blank (1) QC Batch: 14301

Parameter	Flag	Result	Units	RL
Sulfate		<0.500	mg/L	0.5

Duplicate (1) QC Batch: 14030

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	1598	1576	mg/L	2	1	20

Duplicate (1) QC Batch: 14079

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	3340	3350	mg/L	5	0	20

Laboratory Control Spike (LCS-1) QC Batch: 13983

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride	11.8	11.8	mg/L	1	12.5	<0.337	94	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13983

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	2.39	2.40	mg/L	1	2.50	<0.0217	96	0	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 13983

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	11.8	11.9	mg/L	1	12.5	<0.409	94	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 14108

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Chromium	0.0990	0.100	mg/L	1	0.100	<0.000437	99	1	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 14108

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Selenium	0.463	0.459	mg/L	1	0.500	<0.00370	93	1	85 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 14124

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	0.150	0.161	mg/L	1	0.160	<0.0139	94	7	68.2 - 123	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1) QC Batch: 14301

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	11.9	11.8	mg/L	1	12.5	<0.409	95	1	90 - 110	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 13983 Spiked Sample: 48185

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Chloride [23]	76.7	76.6	mg/L	5	12.5	10.6	106	0	84.7 - 100.6	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 13983 Spiked Sample: 48185

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	13.3	13.1	mg/L	5	2.50	<0.108	106	2	70 - 117.8	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 13983 Spiked Sample: 48185

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	69.1	68.2	mg/L	5	12.5	6.04	101	1	80.1 - 111.2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 14108 Spiked Sample:

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Chromium [45]	0.0520	0.0520	mg/L	1	0.100	<0.000437	52	0	75 - 125	20

[2]Matrix spike difficulties
[3]Matrix spike difficulties.
[4]MS recovery invalid due to matrix difficulties. LCS demonstrates process under control.
[5]MS recovery invalid due to matrix difficulties. LCS demonstrates process under control.

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 14108 Spiked Sample:

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Total Selenium [6,7]	0.353	0.353	mg/L	1	0.500	0.066	57	0	75 - 125	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 14124 Spiked Sample: 48640

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Nitrate-N	25.4	26.8	mg/L	100	0.160	6.38	119	5	0 - 155	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) QC Batch: 14301 Spiked Sample: 48756

Param	MS Result	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	Rec. Limit	RPD Limit
Sulfate	79.0	80.9	mg/L	5	12.5	20.6	93	2	80.1 - 111.2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1) QC Batch: 13983

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.8	94	90 - 110	2004-11-11

Standard (ICV-1) QC Batch: 13983

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.40	96	90 - 110	2004-11-11

Standard (ICV-1) QC Batch: 13983

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	11.8	94	90 - 110	2004-11-11

Standard (CCV-1) QC Batch: 13983

[6]MS recovery invalid due to matrix difficulties. LCS demonstrates process under control.
[7]MS recovery invalid due to matrix difficulties. LCS demonstrates process under control.

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.8	94	90 - 110	2004-11-11

Standard (CCV-1) QC Batch: 13983

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.40	96	90 - 110	2004-11-11

Standard (CCV-1) QC Batch: 13983

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	11.9	95	90 - 110	2004-11-11

Standard (ICV-1) QC Batch: 14030

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1025	102	90 - 110	2004-11-12

Standard (CCV-1) QC Batch: 14030

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	969.0	97	90 - 110	2004-11-12

Standard (ICV-1) QC Batch: 14079

Param	Flag	Units.	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	966.0	97	90 - 110	2004-11-16

Standard (CCV-1) QC Batch: 14079

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	980.0	98	90 - 110	2004-11-16

Standard (ICV-1) QC Batch: 14108

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		mg/L	1.00	1.00	100	90 - 110	2004-11-19

Standard (ICV-1) QC Batch: 14108

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1.00	0.999	100	90 - 110	2004-11-19

Standard (CCV-1) QC Batch: 14108

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		mg/L	1.00	1.00	100	90 - 110	2004-11-19

Standard (CCV-1) QC Batch: 14108

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1.00	0.968	97	90 - 110	2004-11-19

Standard (ICV-1) QC Batch: 14124

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	0.160	0.164	102	85 - 115	2004-11-18

Standard (CCV-1) QC Batch: 14124

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	0.160	0.164	102	85 - 115	2004-11-18

Standard (ICV-1) QC Batch: 14301

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.2	98	90 - 110	2004-11-23

Standard (CCV-1) QC Batch: 14301

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

JUL 30 2008

GROUND WATER

JUL 31 2008

BUREAU

Mr. Clint Marshall
Ground Water Pollution Prevention Section
New Mexico Environment Department
P.O. Box 26110
Santa Fe, NM 87502

Subject: Transmittal of the Semi-Annual Discharge Monitoring Report for Submittal to the New Mexico Environment Department

Dear Mr. Marshall:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Discharge Monitoring Report for the period of January 1, 2008, through June 30, 2008. This report is required by Discharge Plan 831.

If you have any questions about this report or require any additional information, please contact me at (575) 234-7462.

Sincerely,

for

H. L. (Jody) Plum
RCRA Program Manager

Enclosure

cc: w/o enclosure
J. Bearzi, NMED
J. Kieling, NMED

CBFO:AMO:HLP:KJB:08-0470:UFC5486

WASTE ISOLATION PILOT PLANT (WIPP) SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PLAN DP-831

REPORT NUMBER 49: January 1, 2008 through June 30, 2008

GROUND WATER

JUL 3 1 2008

BUREAU

SPECIFIC REQUIREMENTS OF DP-831

1.0 DISCHARGE VOLUMES:

Facultative Lagoon System	
Month	**Volume (gallons)**
January	168,390
February	249,050
March	129,676
April	247,020
May	192,620
June	339,850
*Sewage Treatment System effluent meter provided suspect data on April 25 and 26 and February 12 and 13 of 2008.	

Miscellaneous Water Discharged to the Facultative Lagoon System: None

Facultative Lagoon System Evaporation Pond B: None

H-19 Evaporation Pond	
Month	**Volume (gallons)**
January	0
February	0
March	0
April	0
May	4,475
June	4,120

2.0 FACULTATIVE LAGOON AND H-19 EVAPORATION POND MONITORING AND REPORTING

Table 1 contains the analytical results for the Facultative Lagoon System and the H-19 Evaporation Pond. The laboratory data sheets are included in Attachment 1. Only purged water from the Detection Monitoring Program under the Hazardous Waste Facility Permit was disposed of in the H-19 Evaporation Pond during this reporting period.

Table 1: Sewage Lagoon and H-19 Semi-Annual Analytical Results

Analyte	Influent to Facultative Lagoon System		Evaporation Pond B		Evaporation Pond C		H-19 Evaporation Pond	
Nitrate (mg/l)	<1.00		NA		NA		NA	
TKN (mg/l)	70.28		NA		NA		NA	
TDS (mg/l)	655		**27,800**		**38,800**		**364,500**	
	Activity	TPU 2 σ	Activity	TPU 2 σ	Activity	TPU 2 σ	Activity	TPU 2 σ
$U^{233/234}$ (Bq/l)	6.63E-03	2.51E-03	8.97E-03	2.97E-03	1.27E-02	5.15E-03	NS	NS
U^{235} (Bq/l)	4.51E-04	8.55E-04	2.29E-04	6.49E-04	9.95E-04	1.94E-03	NS	NS
U^{238} (Bq/l)	5.37E-03	2.21E-03	3.22E-03	1.81E-03	4.41E-03	3.09E-03	NS	NS
Pu^{238} (Bq/l)	-1.54E-04	2.47E-04	-1.45E-04	2.46E-04	-2.04E-05	4.90E-04	NS	NS
$Pu^{239/240}$ (Bq/l)	-1.30E-04	2.27E-04	3.62E-04	4.60E-04	1.22E-04	4.15E-04	NS	NS
Am^{241} (Bq/l)	3.60E-04	4.84E-04	5.07E-04	6.04E-04	2.73E-05	3.59E-04	NS	NS
Sr^{90} (Bq/l)	-9.49E-03	2.85E-02	-2.10E-02	2.79E-02	-7.04E-03	3.02E-02	NS	NS

TPU 2 σ = total propagated uncertainty at 2-sigma (95% confidence interval)

NA: The analytical parameter is not required.

NS: Not Sampled (The H-19 Evaporation Pond was dry)

TKN: Total Kjeldahl Nitrate

TDS: Total Dissolved Solids

Bq/l: Becquerel per liter

"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply

During this reporting period the following activities were conducted as required by your letter dated December 22, 2005, *Conditional Approval of the Corrective Action Plan based on the Sewage Lagoon Leak Testing Results and Liner Integrity Evaluation.*

- The installation of new liners in Settling Pond 1A and Polishing Pond 1B of the north sewage lagoon train was completed in January 2008.

3.0 INFILTRATION CONTROL ACTIVITIES (DECEMBER 22, 2003, MODIFICATION)

Repairs of erosion on the west side of salt pile began during this reporting period. Bales of hay were used to provide additional stability to the areas subject to erosion.

An area where the liner separated from a concrete culvert on the north side of Storm Water Infiltration Control Pond A was repaired in May 2008.

4.0 EXHAUST SHAFT WATER SEEPAGE ESTIMATES

In accordance with the Permit Condition IV.7 of the modified discharge permit issued December 29, 2006, DOE submitted a proposal on February 7, 2007 to estimate the volume of shallow subsurface water that seeps into the Exhaust Shaft based on quarterly shaft video inspections. The Exhaust Shaft inspections were conducted on February 19, 2008 and May 21, 2008 both resulting in an estimate of one gallon per minute. The flow rate was estimated as the sum of individual seeps and or seepage cracks and rounded to the nearest half gallon per minute to reflect a resolution that is believed to be a reasonable estimation of the seepage.

5.0 SUMMARY OF ACTIVITIES RELATED TO THE SHALLOW SUBSURFACE WATER (SSW) MONITORING AND SAMPLING PROGRAM

Water levels in the shallow wells (PZ-1 through PZ-15, C-2505, C-2506, and C-2507) were obtained March 26-27 and June 12, 2008, and are included in Table 2. These were taken on the quarterly milestones outlined in the December 22, 2003, DP-831 Modification. Total rainfall in the area of WIPP for this reporting period was 1.36 inches compared to 9.47 inches for the same time period in 2007, a difference of 8.11 inches less in 2008. The largest decrease in water level was 1.74 feet identified in PZ-10. The largest increase in water level over this period was 1.13 feet in PZ-8. The net ground water decrease around the lined ponds (PZ-7, PZ-10, PZ-11, and PZ-12) was 2.61 feet for this reporting period.

WQSP-6A was sampled in March 2008 as part of the WIPP Hazardous Waste Facility Permit Detection Monitoring Program (Table 2). WQSP-6A data are provided in Attachment 2 of this report.

Concentrations for selenium and chromium in the WQSP-6A sample were below the method detection limits of 0.0250 mg/L (Table 2). The nitrate concentration for WQSP-6A was 4.67 mg/L. Sulfate, chloride, and total dissolved solids concentrations were detected at concentrations exceeding standards of 20.6.2.3103 NMAC, *Standards for Ground Water of 10,000 mg/L TDS Concentration or Less* for Human Health and Domestic Water Supply. Although the concentrations were higher than the standards, statistical analysis shows that they do not exceed the background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285). The shallow subsurface water identified at the WIPP site has not impacted the Dewey Lake ground water in WQSP-6A based on the consistency of analyzed parameters in WQSP-6A.

The Shallow Subsurface Water piezometers were sampled for field and general chemistry parameters in June 2008 as required by the December 22, 2003, modification to DP-831. Five piezometers were sampled on June 4, 2008, five on June 5, 2008, and four on June 6, 2008. Results for the field sampling parameters and laboratory analyses are presented in Table 2. Laboratory reports for all shallow well analyses are included in Attachment 3. Chloride concentrations exceeded values listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply in all shallow piezometers sampled. The maximum chloride concentration was 170,000 mg/L in PZ-13, while the minimum concentration was 300 mg/L in PZ-10. Total dissolved solids concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in all shallow piezometers sampled, with the maximum concentration

of 240,000 mg/L in PZ-13. Nitrate concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in three piezometers, two were non-detect, but had elevated practical quantitation levels so the values were assumed to be exceeded. Sulfate concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in 11 of 14 piezometers sampled with a maximum concentration of 4,400 mg/L in PZ-9. Chromium concentrations were below 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply for all wells, while selenium concentrations exceeded standards in five piezometers.

Table 2: Water Quality Monitoring Parameters

	Water Level Monitoring (Ft AMSL)		Field Parameters			General Chemistry Parameters					Trace Metals	
Monitoring Site	3/27/08	6/12/08	pH (SU)	Temp. (^{0}C)	Specific Conductivity @25 ^{0}C (µS/cm)	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-1	3375.02	3374.65	6.34	26.5	127,500	6/5/08	<2.0	2,100	57,000	98,000	0.667	0.0021[R]
PZ-2	3374.99	3374.52	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-3	3376.20	3375.86	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-4	3370.44	3369.61	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-5	3376.93	3376.48	6.70	28.6	54,800	6/5/08	5.7	1,500	19,000	33,000	0.0801	0.00317
PZ-6	3373.81	3373.32	6.33	26.2	110,900	6/5/08	6.1	2,100	47,000	81,000	0.0412	0.00259
PZ-7	3380.26	3379.91	6.26	25.1	114,100	6/4/08	5.0	2,300	49,000	86,000	0.0635	0.00257
PZ-8	3357.09	3357.47	Dry			6/6/08	1.8	630	11,000	16,000	0.0655	<0.001
PZ-9	3366.64	3366.45	6.13	22.0	173,400	6/5/08	2.2	4,400	87,000	150,000	0.0351	0.00492
PZ-10	3373.08	3372.11	7.13	22.6	2,222	6/4/08	4.5	390	300	1,500	0.0144	0.00119
PZ-11	3377.39	3377.24	6.23	28.5	137,400	6/4/08	3.9	2,100	65,000	110,000	0.0149	0.00216
PZ-12	3361.73	3361.01	6.78	21.8	11,420	6/4/08	11	760	3300	6,800	0.0291	0.00132
PZ-13	3359.38	3359.63	Dry			6/6/08	<200	2,600	170,000	240,000	0.0118	0.00316
PZ-14	3355.91	3355.90	Dry			6/6/08	<100	3,300	130,000	180,000	0.0201	0.00168
PZ-15	3386.85	3386.46	Dry			6/6/08	12	160	460	1,600	0.00372	<0.001
C-2811	3349.06	3348.56 [3]	7.08	21.2	4,676	6/4/08	5.7	390	1,300	2,800	0.00170	0.0350
C-2505	3371.69	3371.20	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
C-2506	3372.20	3371.68	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
C-2507	3368.69	3368.17	6.97	23.6	9,410	6/5/08	6.9	990	2,800	5,800	0.0637	0.00493
WQSP-6a (Round 25)	3196.93 [1]	3196.89 [2]	7.37	21.2	3,883	3/12/08	4.67	2,090	378	3,400	<0.025	<0.025

Explanation:
[1] Water Level Measurement Taken on 3/26/08
[2] Water Level Measurement Taken on 6/11/08
[3] Water Level Measurement Taken on 6/11/08
[4] Water Sample Taken After Sufficient Water Collected in Well Following Bailing
NS: Not Sampled as per permit conditions

"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply

GROUND WATER

JUL 3 1 2008

BUREAU

Attachment 1

Laboratory Data Summary Sheets for the Sewage Lagoon System and the H-19 Evaporation Pond

CHAIN-OF-CUSTODY RECORD

8041515

C of C Control NO. 6732

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

RFA Control NO. 6732

SAMPLING PROGRAM Environment Monitoring DP-831 LAB DESTINATION Trace Analysis

SAMPLE TEAM MEMBERS J. Hernandez A. Rivas Env. Spec CARRIER/WAYBILL NO. Hand Carry

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
EC-SWL-20080414-1.16	Pond 2A	4-14-08 0900	Sewage	500 mL	C-O.C. Rec'd 4-15-08	Ward 1-56, 242
2.16		0900				243
3.16		0907		1 Liter		244
4.16		0911		500 mL		245
5.16	Pond A	0936				246
6.16	B	0944				247
7.16	C	0953				248
9.16	Blank	1000	Blank			249
	N/A pH 4-10-08					

Special Instructions: N/A

Possible Sample Hazards: Bio Hazard

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: J Hernandez WTS 4-15-08 1025
   Received By: Donald Ward Trace 4-15-08 1025
2. Relinquished By: _____
   Received By: Donald Ward Trace 4-15-08 1025
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: _____

WP 02-EM3001

WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

NICHOLS PRINTING INC.

COVER PAGE - CLASSICALS ANALYSES DATA PACKAGE

Lab Name: TraceAnalysis, Inc.

SDG No.: 8041515

Program: Env-Monit Infiltration Controls DP-831

WIPP Sample No.	Lab Sample ID.
EC-SWL-20080414-1.16	T156842
EC-SWL-20080414-2.16	T156843
EC-SWL-20080414-3.16	T156844
EC-SWL-20080414-4.16	T156845
EC-SWL-20080414-5.16	T156846
EC-SWL-20080414-6.16	T156847
EC-SWL-20080414-7.16	T156848
EC-SWL-20080414-9.16	T156849

Comments: Narrative Report is attached. Yes X No

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the Narrative Report. Release of data contained in this hardcopy data package (and in the data submitted on magnetic media, if data is submitted on magnetic media), has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: _____ **Name:** Blair Leftwich

Date: _____ **Title:** Managing Director

Forms by ChemSW™(707)864-0843;p/n11092;v5.2;11/1/97

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

EC-SWL-20080414-1.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 8041515

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 04/15/08

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T156842		TKN	89.3		4/29/2008	E 351.3	4.00

Comments:

SECTION I
Page 2

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

Lab Name: TraceAnalysis, Inc.

SDG No.: 8041515

EC-SWL-20080414-2.16

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 04/15/08

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T156843		TKN	70.28		4/29/2008	E 351.3	4.00

Comments:

SECTION I
Page 3

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

EC-SWL-20080414-3.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 8041515

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 10/25/07

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T156844	7782-50-5	Nitrate-N	1.00	U	4/16/2008	300.0	0.200

Comments:

SECTION 1
Page 4

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

Lab Name: TraceAnalysis, Inc.

SDG No.: 8041515

EC-SWL-20080414-4.16

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 04/15/08

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T156845		Total Dissolved Solids (TDS)	655		4/25/2008	160.1	10

Comments:

SECTION I
Page 5

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

EC-SWL-20080414-5.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 8041515

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 04/15/08

Concentration Units (mg/L or mc/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T156846		Total Dissolved Solids (TDS)	10470		4/25/2008	160.1	10

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

Lab Name: TraceAnalysis, Inc.

SDG No.: 8041515

EC-SWL-20080414-6.16

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 10/25/07

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T156847		Total Dissolved Solids (TDS)	27800		4/15/2008	160.1	10

Comments:

SECTION I
Page 7

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

EC-SWL-20080414-7.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 8041515

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 04/15/08

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T156848		Total Dissolved Solids (TDS)	38800		4/25/2008	160.1	10

Comments:

TRACEANALYSIS

DUPLICATE RPD

Lab Name: TraceAnalysis, Inc.

SDG No.: 8041515

Program: Env-Monit Infiltration Controls DP-831

Analyte	Sample Results		Sample Results Dup		RPD
	Value	C	Value	C	
Nitrate (as N)		U		U	#DIV/0!
Total Dissolved Solids (TDS)		U		U	#DIV/0!
TKN		U		U	#DIV/0!

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

Lab Name: TraceAnalysis, Inc.

EC-SWL-20080414-9.16

SDG No.: 8041515

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 04/15/08

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T156849		Total Dissolved Solids (TDS)	7		4/25/2008	160.1	10

Comments:

SECTION I
Page 9

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

EC-SWL-20080414-7.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 8041515

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 04/15/08

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T156848		Total Dissolved Solids (TDS)	38800		4/25/2008	160.1	10

Comments:

SECTION I
Page 8

TRACEANALYSIS

DUPLICATE RPD

Lab Name: TraceAnalysis, Inc.

SDG No.: 8041515

Program: Env-Monit Infiltration Controls DP-831

Analyte	Sample Results		Sample Results Dup		RPD
	Value	C	Value	C	
Nitrate (as N)		U		U	#DIV/0!
Total Dissolved Solids (TDS)		U		U	#DIV/0!
TKN		U		U	#DIV/0!

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

Lab Name: TraceAnalysis, Inc.

SDG No.: 8041515

EC-SWL-20080414-9.16

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 04/15/08

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T156849		Total Dissolved Solids (TDS)	7		4/25/2008	160.1	10

Comments:

SECTION I
Page 9

MK 5-12-08
Narrative Entered by Date

MW 5-13-08
Approved by Date

SECTION 3

Case Narrative

SDG: **2008-224** Client: **Environmental Monitoring**

SAMPLE ID			Chain of	Sample	Matrix	Collection		Date
Lab	Client		Custody #	Description		Date	Time	Received
C2698	EC-	SWL-20080414-10.16	6731	Pond 2A	Sewage Lagoon	04/14/08	9:21	04/16/08
C2699	EC-	SWL-20080414-11.16	6731	Pond A	Sewage Lagoon	04/14/08	9:40	04/16/08
C2700	EC-	SWL-20080414-12.16	6731	Pond B	Sewage Lagoon	04/14/08	9:51	04/16/08
C2701	EC-	SWL-20080414-13.16	6731	Pond C	Sewage Lagoon	04/14/08	9:57	04/16/08
C2702	EC-	SWL-20080414-14.16	6731	Pond 2A	Sewage Lagoon	04/14/08	9:21	04/16/08
C2703	EC-	SWL-20080414-16.16	6731	Blank	Sewage Lagoon	04/14/08	10:03	04/16/08

Data presented herein is validated and verified in compliance with Management Control Procedures WP 12-RL3002, Data Validation and Verification and WP 12-RL3003,"Data Reduction and Reporting".

Procedure Number	Revision
WP 12-RL3002	5
WP 12-RL3003	6

Sample Prep Summary

All sample preparation performed in accordance with WP 12-RL1010, "Sample Preparation".

Procedure Number	Revision
WP 12-RL1010	8

SECTION 4

Sample Results Summary

Summary of sample analysis results and respective qualifiers are included in this section.

Qualifier Codes

U	Nuclide considered not detected above the reported MDC and 2σ counting uncertainty.
J	Nuclide identified; the associated numerical value is approximated.
UJ	Nuclide not detected above the reported MDC or 2σ counting uncertainty and a quality deficiency affects the data making the reported data more uncertain.
NJ	Nuclide present at an estimated quantity.
R	Result is not usable for its intended purpose.
=	No qualifier is necessary.

COPY

MK 5-13-08
Input by Date

MW 5-13-08
Reviewed by Date

MK 5-13-08

SECTION 4

SAMPLE RESULT SUMMARY

SDG: 2008-224
Batch: SP08-4-12
Client: Environmental Monitoring
Lab Id: C2698
Client Id: EC-SWL-20080414-10.16
Matrix: Sewage Lagoon
Collect Date: 4/14/2008
Collect Time: 9:21

ISOTOPE	Activity Bq/L	2 TPU Bq/L	1 TPU Bq/L	MDC Bq/L	ID Confidence	Qualifier
$^{233/234}U$	6.63E-03	2.51E-03	1.28E-03	1.21E-03	NA	=
^{235}U	4.51E-04	8.55E-04	4.36E-04	7.77E-04	NA	U
^{238}U	5.37E-03	2.21E-03	1.13E-03	9.50E-04	NA	=
^{238}Pu	-1.54E-04	2.47E-04	1.26E-04	3.12E-04	NA	U
$^{239/240}Pu$	-1.30E-04	2.27E-04	1.16E-04	3.59E-04	NA	U
^{241}Am	3.60E-04	4.84E-04	2.47E-04	6.01E-04	NA	U
^{90}Sr	-9.49E-03	2.85E-02	1.46E-02	2.04E-03	NA	U
^{40}K	1.80E+00	2.73E+00	1.39E+00	3.28E+00	0.000	U
^{60}Co	7.31E-02	2.62E-01	1.34E-01	3.08E-01	0.000	U
^{137}Cs	-8.89E-02	2.13E-01	1.09E-01	2.40E-01	0.000	U

ISOTOPE	2 TPU		1.96	1 TPU
^{40}K	2.73E+00	/	1.96	1.39E+00
^{60}Co	2.62E-01	/	1.96	1.34E-01
^{137}Cs	2.13E-01	/	1.96	1.09E-01

MK 5-13-08
Input by Date

MHW 5-13-08
Reviewed by Date

5-13-08

SECTION 4

SAMPLE RESULT SUMMARY

SDG: 2008-224
Batch: SP08-4-12
Client: Environmental Monitoring
Lab Id: C2699
Client Id: EC-SWL-20080414-11.16
Matrix: Sewage Lagoon
Collect Date: 4/14/2008
Collect Time: 9:40

ISOTOPE	Activity Bq/g	2σ TPU Bq/g	1σ TPU Bq/g	MDC Bq/g	EID Confidence	Qualifier
$^{233/234}U$	2.49E-03	1.65E-03	8.43E-04	1.26E-03	NA	=
^{235}U	-1.11E-04	3.58E-04	1.83E-04	8.31E-04	NA	U
^{238}U	2.09E-03	1.47E-03	7.50E-04	9.94E-04	NA	=
^{238}Pu	5.63E-05	2.70E-04	1.38E-04	3.39E-04	NA	U
$^{239/240}Pu$	1.50E-04	3.60E-04	1.84E-04	3.86E-04	NA	U
^{241}Am	2.71E-05	3.57E-04	1.82E-04	6.03E-04	NA	U
^{90}Sr	-7.71E-03	3.09E-02	1.58E-02	2.44E-03	NA	U
^{40}K	2.28E+01	4.45E+00	2.27E+00	5.64E+00	0.000	U
^{60}Co	1.16E-01	2.75E-01	1.40E-01	3.27E-01	0.000	U
^{137}Cs	7.28E-02	2.05E-01	1.05E-01	2.47E-01	0.000	U

ISOTOPE	2σ TPU		1.96	1σ TPU
^{40}K	4.45E+00	/	1.96	2.27E+00
^{60}Co	2.75E-01	/	1.96	1.40E-01
^{137}Cs	2.05E-01	/	1.96	1.05E-01

K-40 ND per confidence Criteria
PB 7-8-08

MK 5-13-08
Input by Date

MW 5-13-08
Reviewed by Date

JM 5-13-08

SECTION 4

SAMPLE RESULT SUMMARY

SDG: 2008-224
Batch: SP08-4-12
Client: Environmental Monitoring
Lab Id: C2700
Client Id: EC-SWL-20080414-12.16
Matrix: Sewage Lagoon
Collect Date: 4/14/2008
Collect Time: 9:51

ISOTOPE	Activity Bq/g	2σ TPU Bq/g	1σ TPU Bq/g	MDC Bq/g	ID Confidence	Qualifier
$^{233/234}U$	8.97E-03	2.97E-03	1.52E-03	1.25E-03	NA	=
^{235}U	2.29E-04	6.49E-04	3.31E-04	8.21E-04	NA	U
^{238}U	3.22E-03	1.81E-03	9.21E-04	9.86E-04	NA	=
^{238}Pu	-1.45E-04	2.46E-04	1.25E-04	3.32E-04	NA	U
$^{239/240}Pu$	3.62E-04	4.60E-04	2.35E-04	3.75E-04	NA	U
^{241}Am	5.07E-04	6.04E-04	3.08E-04	6.28E-04	NA	U
^{90}Sr	-2.10E-02	2.79E-02	1.42E-02	2.05E-03	NA	U
^{40}K	5.62E+01	8.86E+00	4.52E+00	6.13E+00	0.998	=
^{60}Co	3.55E-01	4.90E-01	2.50E-01	5.65E-01	0.000	U
^{137}Cs	-3.96E-01	5.25E-01	2.68E-01	5.72E-01	0.000	U

ISOTOPE	2σ TPU		1.96	1σ TPU
^{40}K	8.86E+00	/	1.96	4.52E+00
^{60}Co	4.90E-01	/	1.96	2.50E-01
^{137}Cs	5.25E-01	/	1.96	2.68E-01

K-40 detected per confidence criteria DJ 78-08

MK 5-13-08
Input by Date

MKW 5-13-08
Reviewed by Date

MKT-13-08

SECTION 4

SAMPLE RESULT SUMMARY

SDG: 2008-224
Batch: SP08-4-12
Client: Environmental Monitoring
Lab Id: C2701
Client Id: EC-SWL-20080414-13.16
Matrix: Sewage Lagoon
Collect Date: 4/14/2008
Collect Time: 9:57

ISOTOPE	Activity (Bq/g)	2σ TPU (Bq/g)	1σ TPU (Bq/g)	MDC (Bq/g)	ID Confidence	Qualifier
$^{233/234}U$	1.27E-02	5.15E-03	2.63E-03	1.99E-03	NA	=
^{235}U	9.95E-04	1.94E-03	9.91E-04	1.73E-03	NA	U
^{238}U	4.41E-03	3.09E-03	1.58E-03	1.72E-03	NA	=
^{238}Pu	-2.04E-05	4.90E-04	2.50E-04	3.78E-04	NA	U
$^{239/240}Pu$	1.22E-04	4.15E-04	2.12E-04	4.13E-04	NA	U
^{241}Am	2.73E-05	3.59E-04	1.83E-04	6.05E-04	NA	U
^{90}Sr	-7.04E-03	3.02E-02	1.54E-02	2.34E-03	NA	U
^{40}K	7.12E+01	1.04E+01	5.31E+00	9.24E+00	0.000	U
^{60}Co	2.73E-02	2.77E-01	1.41E-01	3.18E-01	0.000	U
^{137}Cs	-1.45E-01	2.35E-01	1.20E-01	2.59E-01	0.000	U

ISOTOPE	2σ TPU	/	1.96	1σ TPU
^{40}K	1.04E+01	/	1.96	5.31E+00
^{60}Co	2.77E-01	/	1.96	1.41E-01
^{137}Cs	2.35E-01	/	1.96	1.20E-01

K-40 not detected per confidence criteria
JG 7-8-08

MK 5-13-08
Input by Date

MW 5-13-08
Reviewed by Date

MK 5-13-08

SECTION 4

SAMPLE RESULT SUMMARY

SDG: 2008-224
Batch: SP08-4-12
Client: Environmental Monitoring
Lab Id: C2702
Client Id: EC-SWL-20080414-14.16
Matrix: Sewage Lagoon
Collect Date: 4/14/2008
Collect Time: 9:21

ISOTOPE	Activity (Bq/g)	2σ CTPU (Bq/g)	MDC (Bq/g)	MDC (Bq/g)	ID (Confidence)	Qualifier
$^{233/234}U$	1.13E-02	4.16E-03	2.12E-03	1.60E-03	NA	=
^{235}U	-2.76E-04	6.98E-04	3.56E-04	1.26E-03	NA	U
^{238}U	2.71E-03	2.15E-03	1.10E-03	1.34E-03	NA	=
^{238}Pu	-2.79E-05	3.09E-04	1.58E-04	3.17E-04	NA	U
$^{239/240}Pu$	-8.72E-05	1.87E-04	9.55E-05	3.64E-04	NA	U
^{241}Am	1.75E-04	3.71E-04	1.89E-04	5.58E-04	NA	U
^{90}Sr	-2.13E-02	2.98E-02	1.52E-02	2.24E-03	NA	U
^{40}K	7.73E+00	5.27E+00	2.69E+00	6.07E+00	0.000	U
^{60}Co	-3.11E-02	5.06E-01	2.58E-01	5.64E-01	0.000	U
^{137}Cs	1.98E-01	4.32E-01	2.20E-01	5.61E-01	0.000	U

ISOTOPE	2σ CTPU		1.96	1.96 CTPU
^{40}K	5.27E+00	/	1.96	2.69E+00
^{60}Co	5.06E-01	/	1.96	2.58E-01
^{137}Cs	4.32E-01	/	1.96	2.20E-01

K-90 not detected per Lapisera criteria
JQ 7-8-08

MK 5-13-08
Input by Date

Mark Whitford 5-13-08
Reviewed by Date

MK5-13-08

SECTION 4

SAMPLE RESULT SUMMARY

SDG: 2008-224
Batch: SP08-4-12
Client: Environmental Monitoring
Lab Id: C2703
Client Id: EC-SWL-20080414-16.16
Matrix: Sewage Lagoon
Collect Date: 4/14/2008
Collect Time: 10:03

ISOTOPE	Activity (pCi/g)	2 σ TPU (pCi/g)	1.96 TPU (pCi/g)	MDC (pCi/g)	ID Confidence	Qualifier
$^{233/234}U$	1.56E-03	1.05E-03	5.37E-04	1.07E-03	NA	=
^{235}U	2.55E-04	7.21E-04	3.68E-04	6.06E-04	NA	U
^{238}U	3.23E-04	7.06E-04	3.60E-04	8.12E-04	NA	U
^{238}Pu	1.33E-04	3.20E-04	1.63E-04	3.04E-04	NA	U
$^{239/240}Pu$	-3.33E-05	1.13E-04	5.77E-05	3.51E-04	NA	U
^{241}Am	3.39E-04	4.56E-04	2.33E-04	5.80E-04	NA	U
^{90}Sr	-2.90E-02	2.99E-02	1.53E-02	2.44E-03	NA	U
^{40}K	2.92E+00	5.03E+00	2.57E+00	5.67E+00	0.000	U
^{60}Co	6.26E-01	4.75E-01	2.42E-01	5.59E-01	0.000	U
^{137}Cs	-1.35E-01	4.35E-01	2.22E-01	5.53E-01	0.000	U

ISOTOPE	2 σ TPU (pCi/g)		1.96	1.96 TPU (pCi/g)
^{40}K	5.03E+00	/	1.96	2.57E+00
^{60}Co	4.75E-01	/	1.96	2.42E-01
^{137}Cs	4.35E-01	/	1.96	2.22E-01

GROUND WATER
JUL 3 1 2008
BUREAU

Attachment 2

Laboratory Data Summary Sheets for WQSP 6a

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

Lab Name: TraceAnalysis, Inc.

SDG No.: 8031225

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 03/12/08

WIPP Round No.	26
WIPP Well No.	6A

Concentration Units (mg/L or mg/Kg dry weight): mg/L

WIPP Sample No.	Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
WQ6ADLR26N8	T153392		Alkalinity	116		3/18/2008	SM 2320 B	4.0
WQ6ADLR26N8	T153392	7782-50-5	Chloride	378		4/1/2008	300.0	2.0
WQ6ADLR26N8	T153392		Density	1.00		3/18/2008	ASTM D 854-92	N/A
WQ6ADLR26N8	T153392	7727-37-9	Nitrate (as N)	4.67		3/19/2008	SM 4500 NO3-E	0.10
WQ6ADLR26N8	T153392		pH	7.14		3/12/2008	150.1	4-10
WQ6ADLR26N8	T153392		Conductivity	3415		3/13/2008	SM2510B	
WQ6ADLR26N8	T153392		Sulfate	2090		4/1/2008	300.0	2
WQ6ADLR26N8	T153392		Total Dissolved Solids (TDS)	3400		3/25/2008	160.1	10
WQ6ADLR26N5	T153386		Total Organic Carbon (TOC)	3.9	U	3/18/2008	415.1	1.0
WQ6ADLR26N4	T153384		Total Organic Halogen (TOX)	0.06	U	3/19/2008	5320B/9020B	0.06
WQ6ADLR26N8	T153392		Total Suspended Solids (TSS)	1.0	U	3/19/2008	160.2	1.0

(Density reported in g/mL, pH reported in s.u., Conductivity reported in uMHOs/cm, all other analytes reported in mg/L)
(pH ran as soon as received in laboratory)

Comments:
TOX ran by Test America

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WQ6ADLR26N7

Lab Name: TraceAnalysis, Inc.

SDG No.: 8031225

Matrix (soil/water): Water

Lab Sample ID: T153390

Date Received: 03/12/08

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Analysis Date	Q	RL	M
7440-36-0	Antimony	0.013	U	03/13/08		0.013	P
7440-38-2	Arsenic	0.1	U	03/13/08		0.1	P
7440-39-3	Barium	0.02	U	03/13/08		0.02	P
7440-41-7	Beryllium	0.010	U	03/13/08		0.010	P
7440-43-9	Cadmium	0.010	U	03/13/08		0.010	P
7440-47-3	Chromium	0.025	U	03/13/08		0.025	P
7439-89-6	Iron	0.500	U	03/13/08		0.500	P
7439-92-1	Lead	0.02	U	03/13/08		0.02	P
7439-97-6	Mercury	0.0002	U	03/14/08		0.0002	CV
7440-02-0	Nickel	0.0340		03/13/08		0.025	P
7782-49-2	Selenium	0.025	U	03/13/08		0.025	P
7440-22-4	Silver	0.013	U	03/13/08		0.013	P
7440-28-0	Thallium	0.025	U	03/13/08		0.025	P
7440-62-2	Vanadium	0.05	U	03/13/08		0.05	P

Comments:

FORM I - IN

Attachment 3

Laboratory Data Summary Sheets for Subsurface Shallow Water Wells

GROUND WATER

JUL 3 1 2008

BUREAU

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Wednesday, June 11, 2008

Rick Salness
Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8966
FAX

RE: WIPP/SSWMP

Dear Rick Salness: Order No.: 0806073

Hall Environmental Analysis Laboratory, Inc. received 12 sample(s) on 6/5/2008 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *11-Jun-08*

CLIENT:	Waste Isolation Pilot Plant	**Client Sample ID:**	SSWC2811R9N1
Lab Order:	0806073	**Collection Date:**	6/4/2008 7:14:00 AM
Project:	WIPP/SSWMP	**Date Received:**	6/5/2008
Lab ID:	0806073-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: SLB
Chloride	1300	10		mg/L	100	6/5/2008 9:58:56 PM
Nitrogen, Nitrate (As N)	5.7	0.10		mg/L	1	6/5/2008 9:24:06 PM
Sulfate	390	5.0		mg/L	10	6/5/2008 9:41:31 PM
SM 2540C TOTAL DISSOLVED SOLIDS						Analyst: KMS
Total Dissolved Solids	2800	20		mg/L	1	6/6/2008

Qualifiers:				
	*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *11-Jun-08*

CLIENT:	Waste Isolation Pilot Plant	**Client Sample ID:**	SSWPZ12R9N1
Lab Order:	0806073	**Collection Date:**	6/4/2008 8:14:00 AM
Project:	WIPP/SSWMP	**Date Received:**	6/5/2008
Lab ID:	0806073-03	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: SLB
Chloride	3300	10		mg/L	100	6/5/2008 11:43:24 PM
Nitrogen, Nitrate (As N)	11	0.10		mg/L	1	6/5/2008 11:08:35 PM
Sulfate	760	50		mg/L	100	6/5/2008 11:43:24 PM
SM 2540C TOTAL DISSOLVED SOLIDS						Analyst: KMS
Total Dissolved Solids	6800	20		mg/L	1	6/6/2008

Qualifiers:			
	*	Value exceeds Maximum Contaminant Level	
	E	Value above quantitation range	
	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	
	S	Spike recovery outside accepted recovery limits	
	B	Analyte detected in the associated Method Blank	
	H	Holding times for preparation or analysis exceeded	
	MCL	Maximum Contaminant Level	
	RL	Reporting Limit	

Hall Environmental Analysis Laboratory, Inc.

Date: *11-Jun-08*

CLIENT:	Waste Isolation Pilot Plant	**Client Sample ID:**	SSWPZ-10R9N1
Lab Order:	0806073	**Collection Date:**	6/4/2008 9:00:00 AM
Project:	WIPP/SSWMP	**Date Received:**	6/5/2008
Lab ID:	0806073-05	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: SLB
Chloride	300	1.0		mg/L	10	6/6/2008 12:18:13 AM
Nitrogen, Nitrate (As N)	4.5	0.10		mg/L	1	6/6/2008 12:00:49 AM
Sulfate	390	5.0		mg/L	10	6/6/2008 12:18:13 AM
SM 2540C TOTAL DISSOLVED SOLIDS						Analyst: KMS
Total Dissolved Solids	1500	20		mg/L	1	6/6/2008

Qualifiers:			
	*	Value exceeds Maximum Contaminant Level	
	E	Value above quantitation range	
	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	
	S	Spike recovery outside accepted recovery limits	
	B	Analyte detected in the associated Method Blank	
	H	Holding times for preparation or analysis exceeded	
	MCL	Maximum Contaminant Level	
	RL	Reporting Limit	

Hall Environmental Analysis Laboratory, Inc.

Date: *11-Jun-08*

CLIENT:	Waste Isolation Pilot Plant	**Client Sample ID:**	SSWPZ-7R9N1
Lab Order:	0806073	**Collection Date:**	6/4/2008 10:00:00 AM
Project:	WIPP/SSWMP	**Date Received:**	6/5/2008
Lab ID:	0806073-07	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: SLB
Chloride	49000	200		mg/L	2000	6/9/2008 2:38:32 PM
Nitrogen, Nitrate (As N)	5.0	1.0		mg/L	10	6/6/2008 1:10:27 AM
Sulfate	2300	50		mg/L	100	6/6/2008 1:27:51 AM
SM 2540C TOTAL DISSOLVED SOLIDS						Analyst: KMS
Total Dissolved Solids	86000	20		mg/L	1	6/6/2008

Qualifiers:					
	*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *11-Jun-08*

CLIENT:	Waste Isolation Pilot Plant	**Client Sample ID:**	SSWPZ11R9N1
Lab Order:	0806073	**Collection Date:**	6/4/2008 11:15:00 AM
Project:	WIPP/SSWMP	**Date Received:**	6/5/2008
Lab ID:	0806073-09	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **SLB**
Chloride	65000	200		mg/L	2000	6/9/2008 2:55:57 PM
Nitrogen, Nitrate (As N)	3.9	1.0		mg/L	10	6/6/2008 2:54:54 AM
Sulfate	2100	50		mg/L	100	6/6/2008 3:12:18 AM
SM 2540C TOTAL DISSOLVED SOLIDS						Analyst: **KMS**
Total Dissolved Solids	110000	20		mg/L	1	6/6/2008

Qualifiers:			
	*	Value exceeds Maximum Contaminant Level	
	E	Value above quantitation range	
	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	
	S	Spike recovery outside accepted recovery limits	
	B	Analyte detected in the associated Method Blank	
	H	Holding times for preparation or analysis exceeded	
	MCL	Maximum Contaminant Level	
	RL	Reporting Limit	

Hall Environmental Analysis Laboratory, Inc.

Date: *11-Jun-08*

CLIENT:	Waste Isolation Pilot Plant	**Client Sample ID:**	SSWPZ11R9N1EB
Lab Order:	0806073	**Collection Date:**	6/4/2008 11:15:00 AM
Project:	WIPP/SSWMP	**Date Received:**	6/5/2008
Lab ID:	0806073-11	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: SLB
Chloride	5.2	0.10		mg/L	1	6/6/2008 3:29:43 AM
Nitrogen, Nitrate (As N)	0.13	0.10		mg/L	1	6/6/2008 3:29:43 AM
Sulfate	0.66	0.50		mg/L	1	6/6/2008 3:29:43 AM
SM 2540C TOTAL DISSOLVED SOLIDS						Analyst: KMS
Total Dissolved Solids	49	20		mg/L	1	6/6/2008

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 •, Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	080606010
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	0806073
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	080606010-001	**Sampling Date**	6/4/2008	**Date/Time Received**	6/6/2008 11:05 AM
Client Sample ID	0806073-02A \ SSWC281R9N2	**Sampling Time**	7:14 AM		
Matrix:	Water				

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Chromium	0.00170	mg/L	0.001	6/10/2008	ETL	EPA 200.8	
Dissolved Selenium	0.0350	mg/L	0.001	6/10/2008	ETL	EPA 200.8	

Sample Number	080606010-002	**Sampling Date**	6/4/2008	**Date/Time Received**	6/6/2008 11:05 AM
Client Sample ID	0806073-04A \ SSWPZ12R9N2	**Sampling Time**	8:13 AM		
Matrix:	Water				

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Chromium	0.00132	mg/L	0.001	6/10/2008	ETL	EPA 200.8	
Dissolved Selenium	0.0291	mg/L	0.001	6/10/2008	ETL	EPA 200.8	

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C1320
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2632; ID:WA00169; WA:C1287

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	080606010
Address:	4901 HAWKINS NE SUITE D	**Project Name:**	0806073
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	080606010-003	**Sampling Date**	6/4/2008	**Date/Time Received**	6/6/2008	11:05 AM	
Client Sample ID	0806073-06A \ SSWPZ-10R9N2	**Sampling Time**	9:00 AM				
Matrix:	Water						

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Chromium	0.00119	mg/L	0.001	6/10/2008	ETL	EPA 200.8	
Dissolved Selenium	0.0144	mg/L	0.001	6/10/2008	ETL	EPA 200.8	

Sample Number	080606010-004	**Sampling Date**	6/4/2008	**Date/Time Received**	6/6/2008	11:05 AM	
Client Sample ID	0806073-08A \ SSWPZ-7R9N2	**Sampling Time**	10:00 AM				
Matrix:	Water						

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Chromium	0.00257	mg/L	0.001	6/10/2008	ETL	EPA 200.8	
Dissolved Selenium	0.0635	mg/L	0.001	6/10/2008	ETL	EPA 200.8	

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C1320
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2632; ID:WA00169; WA:C1287

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	080606010
Address:	4901 HAWKINS NE SUITE D	**Project Name:**	0806073
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	080606010-005	**Sampling Date**	6/4/2008	**Date/Time Received**	6/6/2008 11:05 AM
Client Sample ID	0806073-10A \ SSWPZ11R9N2	**Sampling Time**	11:15 AM		
Matrix:	Water				

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Chromium	0.00216	mg/L	0.001	6/10/2008	ETL	EPA 200.8	
Dissolved Selenium	0.0149	mg/L	0.001	6/10/2008	ETL	EPA 200.8	

Sample Number	080606010-006	**Sampling Date**	6/4/2008	**Date/Time Received**	6/6/2008 11:05 AM
Client Sample ID	0806073-12A \ SSWPZ11R9N2EB	**Sampling Time**	11:15 AM		
Matrix:	Water				

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Chromium	ND	mg/L	0.001	6/10/2008	ETL	EPA 200.8	
Dissolved Selenium	ND	mg/L	0.001	6/10/2008	ETL	EPA 200.8	

Authorized Signature John W. Caddy

MCL	EPA's Maximum Contaminant Level
ND	Not Detected
PQL	Practical Quantitation Limit

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C1320
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2632; ID:WA00169; WA:C1287

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	080606010
Address:	4901 HAWKINS NE SUITE D	**Project Name:**	0806073
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCSTrue	%Rec	AR %Rec	Prep Date	Analysis Date
Dissolved Selenium	0.0498	mg/L	0.05	99.6	85-115	6/10/2008	6/10/2008
Dissolved Chromium	0.0500	mg/L	0.05	100.0	85-115	6/10/2008	6/10/2008

Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS True	%Rec	AR %Rec	Prep Date	Analysis Date
080606010-006	Dissolved Selenium	ND	0.0452	mg/L	0.05	90.4	70-130	6/10/2008	6/10/2008
080606010-006	Dissolved Chromium	ND	0.0474	mg/L	0.05	94.8	70-130	6/10/2008	6/10/2008

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Dissolved Chromium	ND	mg/L	0.001	6/10/2008	6/10/2008
Dissolved Selenium	ND	mg/L	0.001	6/10/2008	6/10/2008

AR	Acceptable Range
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C1320
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2632; ID:WA00169; WA:C1287

QA/QC SUMMARY REPORT

Client: Waste Isolation Pilot Plant
Project: WIPP/SSWMP **Work Order:** 0806073

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 300.0: Anions									
Sample ID: MB		*MBLK*			Batch ID: R28832		Analysis Date: 6/5/2008 9:12:53 AM		
Chloride	ND	mg/L	0.10						
Nitrogen, Nitrate (As N)	ND	mg/L	0.10						
Sulfate	ND	mg/L	0.50						
Sample ID: MB		*MBLK*			Batch ID: R28858		Analysis Date: 6/9/2008 9:25:05 AM		
Chloride	ND	mg/L	0.10						
Nitrogen, Nitrate (As N)	ND	mg/L	0.10						
Sulfate	ND	mg/L	0.50						
Sample ID: LCS		*LCS*			Batch ID: R28832		Analysis Date: 6/5/2008 9:30:17 AM		
Chloride	4.843	mg/L	0.10	96.9	90	110			
Nitrogen, Nitrate (As N)	2.424	mg/L	0.10	96.9	90	110			
Sulfate	9.859	mg/L	0.50	98.6	90	110			
Sample ID: LCS		*LCS*			Batch ID: R28858		Analysis Date: 6/9/2008 9:42:30 AM		
Chloride	4.959	mg/L	0.10	99.2	90	110			
Nitrogen, Nitrate (As N)	2.464	mg/L	0.10	98.6	90	110			
Sulfate	9.872	mg/L	0.50	98.7	90	110			
Method: SM 2540C Total Dissolved Solids									
Sample ID: MB-16138		*MBLK*			Batch ID: 16138		Analysis Date: 6/6/2008		
Total Dissolved Solids	ND	mg/L	20						
Sample ID: LCS-16138		*LCS*			Batch ID: 16138		Analysis Date: 6/6/2008		
Total Dissolved Solids	1003	mg/L	20	100	80	120			

Qualifiers:

- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name WIPP | Date Received: 6/5/2008

Work Order Number 0806073 | Received by: TLS

Checklist completed by: _____ 6/5/08 (Signature / Date) | Sample ID labels checked by: AS | AT (Initials)

Matrix: | Carrier name Greyhound

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☑	No ☐	N/A ☐	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☑	Yes ☐	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☑	No ☐	N/A ☐	
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐	
Container/Temp Blank temperature?	6°	*<6° C Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

REQUEST FOR ANALYSIS

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED _____ RFA Control No 6609

LAB DESTINATION Hall Env. Laboratories, Inc.

LABORATORY CONTACT Andy Freeman

SEND LAB REPORT TO Judy Lanier / Rick Salness C of C Control No 6609

P.O. Box 2078

Carlsbad, NM 88221

DATE REPORT REQUIRED _____

SAMPLING PROGRAM WIPP/SSWMP

PROJECT CONTACT Rick Salness

PURCHASE ORDER NO. R. Salness TO409304-2

PROJECT CONTACT PHONE NO. 575-234-8966

Sample Number	Sample Type	Sample Quantity	Preservative	* Req't. Testing Program	Special Instructions
SSW C28I1 R9 N1	Groundwater	500ml Poly VJ	NONE	General Chemistry	EPA 160.1, 300
SSW C28I1 R9 N2		250ml	YES	Selenium, Chromium	Method 6010B (Lab Preserve)
SSW PZ12 R9 N1		500ml	NONE	General Chemistry	EPA 160.1, 300
SSW PZ12 R9 N2		250ml	YES	Selenium, Chromium	Method 6010B (Lab Preserve)
SSW PZ10 R9 N1		500ml	NONE	General Chemistry	EPA 160.1, 300
SSW PZ10 R9 N2		250ml	YES	Selenium, Chromium	Method 6010B (Lab Preserve)
SSW PZ7 R9 N1		500ml	NONE	General Chemistry	EPA 160.1, 300
SSW PZ7 R9 N2		250ml	YES	Selenium, Chromium	Method 6010B (Lab Preserve)
SSW PZ11 R9 N1		500ml	NONE	General Chemistry	EPA 160.1, 300
SSW PZ11 R9 N2	Groundwater	250ml	YES	Selenium, Chromium	Method 6010B (Lab Preserve)
SSW PZ11 R9 N1 EB	EB	500ml	NONE	General Chemistry	EPA 160.1, 300
SSW PZ4 R9 N2 EB	EB	250ml	YES	Selenium, Chromium	Method 6010B (Lab Preserve)

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL RAX 6/4/08 RUSH * (Subject in rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NONHAZARD X FLAMMABLE _____ SKIN IRRITANT _____ HIGHLY TOXIC _____ BIOLOGICAL _____ OTHER _____ (Specify)

* General Chemistry EPA 160.1 = TDS only; EPA 300 = Chloride, Sulfate + Nitrate only

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT _____ DISPOSAL BY LAB X

FOR LAB USE ONLY

RECEIVED BY [signature] DATE/TIME 6/5/08 925

WP 02-EM3001 WHITE - Original to accompany samples YELLOW - Field copy PINK - Other NICHOLS PRINTING INC.

03863

CHAIN-OF-CUSTODY RECORD

C of C Control № 6609

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

U

RFA Control № 6609

SAMPLING PROGRAM WIPP / SSWMP LAB DESTINATION HALL ENV LABORATORIES

SAMPLE TEAM MEMBERS R. SALNESS CARRIER/WAYBILL NO.

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
SSW C2811 R9 N1	C-2811, SSW	6/4/08; 0714	Groundwater	~~1 Liter Plastic x 1~~ 500 ml x 1 5/28/08	0806073	-1
SSW C2811 R9 N2	C-2811, SSW	6/4/08; 0714		250 ml		-2
SSW C2811 PZ-12 R9 N1 Rec'd 5/28/08	PZ-12, SSW	6/4/08; 0814		500 ml		-3
SSW PZ-12 R9 N2	PZ-12, SSW	6/4/08; 0813		125 250 ml		-4
SSW PZ-10 R9 N1	PZ-10, SSW	6/4/08; 0900		125 500 ml		-5
SSW PZ-10 R9 N2	PZ-10, SSW	6/4/08; 0900		125 250 ml for 5/28/08		-6
SSW PZ-7 R9 N1	PZ-7, SSW	6/4/08; 1000		500 ml		-7
SSW PZ-7 R9 N2	PZ-7, SSW	6/4/08; 1000		125 250 ml		-8
SSW PZ11 R9 N1	PZ-11, SSW	6/4/08; 1115		500 ml		-9
SSW PZ11 R9 N2	PZ-11, SSW	6/4/08; 1115	Groundwater	125 250 ml		-10
SSW PZ11 R9 N1 EB	PZ-11, SSW	6/4/08; 1115	EB	500 ml		-11
SSW PZ11 R9 N2 EB	PZ-11, SSW	6/4/08; 1115	EB	125 250 ml ~~1 Liter Plastic x 1~~ 5/28/08		-12

Special Instructions:

Possible Sample Hazards:

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: [signature] WRAS 6/4/08
   Received By: [signature] 6/5/08 935
2. Relinquished By:
   Received By:
3. Relinquished By:
   Received By:
4. Relinquished By:
   Received By:

WP 02-EM3001 WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

NICHOLS PRINTING INC.

03864

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Monday, June 16, 2008

Rick Salness
Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078

TEL: (575) 234-8966
FAX

RE: WIPP/SSWMP

Order No.: 0806092

Dear Rick Salness:

Hall Environmental Analysis Laboratory, Inc. received 14 sample(s) on 6/6/2008 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

4901 Hawkins NE ■ Suite D ■ Albuquerque, NM 87109
505.345.3975 ■ Fax 505.345.4107
www.hallenvironmental.com

Hall Environmental Analysis Laboratory, Inc.

Date: *16-Jun-08*

CLIENT:	Waste Isolation Pilot Plant	**Client Sample ID:**	SSWPZ9R9N1
Lab Order:	0806092	**Collection Date:**	6/5/2008 7:15:00 AM
Project:	WIPP/SSWMP	**Date Received:**	6/6/2008
Lab ID:	0806092-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: SLB
Chloride	87000	500		mg/L	5000	6/10/2008 10:39:49 AM
Nitrogen, Nitrate (As N)	2.2	2.0		mg/L	20	6/6/2008 7:51:50 PM
Sulfate	4400	100		mg/L	200	6/6/2008 8:09:14 PM
SM 2540C TOTAL DISSOLVED SOLIDS						Analyst: KMS
Total Dissolved Solids	150000	20		mg/L	1	6/9/2008

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *16-Jun-08*

CLIENT:	Waste Isolation Pilot Plant	**Client Sample ID:**	SSWC2507R9N1
Lab Order:	0806092	**Collection Date:**	6/5/2008 8:15:00 AM
Project:	WIPP/SSWMP	**Date Received:**	6/6/2008
Lab ID:	0806092-03	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: SLB
Chloride	2800	20		mg/L	200	6/6/2008 8:44:03 PM
Nitrogen, Nitrate (As N)	6.9	2.0		mg/L	20	6/6/2008 8:26:39 PM
Sulfate	990	10		mg/L	20	6/6/2008 8:26:39 PM
SM 2540C TOTAL DISSOLVED SOLIDS						Analyst: KMS
Total Dissolved Solids	5800	20		mg/L	1	6/9/2008

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *16-Jun-08*

CLIENT:	Waste Isolation Pilot Plant	**Client Sample ID:**	SSWPZ1R9N1
Lab Order:	0806092	**Collection Date:**	6/5/2008 9:15:00 AM
Project:	WIPP/SSWMP	**Date Received:**	6/6/2008
Lab ID:	0806092-05	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **SLB**
Chloride	57000	200		mg/L	2000	6/10/2008 9:30:09 AM
Nitrogen, Nitrate (As N)	ND	2.0		mg/L	20	6/6/2008 9:36:16 PM
Sulfate	2100	100		mg/L	200	6/6/2008 9:53:41 PM
SM 2540C TOTAL DISSOLVED SOLIDS						Analyst: **KMS**
Total Dissolved Solids	98000	20		mg/L	1	6/9/2008

Qualifiers:

*	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
MCL	Maximum Contaminant Level
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: *16-Jun-08*

CLIENT:	Waste Isolation Pilot Plant	**Client Sample ID:**	SSWPZ6R9N1
Lab Order:	0806092	**Collection Date:**	6/5/2008 10:15:00 AM
Project:	WIPP/SSWMP	**Date Received:**	6/6/2008
Lab ID:	0806092-07	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **SLB**
Chloride	47000	200		mg/L	2000	6/10/2008 9:47:34 AM
Nitrogen, Nitrate (As N)	6.1	2.0		mg/L	20	6/6/2008 10:11:05 PM
Sulfate	2100	100		mg/L	200	6/6/2008 10:28:30 PM
SM 2540C TOTAL DISSOLVED SOLIDS						Analyst: **KMS**
Total Dissolved Solids	81000	20		mg/L	1	6/9/2008

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *16-Jun-08*

CLIENT:	Waste Isolation Pilot Plant	**Client Sample ID:**	SSWPZ5R9N1
Lab Order:	0806092	**Collection Date:**	6/5/2008 11:22:00 AM
Project:	WIPP/SSWMP	**Date Received:**	6/6/2008
Lab ID:	0806092-09	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: SLB
Chloride	19000	100		mg/L	1000	6/10/2008 10:04:59 AM
Nitrogen, Nitrate (As N)	5.7	2.0		mg/L	20	6/6/2008 10:45:55 PM
Sulfate	1500	10		mg/L	20	6/6/2008 10:45:55 PM
SM 2540C TOTAL DISSOLVED SOLIDS						Analyst: KMS
Total Dissolved Solids	33000	20		mg/L	1	6/9/2008

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *16-Jun-08*

CLIENT:	Waste Isolation Pilot Plant	**Client Sample ID:**	SSWPZ5R9N1D
Lab Order:	0806092	**Collection Date:**	6/5/2008 11:22:00 AM
Project:	WIPP/SSWMP	**Date Received:**	6/6/2008
Lab ID:	0806092-11	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **SLB**
Chloride	20000	100		mg/L	1000	6/10/2008 10:22:24 AM
Nitrogen, Nitrate (As N)	5.7	2.0		mg/L	20	6/6/2008 11:20:45 PM
Sulfate	1500	10		mg/L	20	6/6/2008 11:20:45 PM
SM 2540C TOTAL DISSOLVED SOLIDS						Analyst: **KMS**
Total Dissolved Solids	35000	20		mg/L	1	6/9/2008

Qualifiers:					
	*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *16-Jun-08*

CLIENT:	Waste Isolation Pilot Plant	**Client Sample ID:**	SSWPZ5R9N1EB
Lab Order:	0806092	**Collection Date:**	6/5/2008 11:22:00 AM
Project:	WIPP/SSWMP	**Date Received:**	6/6/2008
Lab ID:	0806092-13	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: SLB
Chloride	2.2	0.10		mg/L	1	6/11/2008 5:41:02 PM
Nitrogen, Nitrate (As N)	ND	2.0		mg/L	20	6/6/2008 11:55:33 PM
Sulfate	0.87	0.50		mg/L	1	6/11/2008 5:41:02 PM
SM 2540C TOTAL DISSOLVED SOLIDS						Analyst: KMS
Total Dissolved Solids	25	20		mg/L	1	6/11/2008

Qualifiers:				
	*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike recovery outside accepted recovery limits		

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 080610031
Project Name: 0806092

Analytical Results Report

Sample Number	080610031-001	**Sampling Date**	6/5/2008	**Date/Time Received**	6/10/2008 12:45 PM
Client Sample ID	0806092-02A / SSW PZ9R9N2	**Sampling Time**	7:15 AM		
Matrix:	Water				

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Chromium	0.00492	mg/L	0.001	6/13/2008	DMB	EPA 200.8	
Dissolved Selenium	0.0351	mg/L	0.001	6/13/2008	DMB	EPA 200.8	

Sample Number	080610031-002	**Sampling Date**	6/5/2008	**Date/Time Received**	6/10/2008 12:45 PM
Client Sample ID	0806092-04A / SSW CZ507R9N2	**Sampling Time**	8:15 AM		
Matrix:	Water				

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Chromium	0.00493	mg/L	0.001	6/13/2008	DMB	EPA 200.8	
Dissolved Selenium	0.0637	mg/L	0.001	6/13/2008	DMB	EPA 200.8	

Sample Number	080610031-003	**Sampling Date**	6/5/2008	**Date/Time Received**	6/10/2008 12:45 PM
Client Sample ID	0806092-06A / SSWPZ1R9N2	**Sampling Time**	9:15 AM		
Matrix:	Water				

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Chromium	0.00218	mg/L	0.001	6/13/2008	DMB	EPA 200.8	
Dissolved Selenium	0.0667	mg/L	0.001	6/13/2008	DMB	EPA 200.8	

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C1320
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2632; ID:WA00169; WA:C1287

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	080610031
Address:	4901 HAWKINS NE SUITE D	**Project Name:**	0806092
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	080610031-004	**Sampling Date**	6/5/2008	**Date/Time Received**	6/10/2008 12:45 PM
Client Sample ID	0806092-08A / SSWPZ6R9N2	**Sampling Time**	10:15 AM		
Matrix:	Water				

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Chromium	0.00259	mg/L	0.001	6/13/2008	DMB	EPA 200.8	
Dissolved Selenium	0.0412	mg/L	0.001	6/13/2008	DMB	EPA 200.8	

Sample Number	080610031-005	**Sampling Date**	6/5/2008	**Date/Time Received**	6/10/2008 12:45 PM
Client Sample ID	0806092-10A / SSWPZ5R9N2	**Sampling Time**	11:22 AM		
Matrix:	Water				

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Chromium	0.00271	mg/L	0.001	6/13/2008	DMB	EPA 200.8	
Dissolved Selenium	0.0832	mg/L	0.001	6/13/2008	DMB	EPA 200.8	

Sample Number	080610031-006	**Sampling Date**	6/5/2008	**Date/Time Received**	6/10/2008 12:45 PM
Client Sample ID	0806092-12A / SSWPZ5R9N2D	**Sampling Time**	11:22 AM		
Matrix:	Water				

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Chromium	0.00317	mg/L	0.001	6/13/2008	DMB	EPA 200.8	
Dissolved Selenium	0.0801	mg/L	0.001	6/13/2008	DMB	EPA 200.8	

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C1320
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2632; ID:WA00169; WA:C1287

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	080610031
Address:	4901 HAWKINS NE SUITE D	**Project Name:**	0806092
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	080610031-007	**Sampling Date**	6/5/2008	**Date/Time Received**	6/10/2008 12:45 PM
Client Sample ID	0806092-14A / SSWPZ5R9N2EB	**Sampling Time**	11:22 AM		
Matrix:	Water				

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Chromium	ND	mg/L	0.001	6/13/2008	DMB	EPA 200.8	
Dissolved Selenium	ND	mg/L	0.001	6/13/2008	DMB	EPA 200.8	

Authorized Signature

MCL	EPA's Maximum Contaminant Level
ND	Not Detected
PQL	Practical Quantitation Limit

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C1320
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2632; ID:WA00169; WA:C1287

QA/QC SUMMARY REPORT

Client: Waste Isolation Pilot Plant
Project: WIPP/SSWMP **Work Order:** 0806092

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 300.0: Anions									
Sample ID: MB		*MBLK*			**Batch ID: R28844**		**Analysis Date: 6/6/2008 11:09:32 AM**		
Chloride	ND	mg/L	0.10						
Nitrogen, Nitrate (As N)	ND	mg/L	0.10						
Sulfate	ND	mg/L	0.50						
Sample ID: MB		*MBLK*			**Batch ID: R28886**		**Analysis Date: 6/10/2008 8:37:55 AM**		
Chloride	ND	mg/L	0.10						
Nitrogen, Nitrate (As N)	ND	mg/L	0.10						
Sulfate	ND	mg/L	0.50						
Sample ID: MB		*MBLK*			**Batch ID: R28902**		**Analysis Date: 6/11/2008 9:51:01 AM**		
Chloride	ND	mg/L	0.10						
Nitrogen, Nitrate (As N)	ND	mg/L	0.10						
Sulfate	ND	mg/L	0.50						
Sample ID: LCS		*LCS*			**Batch ID: R28844**		**Analysis Date: 6/6/2008 11:26:57 AM**		
Chloride	5.345	mg/L	0.10	107	90	110			
Nitrogen, Nitrate (As N)	2.668	mg/L	0.10	107	90	110			
Sulfate	11.05	mg/L	0.50	110	90	110			S
Sample ID: LCS		*LCS*			**Batch ID: R28886**		**Analysis Date: 6/10/2008 8:55:19 AM**		
Chloride	4.832	mg/L	0.10	96.6	90	110			
Nitrogen, Nitrate (As N)	2.458	mg/L	0.10	98.3	90	110			
Sulfate	9.800	mg/L	0.50	98.0	90	110			
Sample ID: LCS		*LCS*			**Batch ID: R28902**		**Analysis Date: 6/11/2008 10:08:26 AM**		
Chloride	4.867	mg/L	0.10	97.3	90	110			
Nitrogen, Nitrate (As N)	2.466	mg/L	0.10	98.6	90	110			
Sulfate	10.08	mg/L	0.50	101	90	110			
Method: SM 2540C Total Dissolved Solids									
Sample ID: MB-16150		*MBLK*			**Batch ID: 16150**		**Analysis Date: 6/9/2008**		
Total Dissolved Solids	ND	mg/L	20						
Sample ID: MB-16177		*MBLK*			**Batch ID: 16177**		**Analysis Date: 6/11/2008**		
Total Dissolved Solids	ND	mg/L	20						
Sample ID: LCS-16150		*LCS*			**Batch ID: 16150**		**Analysis Date: 6/9/2008**		
Total Dissolved Solids	1006	mg/L	20	101	80	120			
Sample ID: LCS-16177		*LCS*			**Batch ID: 16177**		**Analysis Date: 6/11/2008**		
Total Dissolved Solids	1015	mg/L	20	102	80	120			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name WIPP | Date Received: 6/6/2008

Work Order Number 0806092 | Received by: ARS

Checklist completed by: Signature 6/6/08 Date | Sample ID labels checked by: TS Initials

Matrix: | Carrier name Greyhound

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☑	No ☐	N/A ☐	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☑	Yes ☐	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☑	No ☐	N/A ☐	
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐	
Container/Temp Blank temperature?	4°	*<6° C Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

REQUEST FOR ANALYSIS

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED 6/5/08 RFA Control Nº 6607
LAB DESTINATION Hall Env. Laboratories, Inc.
LABORATORY CONTACT Andy Freeman
SEND LAB REPORT TO Judy Lanier / Rick Salness C of C Control Nº 6607
P.O. Box 2078
Carlsbad, NM 88221
DATE REPORT REQUIRED ASAP - Rush
PROJECT CONTACT Rick Salness
PROJECT CONTACT PHONE NO. 505-234-8966

SAMPLING PROGRAM WIPP/SSWMP
PURCHASE ORDER NO. TO 409304-2

4°

Sample Number	Sample Type	Sample Quantity	Preservative	* Req't. Testing Program	Special Instructions
SSWPZ9R9N1	Groundwater	~~500 ml~~ ~~1 Liter x 1~~ 5/28/08	NONE	General Chemistry	EPA 160.1, 300
SSWPZ9R9N2		250 ml	YES	Selenium, Chromium	Method 6010 B (Lab Preserved)
SSWC2507R9N1		500ml	NONE	General Chemistry	EPA 160.1, 300
SSWC2507R9N2		250 ml	YES	Selenium, Chromium	Method 6010 B (Lab Preserved)
SSWPZ1R9N1		500ml	NONE	General Chemistry	EPA 160.1, 300
SSWPZ1R9N2		250ml	YES	Selenium, Chromium	Method 6010 B (Lab Preserved)
SSWPZ6R9N1		500ml	NONE	General Chemistry	EPA 160.1, 300
SSWPZ6R9N2		250ml	YES	Selenium, Chromium	Method 6010 B (Lab Preserved)
SSWPZ5R9N1		500ml	NONE	General Chemistry	EPA 160.1, 300
SSWPZ5R9N2		250ml	YES	Selenium, Chromium	Method 6010 B (Lab Preserved)
SSWPZ5R9N1D		500ml	NONE	General Chemistry	EPA 160.1, 300
SSWPZ5R9N2D	↓	250ml	YES	Selenium, Chromium	Method 6010 B (Lab Preserved)
SSWPZ5R9N1EB	Blank	500ml ↓	NONE	General Chemistry	EPA 160.1, 300
SSWPZ5R9N2EB	Blank	250ml 1 liter x 1	6/6/08 NONE YES	Selenium, Chromium	Method 6010 B (Lab Preserved)

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL ~~6/26/08~~ 6/5/08 RUSH X (Subject in rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NONHAZARD X FLAMMABLE ____ SKIN IRRITANT ____ HIGHLY TOXIC ____ BIOLOGICAL ____ OTHER ____ (Specify)

* EPA 160.1 = TDS only; EPA 300 = CHLORIDE, SULFATE, AND NITRATE only

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT ____ DISPOSAL BY LAB X

FOR LAB USE ONLY

RECEIVED BY [signature] 9:00 6/6/08 DATE/TIME ____

WP 02-EM3001 WHITE - Original to accompany samples YELLOW - Field copy PINK - Other NICHOLS PRINTING INC

03878

CHAIN-OF-CUSTODY RECORD

C of C Control № 6607

RFA Control № 6607

4

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

SAMPLING PROGRAM WIPP / SSW MP

LAB DESTINATION HALL ENV LABORATORIES, INC.

SAMPLE TEAM MEMBERS R. Salwers

CARRIER/WAYBILL NO. GLI 1690135018

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
SSW PZ9R9N1	PZ-9, SSW	6/5/08; 0715	Groundwater	~~500ml Amber Glass~~ ~~1 Liter Plastic x1~~	08060092	- 1
SSW PZ9R9N2	PZ-9, SSW	6/5/08; 0715		250ml		- 2
SSW C2507R9N1	C-2507, SSW	6/5/08; 0815		500ml		- 3
SSW C2507R9N2	C-2507, SSW	6/5/08; 0815		250ml		- 4
SSW PZ1R9N1	PZ-1, SSW	6/5/08; 0915		500ml		- 5
SSW PZ1R9N2	PZ-1, SSW	6/5/08; 0915		250ml		- 6
SSW PZ6R9N1	PZ-6, SSW	6/5/08; 1015		500ml	RAY 5/28/08	- 7
SSW PZ6R9N2	PZ-6, SSW	6/5/08; 1015		250ml		- 8
SSW PZ5R9N1	PZ-5, SSW	6/5/08; 1122		500ml		- 9
SSW PZ5R9N2	PZ-5, SSW	6/5/08; 1122		250ml		- 10
SSW PZ5R9N1D	PZ-5, SSW	6/5/08; 1122		500ml		- 11
SSW PZ5R9N2D	PZ-5, SSW	6/5/08; 1122	Groundwater	250ml		- 12
SSW PZ5R9N1EB	PZ-5, SSW	6/5/08; 1122	EB	500ml		- 13
SSW PZ5R9N2EB	PZ-5, SSW	6/5/08; 1122	EB 250	1 Liter Plastic x1		- 14

Special Instructions:

Possible Sample Hazards:

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: [signature], WRES 6/5/08 1330 hrs

   Received By: [signature] 9:00 6/6/08

2. Relinquished By:

   Received By:

3. Relinquished By:

   Received By:

4. Relinquished By:

   Received By:

WP 02-EM3001 WHITE - Original to accompany samples YELLOW - Field copy PINK - Other NICHOLS PRINTING INC.

03879

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Tuesday, June 24, 2008

Rick Salness
Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078

TEL: (575) 234-8966
FAX

RE: WIPP/SSWMP

Order No.: 0806103

Dear Rick Salness:

Hall Environmental Analysis Laboratory, Inc. received 10 sample(s) on 6/7/2008 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *24-Jun-08*

CLIENT:	Waste Isolation Pilot Plant	**Client Sample ID:**	SSW PZ8 R9N1
Lab Order:	0806103	**Collection Date:**	6/6/2008 9:00:00 AM
Project:	WIPP/SSWMP	**Date Received:**	6/7/2008
Lab ID:	0806103-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: SLB
Chloride	11000	50		mg/L	500	6/19/2008 12:01:33 PM
Nitrate (As N)+Nitrite (As N)	1.8	10	J	mg/L	50	6/19/2008 2:03:26 PM
Sulfate	630	10		mg/L	20	6/17/2008 2:41:40 PM
SM 2540C TOTAL DISSOLVED SOLIDS						Analyst: KMS
Total Dissolved Solids	16000	20		mg/L	1	6/11/2008

Qualifiers:					
	*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *24-Jun-08*

CLIENT:	Waste Isolation Pilot Plant	**Client Sample ID:**	SSW PZ8 R9N1D
Lab Order:	0806103	**Collection Date:**	6/6/2008 9:00:00 AM
Project:	WIPP/SSWMP	**Date Received:**	6/7/2008
Lab ID:	0806103-03	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **SLB**
Chloride	11000	50		mg/L	500	6/19/2008 12:18:57 PM
Nitrate (As N)+Nitrite (As N)	1.8	10	J	mg/L	50	6/19/2008 2:20:51 PM
Sulfate	630	10		mg/L	20	6/17/2008 3:16:29 PM
SM 2540C TOTAL DISSOLVED SOLIDS						Analyst: **KMS**
Total Dissolved Solids	16000	20		mg/L	1	6/11/2008

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *24-Jun-08*

CLIENT:	Waste Isolation Pilot Plant	**Client Sample ID:**	SSW PZ-13R9N1
Lab Order:	0806103	**Collection Date:**	6/6/2008 7:35:00 AM
Project:	WIPP/SSWMP	**Date Received:**	6/7/2008
Lab ID:	0806103-05	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: SLB
Chloride	170000	500		mg/L	5000	6/19/2008 12:36:22 PM
Nitrate (As N)+Nitrite (As N)	ND	200		mg/L	1000	6/23/2008 10:23:17 AM
Sulfate	2600	100		mg/L	200	6/17/2008 4:08:42 PM
SM 2540C TOTAL DISSOLVED SOLIDS						Analyst: KMS
Total Dissolved Solids	240000	20		mg/L	1	6/11/2008

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *24-Jun-08*

CLIENT:	Waste Isolation Pilot Plant	**Client Sample ID:**	SSW PZ-14R9N1
Lab Order:	0806103	**Collection Date:**	6/6/2008 8:30:00 AM
Project:	WIPP/SSWMP	**Date Received:**	6/7/2008
Lab ID:	0806103-07	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **SLB**
Chloride	130000	500		mg/L	5000	6/19/2008 1:28:36 PM
Nitrate (As N)+Nitrite (As N)	ND	100		mg/L	500	6/20/2008 3:48:17 PM
Sulfate	3300	100		mg/L	200	6/17/2008 5:18:20 PM
SM 2540C TOTAL DISSOLVED SOLIDS						Analyst: **KMS**
Total Dissolved Solids	180000	20		mg/L	1	6/11/2008

Qualifiers:

- ***** Value exceeds Maximum Contaminant Level
- **E** Value above quantitation range
- **J** Analyte detected below quantitation limits
- **ND** Not Detected at the Reporting Limit
- **S** Spike recovery outside accepted recovery limits
- **B** Analyte detected in the associated Method Blank
- **H** Holding times for preparation or analysis exceeded
- **MCL** Maximum Contaminant Level
- **RL** Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: *24-Jun-08*

CLIENT:	Waste Isolation Pilot Plant	**Client Sample ID:**	SSW PZ-15R9N1
Lab Order:	0806103	**Collection Date:**	6/6/2008 8:00:00 AM
Project:	WIPP/SSWMP	**Date Received:**	6/7/2008
Lab ID:	0806103-09	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **SLB**
Chloride	460	2.0		mg/L	20	6/19/2008 1:46:01 PM
Nitrate (As N)+Nitrite (As N)	12	4.0	*	mg/L	20	6/17/2008 4:00:33 PM
Sulfate	160	10		mg/L	20	6/17/2008 5:35:45 PM
SM 2540C TOTAL DISSOLVED SOLIDS						Analyst: **KMS**
Total Dissolved Solids	1600	20		mg/L	1	6/11/2008

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: Waste Isolation Pilot Plant
Project: WIPP/SSWMP **Work Order:** 0806103

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 300.0: Anions									
Sample ID: MB		*MBLK*			**Batch ID: R28970**		**Analysis Date:**		**6/17/2008 10:03:08 AM**
Chloride	ND	mg/L	0.10						
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Sulfate	ND	mg/L	0.50						
Sample ID: MB		*MBLK*			**Batch ID: R28962**		**Analysis Date:**		**6/17/2008 4:35:23 PM**
Chloride	0.8881	mg/L	0.10						B
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Sulfate	ND	mg/L	0.50						
Sample ID: MB		*MBLK*			**Batch ID: R29010**		**Analysis Date:**		**6/19/2008 9:59:41 AM**
Chloride	ND	mg/L	0.10						
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Sulfate	ND	mg/L	0.50						
Sample ID: MB		*MBLK*			**Batch ID: R29024**		**Analysis Date:**		**6/20/2008 1:11:36 PM**
Chloride	ND	mg/L	0.10						
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Sulfate	ND	mg/L	0.50						
Sample ID: MB		*MBLK*			**Batch ID: R29050**		**Analysis Date:**		**6/23/2008 9:31:03 AM**
Chloride	ND	mg/L	0.10						
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Sulfate	ND	mg/L	0.50						
Sample ID: LCS		*LCS*			**Batch ID: R28970**		**Analysis Date:**		**6/17/2008 10:20:32 AM**
Chloride	4.756	mg/L	0.10	95.1	90	110			
Nitrate (As N)+Nitrite (As N)	3.320	mg/L	0.20	94.9	90	110			
Sulfate	9.930	mg/L	0.50	99.3	90	110			
Sample ID: LCS		*LCS*			**Batch ID: R28962**		**Analysis Date:**		**6/17/2008 4:52:47 PM**
Chloride	4.998	mg/L	0.10	82.2	90	110			BS (in blank)
Nitrate (As N)+Nitrite (As N)	3.486	mg/L	0.20	99.6	90	110			
Sulfate	10.19	mg/L	0.50	102	90	110			
Sample ID: LCS		*LCS*			**Batch ID: R29010**		**Analysis Date:**		**6/19/2008 10:17:05 AM**
Chloride	4.995	mg/L	0.10	99.9	90	110			
Nitrate (As N)+Nitrite (As N)	3.511	mg/L	0.20	100	90	110			
Sulfate	10.18	mg/L	0.50	102	90	110			
Sample ID: LCS		*LCS*			**Batch ID: R29024**		**Analysis Date:**		**6/20/2008 1:29:00 PM**
Chloride	5.126	mg/L	0.10	103	90	110			
Nitrate (As N)+Nitrite (As N)	3.613	mg/L	0.20	103	90	110			
Sulfate	10.49	mg/L	0.50	105	90	110			
Sample ID: LCS		*LCS*			**Batch ID: R29050**		**Analysis Date:**		**6/23/2008 9:48:28 AM**
Chloride	5.056	mg/L	0.10	101	90	110			
Nitrate (As N)+Nitrite (As N)	3.561	mg/L	0.20	102	90	110			
Sulfate	10.37	mg/L	0.50	104	90	110			

Qualifiers:

- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: Waste Isolation Pilot Plant
Project: WIPP/SSWMP **Work Order:** 0806103

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SM 2540C Total Dissolved Solids									
Sample ID: MB-16177		*MBLK*			**Batch ID: 16177**		**Analysis Date: 6/11/2008**		
Total Dissolved Solids	ND	mg/L	20						
Sample ID: LCS-16177		*LCS*			**Batch ID: 16177**		**Analysis Date: 6/11/2008**		
Total Dissolved Solids	1015	mg/L	20	102	80	120			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name WIPP | Date Received: 6/7/2008

Work Order Number 0806103 | Received by: NJM

Checklist completed by: [signature] 6/9/08 (Signature / Date) | Sample ID labels checked by: AT (Initials)

Matrix: | Carrier name Greyhound

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☑	No ☐	N/A ☐	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☐	No ☑		
Water - VOA vials have zero headspace? No VOA vials submitted ☑		Yes ☐	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☑	No ☐	N/A ☐	
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐	

Container/Temp Blank temperature? 2° <6° C *Acceptable* If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: NO3 out of hold - Evening (analyzing) NO2-NO3 AT 6/9/08
preserved 1 x 125 HNO3 bottles for acceptable pH for dissolved metals
filtered SSWB14 R9N2 & SSWB15 R9N2 in lab AT 6/9/08

Corrective Action _____

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	080610032
Address:	4901 HAWKINS NE SUITE D	**Project Name:**	0806103
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	080610032-001	**Sampling Date**	6/6/2008	**Date/Time Received**	6/10/2008 12:45 PM
Client Sample ID	0806103-02A / SSW PZ8R9N2	**Sampling Time**	9:00 AM		
Matrix:	Water				

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Chromium	ND	mg/L	0.001	6/16/2008	DMB	EPA 200.8	
Dissolved Selenium	0.0655	mg/L	0.001	6/16/2008	DMB	EPA 200.8	

Sample Number	080610032-002	**Sampling Date**	6/6/2008	**Date/Time Received**	6/10/2008 12:45 PM
Client Sample ID	0806103-04A / SSW PZ8 R9N2D	**Sampling Time**	9:00 AM		
Matrix:	Water				

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Chromium	0.00115	mg/L	0.001	6/16/2008	DMB	EPA 200.8	
Dissolved Selenium	0.0631	mg/L	0.001	6/16/2008	DMB	EPA 200.8	

Sample Number	080610032-003	**Sampling Date**	6/6/2008	**Date/Time Received**	6/10/2008 12:45 PM
Client Sample ID	0806103-06A / SSW PZ-13R8N2	**Sampling Time**	7:35 AM		
Matrix:	Water				

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Chromium	0.00316	mg/L	0.001	6/16/2008	DMB	EPA 200.8	
Dissolved Selenium	0.0118	mg/L	0.001	6/16/2008	DMB	EPA 200.8	

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87693; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C1320
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2832; ID:WA00169; WA:C1287

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	080610032
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	0806103
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	080610032-004	**Sampling Date**	6/6/2008	**Date/Time Received**	6/10/2008 12:45 PM
Client Sample ID	0806103-08A / SSW PZ-14R9N2	**Sampling Time**	8:30 AM		
Matrix:	Water				

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Chromium	0.00168	mg/L	0.001	6/16/2008	DMB	EPA 200.8	
Dissolved Selenium	0.0201	mg/L	0.001	6/16/2008	DMB	EPA 200.8	

Sample Number	080610032-005	**Sampling Date**	6/6/2008	**Date/Time Received**	6/10/2008 12:45 PM
Client Sample ID	0806103-10A / SSW PZ-15R9N2	**Sampling Time**	8:00 AM		
Matrix:	Water				

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Chromium	ND	mg/L	0.001	6/16/2008	DMB	EPA 200.8	
Dissolved Selenium	0.00372	mg/L	0.001	6/16/2008	DMB	EPA 200.8	

Authorized Signature John W. Caddy

MCL	EPA's Maximum Contaminant Level
ND	Not Detected
PQL	Practical Quantitation Limit

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87693; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C1320
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2632; ID:WA00169; WA:C1267

QA/QC SUMMARY REPORT

Client: Waste Isolation Pilot Plant
Project: WIPP/SSWMP **Work Order:** 0806103

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 300.0: Anions									
Sample ID: MB		*MBLK*			**Batch ID: R28970**		**Analysis Date: 6/17/2008 10:03:08 AM**		
Chloride	ND	mg/L	0.10						
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Sulfate	ND	mg/L	0.50						
Sample ID: MB		*MBLK*			**Batch ID: R28982**		**Analysis Date: 6/17/2008 4:35:23 PM**		
Chloride	0.8881	mg/L	0.10						B
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Sulfate	ND	mg/L	0.50						
Sample ID: MB		*MBLK*			**Batch ID: R29010**		**Analysis Date: 6/19/2008 9:59:41 AM**		
Chloride	ND	mg/L	0.10						
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Sulfate	ND	mg/L	0.50						
Sample ID: MB		*MBLK*			**Batch ID: R29024**		**Analysis Date: 6/20/2008 1:11:36 PM**		
Chloride	ND	mg/L	0.10						
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Sulfate	ND	mg/L	0.50						
Sample ID: MB		*MBLK*			**Batch ID: R29050**		**Analysis Date: 6/23/2008 9:31:03 AM**		
Chloride	ND	mg/L	0.10						
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Sulfate	ND	mg/L	0.50						
Sample ID: LCS		*LCS*			**Batch ID: R28970**		**Analysis Date: 6/17/2008 10:20:32 AM**		
Chloride	4.756	mg/L	0.10	95.1	90	110			
Nitrate (As N)+Nitrite (As N)	3.320	mg/L	0.20	94.9	90	110			
Sulfate	9.930	mg/L	0.50	99.3	90	110			
Sample ID: LCS		*LCS*			**Batch ID: R28982**		**Analysis Date: 6/17/2008 4:52:47 PM**		
Chloride	4.998	mg/L	0.10	82.2	90	110			BS
Nitrate (As N)+Nitrite (As N)	3.486	mg/L	0.20	99.6	90	110			
Sulfate	10.19	mg/L	0.50	102	90	110			
Sample ID: LCS		*LCS*			**Batch ID: R29010**		**Analysis Date: 6/19/2008 10:17:05 AM**		
Chloride	4.995	mg/L	0.10	99.9	90	110			
Nitrate (As N)+Nitrite (As N)	3.511	mg/L	0.20	100	90	110			
Sulfate	10.18	mg/L	0.50	102	90	110			
Sample ID: LCS		*LCS*			**Batch ID: R29024**		**Analysis Date: 6/20/2008 1:29:00 PM**		
Chloride	5.126	mg/L	0.10	103	90	110			
Nitrate (As N)+Nitrite (As N)	3.613	mg/L	0.20	103	90	110			
Sulfate	10.49	mg/L	0.50	105	90	110			
Sample ID: LCS		*LCS*			**Batch ID: R29050**		**Analysis Date: 6/23/2008 9:48:28 AM**		
Chloride	5.058	mg/L	0.10	101	90	110			
Nitrate (As N)+Nitrite (As N)	3.561	mg/L	0.20	102	90	110			
Sulfate	10.37	mg/L	0.50	104	90	110			

Qualifiers:

- **B** Value above quantitation range
- **J** Analyte detected below quantitation limits
- **R** RPD outside accepted recovery limits
- **H** Holding times for preparation or analysis exceeded
- **ND** Not Detected at the Reporting Limit
- **S** Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: Waste Isolation Pilot Plant
Project: WIPP/SSWMP **Work Order:** 0806103

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SM 2540C Total Dissolved Solids									
Sample ID: MB-16177		*MBLK*			Batch ID:	16177	Analysis Date:		6/11/2008
Total Dissolved Solids	ND	mg/L	20						
Sample ID: LCS-16177		*LCS*			Batch ID:	16177	Analysis Date:		6/11/2008
Total Dissolved Solids	1015	mg/L	20	102	80	120			

Qualifiers:

- **E** Value above quantitation range
- **H** Holding times for preparation or analysis exceeded
- **J** Analyte detected below quantitation limits
- **ND** Not Detected at the Reporting Limit
- **R** RPD outside accepted recovery limits
- **S** Spike recovery outside accepted recovery limits

CHAIN-OF-CUSTODY RECORD

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

C of C Control No. 6611

RFA Control No. 6611

SAMPLING PROGRAM WIPP / SSWMP J

LAB DESTINATION Hall Env. Laboratories, Inc.

SAMPLE TEAM MEMBERS R. Salness

CARRIER/WAYBILL NO. GLI 169 613 502 9

Sample Number	Sample Location and Description		Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
SSW PZ8 R9 N1	PZ8	SSW	6/6/08 / 0900	Groundwater	1 x 500 Plastic x 1	0806103-1	
SSW PZ8 R9 N2	PZ8	SSW	6/6/08	0900	1 x 125 HNO3	-2	
SSW PZ8 R9 N1 D	PZ8	SSW	6/6/08	0900		-3	
SSW PZ8 R9 N2 D AT 4/10/08	PZ8	SSW	6/6/08	0900		-4	
SSW PZ-13 R9 N1	PZ13	SSW	6/6/08	0735		-5	
SSW PZ-13 R9 N2	PZ13	SSW	6/6/08	0735		-6	
SSW PZ-14 R9 N1	PZ14	SSW	6/6/08	0830		-7	
SSW PZ-14 R9 N2	PZ14	SSW	6/6/08	0830		-8	
SSW PZ15 R9 N1	PZ15	SSW	6/6/08	0800		-9	
SSW PZ15 R9 N2	PZ15	SSW	6/6/08	0800		-10	

Special Instructions:

Possible Sample Hazards:

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: [signature] WRES, 6/6/08, 1330
   Received By: [signature] 6/7/08 11:00
2. Relinquished By:
   Received By:
3. Relinquished By:
   Received By:
4. Relinquished By:
   Received By:

WP 02-EM3001 WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

MONCUS PRINTING INC.

CHAIN-OF-CUSTODY RECORD

C of C Control № 6611

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

RFA Control № 6611

SAMPLING PROGRAM WIPP/SSWMP J

LAB DESTINATION Hall Env. Laboratories, Inc.

SAMPLE TEAM MEMBERS R. Salness

CARRIER/WAYBILL NO. GLI 169 613 502 9

Sample Number	Sample Location and Description		Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
SSW PZ8 R9 N1	PZ8 SSW Groundwater		6/6/08 / 0900	Groundwater	2 x 500 Plastic x 1	0806103-1	
SSW PZ8 R9 N2	PZ8	SSW	6/6/08	0900	1 x 125 HNO3	-2	
SSW PZ8 R9 N1 D	PZ8	SSW	6/6/08	0900		-3	
SSW PZ8 R9 N2 D	PZ8	SSW	6/6/08	0900		-4	
SSW PZ-13 R9 N1	PZ13	SSW	6/6/08	0735		-5	
SSW PZ-13 R9 N2	PZ13	SSW	6/6/08	0735		-6	
SSW PZ-14 R9 N1	PZ14	SSW	6/6/08	0830		-7	
SSW PZ-14 R9 N2	PZ14	SSW	6/6/08	0830		-8	
SSW PZ15 R9 N1	PZ15	SSW	6/6/08	0800		-9	
SSW PZ15 R9 N2	PZ15	SSW	6/6/08	0800		-10	

Special Instructions:

Possible Sample Hazards:

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: [signature], URES, 6/6/08, 1330
   Received By: [signature] 6/7/08 11:00
2. Relinquished By:
   Received By:
3. Relinquished By:
   Received By:
4. Relinquished By:
   Received By:

WP 02-EM3001 WHITE - Original to accompany samples YELLOW - Field copy PINK - Other NICHOLS PRINTING INC.

03894

REQUEST FOR ANALYSIS

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED _____ RFA Control No 6611

LAB DESTINATION Hall Env. Laboratories, Inc.

LABORATORY CONTACT Andy Freeman

SEND LAB REPORT TO Judy Lanier/Rick Shivers C of C Control No 6611

P.O. Box 2078

Carlsbad, NM 88221

DATE REPORT REQUIRED ASAP (7day TAT)

PROJECT CONTACT Rick Shivers

PROJECT CONTACT PHONE NO. 575-234-8966

0806103

SAMPLING PROGRAM WIPP/SSW mp

PURCHASE ORDER NO. TO409304-2

Sample Number	Sample Type	Sample Quantity	Preservative	* Req't. Testing Program	Special Instructions
SSW PZ8 R9 N1	Groundwater	500ml 1 Liter x 1 6M	5/28/08 NONE	General Chemistry	EPA 160.1, 300
SSW PZ8 R9 N2		250ml	NO ~~YES~~ 5/28/08	Selenium, Chromium	Method 6010B (Lab Filtered)
SSW PZ8 R9 N1 D		500ml	NONE	General Chemistry	EPA 160.1, 300
SSW PZ8 R9 N2 D		250ml	NO ~~YES~~ 5/28/08	Selenium, Chromium	Method 6010B (Lab Filtered)
SSW PZ13 R9 N1		500ml	NONE	General Chemistry	EPA 160.1, 300
SSW PZ13 R9 N2		250ml	NO ~~YES~~ 5/28/08	Selenium, Chromium	Method 6010B (Lab Filtered)
SSW PZ14 R9 N1		500ml	NONE	General Chemistry	EPA 160.1, 300
SSW PZ14 R9 N2		250ml	NO ~~YES~~ 5/28/08	Selenium, Chromium	M 6010B (Lab Filtered)
SSW PZ15 R9 N1		500ml	NONE	General Chemistry	EPA 160.1, 300
SSW PZ15 R9 N2		250ml	NO ~~YES~~ 5/28/08	Selenium, Chromium	M 6010B (Lab Filtered)

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL ~~X~~ 6/4/08 RUSH X (Subject in rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NONHAZARD X FLAMMABLE _____ SKIN IRRITANT _____ HIGHLY TOXIC _____ BIOLOGICAL _____ OTHER _____ (Specify)

*General Chem: EPA 160.1 = TDS only; EPA 300 = Chloride, Sulfate + Nitrate only

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT _____ DISPOSAL BY LAB X

FOR LAB USE ONLY

RECEIVED BY _____ DATE/TIME 6/7/08 11:00

WP 02-EM3001 WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

NICHOLS PRINTING INC.

03895

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

JUL 30 2007

GROUND WATER

JUL 31 2007

BUREAU

Mr. Clint Marshall
Mining and Environmental Compliance Section
Ground Water Quality Bureau
New Mexico Environment Department
P.O. Box 26110
Santa Fe, NM 87502

Subject: Semi-Annual Discharge Monitoring Report for January 1, 2007, through June 30, 2007

Dear Mr. Marshall:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Discharge Monitoring Report for the period of January 1, 2007, through June 30, 2007. This report is required by Discharge Plan Permit DP-831.

If you have any questions about this report or require any additional information, please contact Jody Plum at (505) 234-7462.

Sincerely,

David C. Moody
Manager

Enclosure

cc: w/o enclosure)
J. Bearzi, NMED *ED
J. Kieling, NMED ED
*ED denotes electronic distribution

CBFO:AMO:JP:KJB:07-0488:UFC5486

03896

WASTE ISOLATION PILOT PLANT (WIPP) SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831

GROUND WATER

REPORT NUMBER 46: January 1, 2007, through June 30, 2007

JUL 3 1 2007

SPECIFIC REQUIREMENTS OF DP-831

BUREAU

1.0 DISCHARGE VOLUMES

Facultative Lagoon System	
Month	**Volume (gallons)**
January	442,826
February	348,693
March	432,960
April	532,580
May	326,600
June	365,440

*Sewage Treatment System effluent meter has provided suspect data that are currently being evaluated. At least 5 percent of the daily discharge volumes recorded during this reporting period indicated greater than 23,000 gallons per day were discharged to the sewage treatment system. See the discussion in Section 2 below for an explanation.

Miscellaneous Water Discharged to the Facultative Lagoon System None

Facultative Lagoon System Evaporation Pond B None

H-19 Evaporation Pond	
Month	**Volume (gallons)**
January	40
February	0
March	2,150
April	3,300
May	4,830
June	3,600

2.0 FACULTATIVE LAGOON AND H-19 EVAPORATION POND MONITORING AND REPORTING

Table 1 contains the analytical results for the Facultative Lagoon System and H-19. The laboratory data sheets are included in Attachment 1. All miscellaneous non-hazardous water disposed in the H-19 Evaporation Pond was Exhaust Shaft Fan Condensate, purged water from groundwater monitoring activities, and observation borehole water from the underground. Other miscellaneous wastewater generated included 40 gallons of water from a slug test preformed on well SNL-8.

The influent to the sewage treatment system is measured using an ultrasonic flow meter which reads the level (height) of water flowing over a weir. The manufacturer's specifications state the accuracy of the meter is +/-0.5 percent of the level of the liquid assuming a liquid with a constant density which corresponds to +/-3 percent of the

volume of fluid discharged. A problem frequently encountered is when solids become lodged on the weir displacing the water resulting in the meter reading a higher water level and reporting an incorrect discharge volume. In the last reporting period we noted this issue on several occasions. This reporting period indicates an increased average flow. July 1, 2005 through September 30, 2006 the average daily flow was 3,273 gallons. During the timeframe of October 2006 through June 30, 2007, the trend dramatically increased with an average flow of 13,530 gallons per day with a standard deviation of 6,094 gallons per day. The data produced by the sewage effluent flow meter is highly suspect for the following reasons:

- Typically, flow through the meter is within the lower 5 percent of the meter capacity. With this low flow rate, blockages and buildup underneath the sensor occur often due to the slow movement of the effluent, thus resulting in inaccuracies beyond the manufacturer's specifications. Additionally, the effluent does not have a constant density further adding to inaccuracies beyond the manufacturer's specifications.
- The average weekly domestic water use since October 2006 was approximately 69,000 gallons. The average domestic water use between January 2006 and September 2006 was 78,000 gallons. Thus, the total domestic water use has declined while the sewage effluent meter indicates a four fold increase in discharges to the sewage lagoons.
- WIPP has added a second shift resulting in more discharges to the lagoons from personnel but not enough to account for a four fold increase in the discharge of domestic water.

When abnormal readings are evident, actions are taken to clear blockages underneath the sensor. An evaluation of whether the effluent flow meter is the correct technique for tracking effluent, or replacement of the system with a better technology will be conducted. The next semi-annual report will include progress toward this end and actions taken to correct the faulty readings or, if we decide to change the methodology used to report the effluent flow we will notify your office accordingly.

During this reporting period the following activities were conducted as required by your letter dated December 22, 2005, *Conditional Approval of the Corrective Action Plan based on the Sewage Lagoon Leak Testing Results and Liner Integrity Evaluation.*

- Settling Pond 1A and Polishing Pond 1B of the north sewage lagoon train have been removed from service and allowed to dry. The replacement of the liners is anticipated to be completed by the end of September 2007.

3.0 INFILTRATION CONTROL ACTIVITIES (DECEMBER 22, 2003, MODIFICATION)

The Salt Storage Area soil cover experienced considerable erosion as the result of 1.86 inches of precipitation received over the weekend of March 23-25, 2007. The erosion was repaired in early April. The Salt Pile soil cover was seeded with Bureau of Land Management (BLM) Seed Mix #2 which contains 1 part Sand Drop Seed, 1 part Sand Love Grass and 2 parts Plains Bristlegrass. Good germination has occurred, but the growth has been slow. Materials have been procured and operation of a sprinkler system to irrigate the soil covered portion of the salt pile with storm water from the evaporation ponds will occur this summer.

4.0 EXHAUST SHAFT WATER SEEPAGE ESTIMATES

In accordance with the Permit Condition IV.7 of the modified discharge permit issued December 29, 2006, the Department of Energy (DOE) submitted a proposal on February 7, 2007, to estimate the volume of shallow subsurface water that seeps into the Exhaust Shaft. According to the permit condition, DOE shall measure seepage volumes and/or flow rates of the Subsurface Shallow Water monthly and report the measurements in the semi-annual discharge monitoring report. The DOE proposed to visually estimate the volume of seepage using a remote camera during quarterly Exhaust Shaft inspections.

The Exhaust Shaft inspections were conducted on March 2, 2007, and May 23, 2007, both resulting in an estimated seepage of one and one-half gallons per minute. The flow rate was estimated for individual seeps and or seepage cracks, summed and rounded to the nearest half gallon per minute to reflect a resolution that is believed to be a reasonable estimation of the seepage.

5.0 SUMMARY OF ACTIVITES RELATED TO THE SHALLOW SUBSURFACE WATER (SSW MONITORING AND SAMPLING PROGRAM

Water levels in the shallow wells (PZ-1 through PZ-12, C-2505, C-2506, C-2507, and C-2811) were obtained March 15 and June 14, 2007, and are included in Table 2. These were taken on the quarterly milestones outlined in Table 2, Ground Water Monitoring Schedule, in the December 22, 2003, DP-831 Modification.

Total rainfall in the area of WIPP for this reporting period was 9.47 inches compared to 2.80 inches for the same time period in 2006, a difference of 6.67 inches more in 2007. The average water level change across the site was 0.58 inches. The largest decrease in water level was 0.41 feet identified in C-2506. The largest increase in water level over this period was 1.58 feet in C-2811. The average groundwater increase around the lined ponds (PZ-7, PZ-10, PZ-11, PZ-12) was 0.79 inches.

WQSP-6A was sampled in March 2007 as part of the WIPP Hazardous Waste Facility Permit Detection Monitoring Program. WQSP-6A data for this reporting period are provided in Table 2 of this report and the laboratory data sheets are contained in Attachment 2.

Concentrations for selenium and chromium in the WQSP-6A sample were below the method detection limits of 0.0200 mg/l and 0.0100 mg/l, respectively (Table 2). The nitrate concentration for WQSP-6A was 5.78 mg/l. Sulfate, chloride, and total dissolved solids (TDS) concentrations were detected at concentrations exceeding standards of 20.6.2.3103 NMAC, *Standards for Ground Water of 10,000 mg/l TDS Concentration or Less* for Human Health and Domestic Water Supply. Although the concentrations were higher than the standards, they are less than background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285). The shallow subsurface water identified at the WIPP site has not impacted the Dewey Lake groundwater in WQSP-6A.

The shallow wells were sampled for field and general chemistry parameters in May 2007 as required by the December 22, 2003, modification to DP-831. Five wells were

sampled on May 7, 2007, while the remaining wells were sampled on May 9, 2007. Results for the field sampling parameters and laboratory analyses are presented in Table 2. Laboratory reports for all shallow well analyses are included in Attachment 3. Chloride concentrations exceeded values listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply in all shallow wells sampled. The maximum chloride concentration was 89,600 mg/l in PZ-9, while the minimum concentration was 274 mg/l in PZ-10. Total dissolved solids concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in all shallow wells exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in two wells with a concentration of 14.8 mg/l in PZ-10 and 10.8 in mg/l in PZ-12. Sulfate concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in seven of ten wells sampled with a maximum concentration of 4,320 mg/l in PZ-9. Chromium and Selenium concentrations were below 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply for all wells.

Table 1: Sewage Lagoon and H-19 Semi-Annual Analytical Results								
Analyte	**Influent to Facultative Lagoon System**		**Evaporation Pond B**		**Evaporation Pond C**		**H-19 Evaporation Pond**	
Nitrate (mg/l)	1.08		NA		NA		NA	
TKN (mg/l)	9.24		NA		NA		NA	
TDS (mg/l)	358.0		**7,700**		**24,800**		**364,500**	
	Activity	TPU 2 σ	Activity	TPU 2 σ	Activity	TPU 2 σ	Activity	TPU 2 σ
$U^{233/234}$ (Bq/l)	2.27E-02	7.40E-03	8.56E-03	4.15E-03	8.15E-03	4.00E-03	1.06E-03	1.12E-03
U^{235} (Bq /l)	7.67E-04	7.85E-04	6.21E-04	8.34E-04	6.29E-04	8.44E-04	4.40E-04	7.53E-04
U^{238} (Bq/l)	1.30E-02	4.56E-03	4.13E-03	2.36E-03	2.28E-03	1.68E-03	7.39E-05	5.05E-04
Pu^{238} (Bq/l)	1.24E-05	1.04E-03	2.36E-04	5.79E-04	-2.37E-04	3.83E-04	-1.41E-04	2.72E-04
$Pu^{239/240}$ (Bq/l)	1.88E-04	9.04E-04	4.72E-05	3.59E-04	9.15E-05	3.78E-04	-8.17E-05	2.07E-04
Am^{241} (Bq/l)	3.64E-04	5.35E-04	2.25E-04	5.28E-04	-5.41E-05	3.82E-04	-3.60E-06	3.05E-04
Sr^{90} (Bq/l)	-6.52E-04	3.62E-02	-2.82E-02	3.84E-02	-1.19E-02	3.25E-02	5.23E-03	3.93E-02
TPU 2 σ = total propagated uncertainty at 2-sigma (95 percent confidence interval)								
NA: The analytical parameter is not required.								
NS: Not Sampled								
TKN: Total Kjeldahl Nitrate								
TDS: Total Dissolved Solids								
Bq/l: Becquerel per liter								
mg/l: Milligrams per liter								
"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply								

TABLE 2

SUMMARY OF SHALLOW SUBSURFACE WATER LEVELS, FIELD PARAMETERS, AND ANALYTICAL RESULTS

	WATER LEVEL MONITORING (FT AMSL)		FIELD PARAMETERS			GENERAL CHEMISTRY PARAMETERS					TRACE METALS	
MONITORING SITE	3-15-07	6-14-07	PH (SU)	TEMP. (^{0}C)	SPECIFIC CONDUCTIVITY @25 ^{0}C (µS/CM)	SAMPLE DATE	NITRATE (mg/l)	SULFATE (mg/l)	CHLORIDE (mg/l)	TDS (mg/l)	SELENIUM (mg/l)	CHROMIUM (mg/l)
PZ-1	3,373.26	3,373.11	6.43	21.2	115,000	5-9-07	2.70	2,220	63,000	107,000	<0.0500	<0.0250
PZ-2	3,373.05	3,372.84	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-3	3,374.45	3,374.27	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-4	3368.37	3,368.37	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-5	3,375.50	3,375.18	6.83	19.9	41,380	5-9-07	4.60	1,640	17300	32,400	<0.0500	<0.0250
PZ-6	3,372.15	3,372.02	6.30	20.30	138,400	5-9-07	6.65	2,840	73500	122,500	<0.0500	<0.0250
PZ-7	3,378.69	3,378.42	6.26	23.10	112,200	5-7-07	5.15	3,190	64800	119,000	<0.0200	0.0200
PZ-8	3,351.72	3,355.46	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-9	3,365.31	3,365.11	6.04	15.70	159,000	5-9-07	3.28	4,320	89600	164,000	<0.0500	<0.0250
PZ-10	3,372.00	3,372.19	7.06	21.90	2,088	5-7-07	14.8	407	274	1,504	<0.0200	0.0200
PZ-11	3,375.70	3,375.58	6.32	22.70	121,800	5-7-07	3.84	2,620	68700	135,000	<0.0200	<0.0100
PZ-12	3,359.52	3,359.54	6.80	21.40	11,420	5-7-07	10.8	831	3780	7,010	<0.0200	0.0240
C-2811	3,346.70	3,346.50	7.05	20.70	5,820	5-7-07	5.31	516	1760	4,205	<0.0200	0.0310
C-2505	3,369.85	3,369.83	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
C-2506	3,370.27	3,370.24	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
C-2507	3,366.80	3,366.84	6.86	18.40	9,030	5-9-07	6.62	1,110	3,060	5,485	<0.0500	<0.0250
WQSP-6A (ROUND 24)	3,197.23[1]	3,197.14[2]	7.38	22.6	3,876	3-7-07	5.78	2,170	484	3,355	<0.0200	<0.0100

EXPLANATION: [1] WATER LEVEL MEASUREMENT TAKEN ON 03/13/07

[2] WATER LEVEL MEASUREMENT TAKEN ON 06/13/07

NS: NOT SAMPLED AS PER PERMIT CONDITIONS

"BOLD" CONCENTRATIONS EXCEED STANDARDS LISTED IN 20.6.2.3103 NMAC FOR HUMAN HEALTH AND DOMESTIC WATER SUPPLY

Attachment 1

Laboratory Data Summary Sheets for the Sewage Lagoon System and the H-19 Evaporation Pond

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
200 East Sunset Road, Suite E El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Parrish Roush
WRES
P.O.Box 2078
Carlsbad, NM, 88221-2078

Report Date: July 5, 2007

Work Order: 7041825

Project Number: 403436-2

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
122048	EC-SWL-20070417-1.16	water	2007-04-17	07:33	2007-04-18
122049	EC-SWL-20070417-2.16	water	2007-04-17	07:30	2007-04-18
122050	EC-SWL-20070417-3.16	water	2007-04-17	07:39	2007-04-18
122051	EC-SWL-20070417-4.16	water	2007-04-17	09:34	2007-04-18
122052	EC-SWL-20070417-5.16	water	2007-04-17	09:46	2007-04-18
122053	EC-SWL-20070417-6.16	water	2007-04-17	10:00	2007-04-18
122054	EC-SWL-20070417-7.16	water	2007-04-17	07:44	2007-04-18
122055	EC-SWL-20070417-8.16	water	2007-04-17	10:34	2007-04-18
122056	EC-SWL-20070417-9.16	water	2007-04-17	07:20	2007-04-18

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 8 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Standard Flags

B - The sample contains less than ten times the concentration found in the method blank.

Case Narrative

Samples for project were received by TraceAnalysis, Inc. on 2007-04-18 and assigned to work order 7041825. Samples for work order 7041825 were received intact at a temperature of 4 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method
Nitrate and Nitrite as N	E 353.3
TDS	SM 2540C
TKN	E 351.3

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 7041825 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Analytical Report

Sample: 122048 - EC-SWL-20070417-1.16

Analysis:	Nitrate and Nitrite as N	Analytical Method:	E 353.3	Prep Method:	N/A
QC Batch:	36751	Date Analyzed:	2007-04-24	Analyzed By:	ER
Prep Batch:	31882	Sample Preparation:	2007-04-24	Prepared By:	ER

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate and Nitrite as N		0.670		mg/L	5	0.100

Sample: 122049 - EC-SWL-20070417-2.16

Analysis:	TKN	Analytical Method:	E 351.3	Prep Method:	N/A
QC Batch:	36725	Date Analyzed:	2007-04-24	Analyzed By:	SM
Prep Batch:	31860	Sample Preparation:	2007-04-24	Prepared By:	SM

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Kjeldahl Nitrogen - N		9.24		mg/L	1	4.00

Sample: 122050 - EC-SWL-20070417-3.16

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	36812	Date Analyzed:	2007-04-26	Analyzed By:	ER
Prep Batch:	31935	Sample Preparation:	2007-04-20	Prepared By:	ER

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids	[1]	358.0		mg/L	1	10.00

Sample: 122051 - EC-SWL-20070417-4.16

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	36812	Date Analyzed:	2007-04-26	Analyzed By:	ER
Prep Batch:	31935	Sample Preparation:	2007-04-20	Prepared By:	ER

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids	[2]	1746		mg/L	2	10.00

Sample: 122052 - EC-SWL-20070417-5.16

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	36812	Date Analyzed:	2007-04-26	Analyzed By:	ER
Prep Batch:	31935	Sample Preparation:	2007-04-20	Prepared By:	ER

[1]Filtrate colored possibly due to particles passing through filter. •
[2]Filtrate colored possibly due to particles passing through filter. •

Parameter	Flag	Result	Units	Dilution	RL
Total Dissolved Solids	[3]	7700	mg/L	10	10.00

Sample: 122053 - EC-SWL-20070417-6.16

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	36812	Date Analyzed:	2007-04-26	Analyzed By:	ER
Prep Batch:	31935	Sample Preparation:	2007-04-20	Prepared By:	ER

Parameter	Flag	Result	Units	Dilution	RL
Total Dissolved Solids		24800	mg/L	100	10.00

Sample: 122054 - EC-SWL-20070417-7.16

Analysis:	Nitrate and Nitrite as N	Analytical Method:	E 353.3	Prep Method:	N/A
QC Batch:	36751	Date Analyzed:	2007-04-24	Analyzed By:	ER
Prep Batch:	31882	Sample Preparation:	2007-04-24	Prepared By:	ER

Parameter	Flag	Result	Units	Dilution	RL
Nitrate and Nitrite as N		0.800	mg/L	5	0.100

Sample: 122055 - EC-SWL-20070417-8.16

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	36812	Date Analyzed:	2007-04-26	Analyzed By:	ER
Prep Batch:	31935	Sample Preparation:	2007-04-20	Prepared By:	ER

Parameter	Flag	Result	Units	Dilution	RL
Total Dissolved Solids		364500	mg/L	500	10.00

Sample: 122056 - EC-SWL-20070417-9.16

Analysis:	TKN	Analytical Method:	E 351.3	Prep Method:	N/A
QC Batch:	36725	Date Analyzed:	2007-04-24	Analyzed By:	SM
Prep Batch:	31860	Sample Preparation:	2007-04-24	Prepared By:	SM

Parameter	Flag	Result	Units	Dilution	RL
Total Kjeldahl Nitrogen - N		<4.00	mg/L	1	4.00

[3]Filtrate colored possibly due to particles passing through filter. •

Method Blank (1) QC Batch: 36725

QC Batch:	36725	Date Analyzed:	2007-04-24	Analyzed By:	SM
Prep Batch:	31860	QC Preparation:	2007-04-24	Prepared By:	SM

Parameter	Flag	MDL Result	Units	RL
Total Kjeldahl Nitrogen - N		<5.22	mg/L	4

Method Blank (1) QC Batch: 36751

QC Batch:	36751	Date Analyzed:	2007-04-24	Analyzed By:	ER
Prep Batch:	31882	QC Preparation:	2007-04-24	Prepared By:	ER

Parameter	Flag	MDL Result	Units	RL
Nitrate and Nitrite as N		<0.0223	mg/L	0.1

Method Blank (1) QC Batch: 36812

QC Batch:	36812	Date Analyzed:	2007-04-26	Analyzed By:	ER
Prep Batch:	31935	QC Preparation:	2007-04-20	Prepared By:	ER

Parameter	Flag	MDL Result	Units	RL
Total Dissolved Solids		<5.000	mg/L	10

Duplicates (1)

QC Batch:	36812	Date Analyzed:	2007-04-26	Analyzed By:	ER
Prep Batch:	31935	QC Preparation:	2007-04-20	Prepared By:	ER

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	122000	121500	mg/L	500	0	17.2

Laboratory Control Spike (LCS-1)

QC Batch:	36725	Date Analyzed:	2007-04-24	Analyzed By:	SM
Prep Batch:	31860	QC Preparation:	2007-04-24	Prepared By:	SM

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Kjeldahl Nitrogen - N	43.1	mg/L	1	50.0	<5.22	86	57.6 - 105

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Kjeldahl Nitrogen - N	42.0	mg/L	1	50.0	<5.22	84	57.6 - 105	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 36751 Date Analyzed: 2007-04-24 Analyzed By: ER
Prep Batch: 31882 QC Preparation: 2007-04-24 Prepared By: ER

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Nitrate and Nitrite as N	0.150	mg/L	1	0.160	<0.0223	94	77 - 122

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Nitrate and Nitrite as N	0.140	mg/L	1	0.160	<0.0223	88	77 - 122	7	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 122017

QC Batch: 36725 Date Analyzed: 2007-04-24 Analyzed By: SM
Prep Batch: 31860 QC Preparation: 2007-04-24 Prepared By: SM

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Kjeldahl Nitrogen - N	55.4	mg/L	1	50.0	<5.22	111	36.8 - 124

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Kjeldahl Nitrogen - N	57.1	mg/L	1	50.0	<5.22	114	36.8 - 124	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 122054

QC Batch: 36751 Date Analyzed: 2007-04-24 Analyzed By: ER
Prep Batch: 31882 QC Preparation: 2007-04-24 Prepared By: ER

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Nitrate and Nitrite as N	1.05	mg/L	5	0.800	0.8	31	10 - 208

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Nitrate and Nitrite as N	0.970	mg/L	5	0.800	0.8	21	10 - 208	8	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1)

QC Batch: 36725 Date Analyzed: 2007-04-24 Analyzed By: SM

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Kjeldahl Nitrogen - N		mg/L	5.00	5.10	102	85 - 115	2007-04-24

Standard (CCV-1)

QC Batch: 36725 Date Analyzed: 2007-04-24 Analyzed By: SM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Kjeldahl Nitrogen - N		mg/L	5.00	4.87	97	85 - 115	2007-04-24

Standard (ICV-1)

QC Batch: 36751 Date Analyzed: 2007-04-24 Analyzed By: ER

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate and Nitrite as N		mg/L	0.160	0.165	103	85 - 115	2007-04-24

Standard (CCV-1)

QC Batch: 36751 Date Analyzed: 2007-04-24 Analyzed By: ER

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate and Nitrite as N		mg/L	0.160	0.170	106	85 - 115	2007-04-24

Standard (ICV-1)

QC Batch: 36812 Date Analyzed: 2007-04-26 Analyzed By: ER

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	993.0	99	90 - 110	2007-04-26

Standard (CCV-1)

QC Batch: 36812 Date Analyzed: 2007-04-26 Analyzed By: ER

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	988.0	99	90 - 110	2007-04-26

7041825

REQUEST FOR ANALYSIS

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED 4/18/07 RFA Control No 6565

LAB DESTINATION Trace Analysis

LABORATORY CONTACT Mike Abel

SEND LAB REPORT TO WTS C of C Control No 6565
P.O. Box 2078 MS-486-5
Carlsbad, New Mexico 88221

SAMPLING PROGRAM Environment Monitoring-07831

DATE REPORT REQUIRED ASAP S.O.W

PURCHASE ORDER NO. T403430 2

PROJECT CONTACT C/o Siegel

PROJECT CONTACT PHONE NO. (505)-234-6313

Sample Number	Sample Type	Sample Quantity	Preservative	Req'l. Testing Program	Special Instructions
EC-SWX-20070417-1.14	Sewage-122048	1 Liter	4°C	NO3	
2.14	49	500mL	H2SO4, pH2, 4°C	TKN	
3.14	50	500mL	4°C	TDS	
4.14	51	500mL		TDS	
5.14	52	500mL		TDS	
6.14	53	500mL		TDS	
7.14	54	1 Liter		NO3	
8.14	55	500mL		TDS	
9.14	BLANK 54	500mL	H2SO4, pH2, 4°C	TKN	

NIA JK 4-17-07

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL ✓ RUSH _____ (Subject in rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NONHAZARD _____ FLAMMABLE _____ SKIN IRRITANT _____ HIGHLY TOXIC _____ BIOLOGICAL ✓ OTHER _____ (Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT _____ DISPOSAL BY LAB ✓

FOR LAB USE ONLY

RECEIVED BY Shonica Quigley DATE/TIME 4-18-07 11:50

WP 02-EM3001 WHITE - Original to accompany samples YELLOW - Field copy LPC Smith PINK - Other

03912

7041805

CHAIN-OF-CUSTODY RECORD

C of C Control № 6565

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

RFA Control № 6565

SAMPLING PROGRAM Environment Monitoring - DP831 Environment Spec. LAB DESTINATION Trace Analysis

SAMPLE TEAM MEMBERS J. Hernandez, J. Noelkenlin, A. Rivas CARRIER/WAYBILL NO. Hand Carry

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
EC-Swe-200704FT - 1.16	Pond 2A 122048	4-17-07 0733	Sewage	1 Liter Plastic	OOC 4/17/07	
2.16	Pond 2A 49	0730		500 mL Plastic		
3.16	Pond 2A 50	0739				
4.16	Pond A 51	0934				
5.16	Pond B 52	0946				
6.16	Pond C 53	1000				
7.16	Pond 2A 54	0744		1 Liter Plastic		
8.16	Pond H-19 55	1034		500 mL Plastic		
9.16	BLANK 56	0720	BLANK	500 mL Plastic		
	N/A	4-17-07				

Special Instructions: N/A

Possible Sample Hazards: Bio Hazard.

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: A. Rivas, WTS. 4/18/07 11:50
   Received By: [illegible] 4/18/07 [illegible]
2. Relinquished By: _____
   Received By: _____
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: _____

WP 02-EM3001 WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

USE Chain of C

03913

Attachment 1 - Sewage Lagoon Sample Data/Work Sheet

SEWAGE LAGOON SAMPLE DATA/WORK SHEET

Data / Work Sheet No. 001

Date 4-17-07

TO CONTRACT LAB

SAMPLE CODES	LOCATION	SIZE	ANALYSIS	PRESERVATIVE	DATE/TIME
EC-SUR-20070417-1.16	Pond 2A	1L	NO_3	<4°C	4-17-07 0739
2.16	Pond 2A	500mL	TKN	H_2SO_4 ph2, <4°C	0730
3.16	Pond 2A	500mL	TDS	<4°C	0739
4.16	Pond A	500mL	TDS	<4°C	0934
5.16	Pond B	500mL	TDS	<4°C	0946
6.16	Pond C	500mL	TDS	<4°C	1000
7.16	Pond 2A	1L	NO_3	<4°C	0744
8.16	Pond H-19	500mL	TDS	<4°C	1034
9.16	BLANK	500mL	TKN	H_2SO_4 Ph<2, <4°C	0720
TO WIPP LABS					
EC-SUR-20070417-10.16	Pond 2A	4L	Radio	HNO_3 Ph<2	4-17-07 0750
11.16	Pond A	4L	Chemistry		0943
12.16	Pond B	4L			0957
13.16	Pond C	4L			1009
14.16	Pond 2A	4L			0805
15.16	Pond H-19	4L			1040
16.16	BLANK	4L			0916

Personnel (Name and Title): A. Rivas, Jerome Hernandez, Jimmy Weatherly - Environment Spec.

Comments: Turn Over to Trace Analysis. 4/18/07

Turn Over to WIPP Labs. Martin Keathley From Q.A. Reviewing Procedures

Checked by:

Printed Name Title Signature Date

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
200 East Sunset Road, Suite E El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
E-Mail, lab@traceanalysis.com

Analytical and Quality Control Report

J. Siegel
WRES
P.O.Box 2078
Carlsbad, NM, 88221-2078

Report Date: May 11, 2007

Work Order: 7051013

Project Number: 403436-2

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
123778	EC-SWL-20070509-1.2	water	2007-05-09	07:00	2007-05-10
123779	EC-SWL-20070509-2.2	water	2007-05-09	07:05	2007-05-10

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 4 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Standard Flags

B - The sample contains less than ten times the concentration found in the method blank.

Case Narrative

Samples for project were received by TraceAnalysis, Inc. on 2007-05-10 and assigned to work order 7051013. Samples for work order 7051013 were received intact at a temperature of 4 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method
NO3 (IC)	E 300.0

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 7051013 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Analytical Report

Sample: 123778 - EC-SWL-20070509-1.2

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	37145	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32214	Sample Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	RL Result	Units	Dilution	RL
Nitrate-N		1.08	mg/L	5	0.200

Sample: 123779 - EC-SWL-20070509-2.2

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	37145	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32214	Sample Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	RL Result	Units	Dilution	RL
Nitrate-N		1.12	mg/L	5	0.200

Method Blank (1) QC Batch: 37145

QC Batch:	37145	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32214	QC Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	MDL Result	Units	RL
Nitrate-N		<0.0240	mg/L	0.2

Laboratory Control Spike (LCS-1)

QC Batch:	37145	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32214	QC Preparation:	2007-05-10	Prepared By:	ER

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Nitrate-N	2.53	mg/L	1	2.50	<0.0240	101	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Nitrate-N	2.54	mg/L	1	2.50	<0.0240	102	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 123588

QC Batch: 37145 Date Analyzed: 2007-05-10 Analyzed By: ER
Prep Batch: 32214 QC Preparation: 2007-05-10 Prepared By: ER

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Nitrate-N	25100	mg/L	10000	25000	<240	100	88.4 - 118

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Nitrate-N	25100	mg/L	10000	25000	<240	100	88.4 - 118	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1)

QC Batch: 37145 Date Analyzed: 2007-05-10 Analyzed By: ER

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.56	102	90 - 110	2007-05-10

Standard (CCV-1)

QC Batch: 37145 Date Analyzed: 2007-05-10 Analyzed By: ER

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.54	102	90 - 110	2007-05-10

705101

REQUEST FOR ANALYSIS

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED 5-10-07 RFA Control No 6569

LAB DESTINATION Trace Analysis

LABORATORY CONTACT Mike Abel

SEND LAB REPORT TO WTS C of C Control No 6569
P.O Box 2078 MS 486-5
Carlsbad, N. Mex 88221

DATE REPORT REQUIRED Per S.O.W

PROJECT CONTACT C/o Siegel

PROJECT CONTACT PHONE NO (505) 234-8313

SAMPLING PROGRAM Env-Monit DP831

PURCHASE ORDER NO. T403436-2

Sample Number	Sample Type	Sample Quantity	Preservative	Req't. Testing Program	Special Instructions
EC-SWL-20070509-1,2	Sewage	1 Liter	<4°C	NO3	123778
EC-SWL-20070509-2,2	Sewage	1 Liter	<4°C	NO3	123779

N/A DH 5-2-07

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL ✓ RUSH _____ (Subject in rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NONHAZARD _____ FLAMMABLE _____ SKIN IRRITANT _____ HIGHLY TOXIC _____ BIOLOGICAL ✓ OTHER _____ (Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT _____ DISPOSAL BY LAB ✓

FOR LAB USE ONLY

RECEIVED BY Sharon Shipley 5-10-07 10:37 DATE/TIME _____

WP 02-EM3001 WHITE - Original to accompany samples YELLOW - Field Copy PINK - Other

Trace Analysis 4°C

NK 5-21-07
Narrative Entered by Date

Khwhitford 5-22-07
Approved by Date

SECTION 3

Case Narrative

SDG: **2007-245** Client: **Environmental Monitoring**

SAMPLE ID			Chain of	Sample	Matrix	Collection		Date
Lab	Client		Custody #	Description		Date	Time	Received
C2020	EC-	SWL-20070417-10.16	6563	Pond 2A	Sewage	04/17/07	7:50	04/18/07
C2021	EC-	SWL-20070417-11.16	6563	Pond A	Sewage	04/17/07	9:43	04/18/07
C2022	EC-	SWL-20070417-12.16	6563	Pond B	Sewage	04/17/07	9:57	04/18/07
C2023	EC-	SWL-20070417-13.16	6563	Pond C	Sewage	04/17/07	10:09	04/18/07
C2024	EC-	SWL-20070417-14.16	6563	Pond 2A	Sewage	04/17/07	8:05	04/18/07
C2025	EC-	SWL-20070417-15.16	6563	Pond H-19	Sewage	04/17/07	10:40	04/18/07
C2026	EC-	SWL-20070417-16.16	6563	Blank	Sewage	04/17/07	9:16	04/18/07

Data presented herein is validated and verified in compliance with Management Control Procedures WP 12-RL3002, Data Validation and Verification and WP 12-RL3003,"Data Reduction and Reporting".

Procedure Number	Revision
WP 12-RL3002	5
WP 12-RL3003	5

The Environmental Monitoring form, Sewage Lagoon Sample Data/Work Sheet has no signature in the "Checked by" space on this form

Sample Prep Summary

All sample preparation performed in accordance with WP 12-RL1010, "Sample Preparation".

Procedure Number	Revision
WP 12-RL1010	7

Measuring Instrumentation

Alpha Spectrometers

System Name	Instrument ID	Procedure Number	Revision	Used for these samples
Canberra Alpha Analyst	ALP-001	WP 12-RL1015	12	YES

Gas Proportional Counters

System Name	Instrument ID	Procedure Number	Revision	Used for these samples
Tennelec LB 4100	GAB-002	WP 12-RL1340	8	YES

Gamma Spectrometers

System Name	Instrument ID	Procedure Number	Revision	Used for these samples
Canberra	GAM-002-1	WP 12-RL1332	6	YES
Canberra	GAM-002-2	WP 12-RL1332	6	YES

MK 5-19-07
Narrative Entered by Date

Approved by 5-21-07
Approved by Date

SECTION 4

Sample Results Summary

Summary of sample analysis results and respective qualifiers are included in this section.

Qualifier Codes

U	Nuclide considered not detected above the reported MDC and 2σ counting uncertainty.
J	Nuclide identified; the associated numerical value is approximated.
UJ	Nuclide not detected above the reported MDC or 2σ counting uncertainty and a quality deficiency affects the data making the reported data more uncertain.
NJ	Nuclide present at an estimated quantity.
R	Result is not usable for its intended purpose.
=	No qualifier is necessary.

Uranium Analysis Summary

WP 12-RL1012 revision 8

All samples were analyzed in accordance with the above procedure.

Batch #	Samples
SP07-4-010	C2020, C2021, C2022, C2023, C2024, C2025, & C2026
SP07-4-019	C2020, C2021, C2022, C2023, C2024, C2025, & C2026

Batch #: SP07-4-010

The entire batch was reprocessed due to the low tracer recovery of C2025R.

Batch #: SP07-4-019

This is the reprocess of batch SP07-4-019.

^{234}U was detected in samples C2020, C2021, C2022, C2023, and C2024 but was not detected in samples C2025 and C2026.

^{235}U was not detected in these samples.

^{238}U was detected in samples C2020, C2021, C2022, C2023, and C2024 but was not detected in samples C2025 and C2026.

Plutonium Analysis Summary

WP 12-RL1012 revision 8

All samples were analyzed in accordance with the above procedure.

Batch #	Samples
SP07-4-010	C2020, C2021, C2022, C2023, C2024, C2025, & C2026

Batch #: SP07-4-010

A manual adjustment was performed on the LCS to correct for a shift in the spectra.

^{238}Pu was not detected in these samples.

$^{239/240}Pu$ was not detected in these samples.

MK 5-21-07
Narrative Entered by Date

MHuntington 5-22-07
Approved by Date

Americium Analysis Summary

WP 12-RL1012 revision 8

All samples were analyzed in accordance with the above procedure.

Batch #	Samples
SP07-4-010	C2020, C2021, C2022, C2023, C2024, C2025, & C2026

Batch #: SP07-4-010

A manual adjustment was performed on samples C2025 and C2025R to remove scattered counts from the ^{243}Am ROI that are not associated with this isotope.

^{241}Am was not detected in these samples.

Strontium Analysis Summary

WP 12-RL1017 revision 1

All samples were analyzed in accordance with the above procedure.

Batch #	Samples
SP07-4-010	C2020, C2021, C2022, C2023, C2024, C2025, & C2026

Batch #: SP07-4-010

^{90}Sr was not detected in these samples.

Gamma Analysis Summary

WP 12-RL1332, revision 6

All samples were analyzed in accordance with the above procedure.

Samples
C2020, C2021, C2022, C2023, C2024, C2025, & C2026

^{40}K was detected in samples C2020 and C2025, but not in samples C2021, C2022, C2023, C2024, and C2026.

^{60}Co was not detected in these samples.

^{137}Cs was not detected in these samples.

SECTION 5

Quality Control Summary

The RLCS, RBLK, MLCS, and MBLK Control Chart result Summaries are included in this section (as well as RER and Matrix Spike Summaries, and Nonconformance and Variance Reports, if applicable).

SECTION 6

Chain of Custody

Client Chain of Custody and Request for Analysis (if provided), Sample Tracking Sheets, Internal Chain of Custody, and copies of Sample Tracking Logbook pages are included in this section.

MK 5-19-07
Narrative Entered by Date

Approved by 5-21-07
Approved by Date

SECTION 7

Raw Data

Copies of the Sample Prep Logbook and the Daily Lab Work Logbook pages, a Definition of Terms and Limits, client correspondence, calculation spreadsheets and hand calculations, all supporting documentation for calculations and preparation of the samples, client correspondence and instrument printouts are included in this section.

SECTION 4

SAMPLE RESULTS SUMMARY

MK 5-21-07
Data Input by Date

MWhitford 5-22-07
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: 2007-245
Batch: SP07-4-010
Client: Environmental Monitoring
Lab Id: C2020
Client Id: EC-SWL-20070417-10.16
Matrix: Sewage
Collect Date: 4/17/2007
Collect Time: 7:50

* = SP07-4-019

ISOTOPE	Activity	2 σ TPU	1 σ TPU	MDC	Units	ID Confidence	Qualifier
$^{233/234}U$ *	2.27E-02	7.40E-03	3.77E-03	1.60E-03	Bq/L	NA	=
^{235}U *	7.67E-04	7.85E-04	4.01E-04	5.98E-04	Bq/L	NA	U
^{238}U *	1.30E-02	4.56E-03	2.33E-03	8.95E-04	Bq/L	NA	=
^{238}Pu	1.24E-05	1.04E-03	5.28E-04	1.03E-03	Bq/L	NA	U
$^{239/240}Pu$	1.88E-04	9.04E-04	4.61E-04	1.03E-03	Bq/L	NA	U
^{241}Am	3.64E-04	5.35E-04	2.73E-04	4.77E-04	Bq/L	NA	U
^{90}Sr	-6.52E-04	3.62E-02	1.85E-02	4.85E-03	Bq/L	NA	U
^{40}K	2.67E+00	3.29E+00	1.68E+00	5.30E+00	Bq/L	NA	U
^{60}Co	2.32E-01	4.93E-01	2.52E-01	5.55E-01	Bq/L	1.000	=
^{137}Cs	-5.32E-01	4.81E-01	2.45E-01	5.66E-01	Bq/L	0.000	U
						0.000	U

ISOTOPE	2 σ TPU	/	1.96 =	1 σ TPU =
^{40}K	3.29E+00	/	1.96	1.68E+00
^{60}Co	4.93E-01	/	1.96	2.52E-01
^{137}Cs	4.81E-01	/	1.96	2.45E-01

MK 5-21-07
Data Input by Date

Mwhitepark 5-22-07
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: 2007-245
Batch: SP07-4-010
Client: Environmental Monitoring
Lab Id: C2022
Client Id: EC-SWL-20070417-12.16
Matrix: Sewage
Collect Date: 4/17/2007
Collect Time: 9:57

* = SP07-4-019

ISOTOPE	Activity	2 σ TPU	1 σ TPU	MDC	Units	ID Confidence	Qualifier
$^{233/234}U$ *	8.56E-03	4.15E-03	2.12E-03	1.73E-03	Bq/L	NA	=
^{235}U *	6.21E-04	8.34E-04	4.26E-04	7.61E-04	Bq/L	NA	U
^{238}U *	4.13E-03	2.36E-03	1.20E-03	1.03E-03	Bq/L	NA	=
^{238}Pu	2.36E-04	5.79E-04	2.95E-04	3.94E-04	Bq/L	NA	U
$^{239/240}Pu$	4.72E-05	3.59E-04	1.83E-04	3.89E-04	Bq/L	NA	U
^{241}Am	2.25E-04	5.28E-04	2.69E-04	5.01E-04	Bq/L	NA	U
^{90}Sr	-2.82E-02	3.84E-02	1.96E-02	5.15E-03	Bq/L	NA	U
^{40}K	1.79E+01	4.69E+00	2.39E+00	5.80E+00	Bq/L	0.990	=
^{60}Co	2.49E-02	5.08E-01	2.59E-01	5.61E-01	Bq/L	0.000	U
^{137}Cs	-5.90E-01	5.65E-01	2.88E-01	5.91E-01	Bq/L	0.000	U

ISOTOPE	2 σ TPU	/	1.96 =	1 σ TPU
^{40}K	4.69E+00	/	1.96	2.39E+00
^{60}Co	5.08E-01	/	1.96	2.59E-01
^{137}Cs	5.65E-01	/	1.96	2.88E-01

SDG 2007-245

MK 5-21-07
Data Input by Date

N Whitford 5-22-07
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: 2007-245
Batch: SP07-4-010
Client: Environmental Monitoring
Lab Id: C2023
Client Id: EC-SWL-20070417-13.16
Matrix: Sewage
Collect Date: 4/17/2007
Collect Time: 10:09

* = SP07-4-019

ISOTOPE	Activity	2 σ TPU	1 σ TPU	MDC	Units	ID Confidence	Qualifier
$^{233/234}U$ *	8.15E-03	4.00E-03	2.04E-03	1.74E-03	Bq/L	NA	=
^{235}U *	6.29E-04	8.44E-04	4.30E-04	7.68E-04	Bq/L	NA	U
^{238}U *	2.28E-03	1.68E-03	8.58E-04	1.03E-03	Bq/L	NA	=
^{238}Pu	-2.37E-04	3.83E-04	1.96E-04	4.47E-04	Bq/L	NA	U
$^{239/240}Pu$	9.15E-05	3.78E-04	1.93E-04	4.42E-04	Bq/L	NA	U
^{241}Am	-5.41E-05	3.82E-04	1.95E-04	4.87E-04	Bq/L	NA	U
^{90}Sr	-1.19E-02	3.25E-02	1.66E-02	4.39E-03	Bq/L	NA	U
^{40}K	4.19E+01	6.57E+00	3.35E+00	3.57E+00	Bq/L	0.994	=
^{60}Co	2.73E-01	2.49E-01	1.27E-01	3.16E-01	Bq/L	0.000	U
^{137}Cs	-1.10E-01	2.28E-01	1.16E-01	2.55E-01	Bq/L	0.000	U

ISOTOPE	2 σ TPU	/	1.96 =	1 σ TPU
^{40}K	6.57E+00	/	1.96	3.35E+00
^{60}Co	2.49E-01	/	1.96	1.27E-01
^{137}Cs	2.28E-01	/	1.96	1.16E-01

MK 5-21-07
Data Input by Date

MWhitford 5-22-07
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: 2007-245
Batch: SP07-4-010
Client: Environmental Monitoring
Lab Id: C2024
Client Id: EC-SWL-20070417-14.16
Matrix: Sewage
Collect Date: 4/17/2007
Collect Time: 8:05

* = SP07-4-019

ISOTOPE	Activity	2 σ TPU	1 σ TPU	MDC	Units	ID Confidence	Qualifier
$^{233/234}U$ *	1.00E-02	4.16E-03	2.12E-03	1.66E-03	Bq/L	NA	=
^{235}U *	-7.22E-05	2.32E-04	1.19E-04	6.70E-04	Bq/L	NA	U
^{238}U *	7.09E-03	3.14E-03	1.60E-03	9.53E-04	Bq/L	NA	=
^{238}Pu	2.89E-04	1.16E-03	5.91E-04	9.15E-04	Bq/L	NA	U
$^{239/240}Pu$	5.90E-04	9.79E-04	5.00E-04	9.09E-04	Bq/L	NA	U
^{241}Am	2.22E-04	4.64E-04	2.37E-04	4.65E-04	Bq/L	NA	U
^{90}Sr	7.49E-03	3.60E-02	1.84E-02	4.78E-03	Bq/L	NA	U
^{40}K	1.09E+01	4.93E+00	2.52E+00	5.81E+00	Bq/L	0.000	U
^{60}Co	6.62E-03	4.99E-01	2.55E-01	5.51E-01	Bq/L	0.000	U
^{137}Cs	-8.84E-02	2.67E-01	1.36E-01	5.76E-01	Bq/L	0.000	U

ISOTOPE	2 σ TPU	/	1.96 =	1 σ TPU
^{40}K	4.93E+00	/	1.96	2.52E+00
^{60}Co	4.99E-01	/	1.96	2.55E-01
^{137}Cs	2.67E-01	/	1.96	1.36E-01

MK 5-21-07
Data Input by Date

MKWhitehead 5-22-07
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: 2007-245
Batch: SP07-4-010
Client: Environmental Monitoring
Lab Id: C2025
Client Id: EC-SWL-20070417-15.16
Matrix: Sewage
Collect Date: 4/17/2007
Collect Time: 10:40

* = SP07-4-019

ISOTOPE	Activity	2 σ TPU	1 σ TPU	MDC	Units	ID Confidence	Qualifier
$^{233/234}U$ *	1.06E-03	1.12E-03	5.72E-04	1.79E-03	Bq/L	NA	U
^{235}U *	4.40E-04	7.53E-04	3.84E-04	8.24E-04	Bq/L	NA	U
^{238}U *	7.39E-05	5.05E-04	2.58E-04	1.08E-03	Bq/L	NA	U
^{238}Pu	-1.41E-04	2.72E-04	1.39E-04	3.79E-04	Bq/L	NA	U
$^{239/240}Pu$	-8.17E-05	2.07E-04	1.06E-04	3.74E-04	Bq/L	NA	U
^{241}Am	-3.60E-06	3.05E-04	1.55E-04	4.44E-04	Bq/L	NA	U
^{90}Sr	5.23E-03	3.93E-02	2.00E-02	5.04E-03	Bq/L	NA	U
^{40}K	6.73E+02	8.71E+01	4.44E+01	3.80E+00	Bq/L	0.998	=
^{60}Co	3.95E-01	4.82E-01	2.46E-01	5.60E-01	Bq/L	0.000	U
^{137}Cs	-5.59E-02	3.27E-01	1.67E-01	3.77E-01	Bq/L	0.000	U

ISOTOPE	2 σ TPU	/	1.96 =	1 σ TPU
^{40}K	8.71E+01	/	1.96	4.44E+01
^{60}Co	4.82E-01	/	1.96	2.46E-01
^{137}Cs	3.27E-01	/	1.96	1.67E-01

MK 5-21-07
Data Input by Date

MWhitford 5-22-07
Input Verified by Date

SECTION 4

SAMPLE RESULT SUMMARY

SDG: 2007-245
Batch: SP07-4-010
Client: Environmental Monitoring
Lab Id: C2026
Client Id: EC-SWL-20070417-16.16
Matrix: Sewage
Collect Date: 4/17/2007
Collect Time: 9:16

* = SP07-4-019

ISOTOPE	Activity	2 σ TPU	1 σ TPU	MDC	Units	ID Confidence	Qualifier
$^{233/234}U$ *	2.41E-04	4.55E-04	2.32E-04	1.64E-03	Bq/L	NA	U
^{235}U *	2.29E-04	5.99E-04	3.06E-04	6.44E-04	Bq/L	NA	U
^{238}U *	7.01E-04	7.02E-04	3.58E-04	9.32E-04	Bq/L	NA	U
^{238}Pu	-8.32E-05	2.23E-04	1.14E-04	4.33E-04	Bq/L	NA	U
$^{239/240}Pu$	9.87E-05	3.58E-04	1.82E-04	4.28E-04	Bq/L	NA	U
^{241}Am	1.57E-04	3.35E-04	1.71E-04	4.39E-04	Bq/L	NA	U
^{90}Sr	-1.66E-02	2.93E-02	1.50E-02	4.12E-03	Bq/L	NA	U
^{40}K	2.57E+00	2.77E+00	1.41E+00	3.41E+00	Bq/L	0.000	U
^{60}Co	-1.27E-01	2.71E-01	1.38E-01	2.88E-01	Bq/L	0.000	U
^{137}Cs	1.14E-01	2.07E-01	1.06E-01	2.53E-01	Bq/L	0.000	U

ISOTOPE	2 σ TPU	/	1.96 =-	1 σ TPU
^{40}K	2.77E+00	/	1.96	1.41E+00
^{60}Co	2.71E-01	/	1.96	1.38E-01
^{137}Cs	2.07E-01	/	1.96	1.06E-01

SECTION 5A

QUALITY ASSURANCE SUMMARY

LABORATORY CONTROL SAMPLES

SDG 2007-245

5

03931

MK 5-19-07
Data Input by Date

JKWhiteford 5-22-07
Input Verified by Date

SECTION 5A

REAGENT LABORATORY CONTROL SAMPLE SUMMARY

SDG: 2007-245
Batch: SP07-4-010 * = SP07-4-019
Client: Environmental Monitoring
Lab Id: RLCS
Matrix: Water Acceptable Limits: 80 - 120 %

DESTRUCTIVE ANALYSIS

Isotope	Aliquot	Activity pCi/g	2 σ TPU	MDC	Standard ID	Added pCi/g	% Recovery
$^{233/234}U$	0.1100	4.372E+00	1.633E+00	9.206E-02	MP1-009	4.270E+00	102
^{238}U	0.1100	4.619E+00	1.718E+00	7.277E-02	MP1-009	4.300E+00	107
$^{239/240}Pu$	0.1173	4.266E+00	4.929E-01	3.440E-02	SP1-006	5.140E+00	83
^{241}Am	0.1076	4.118E+00	9.038E-01	5.050E-02	SP1-0003	4.640E+00	89
^{90}Sr	0.4748	3.536E+01	3.059E+00	1.166E-01	SP2-095	3.509E+01	101

GAMMA

Water	Count Date	5/5/2007	Det#	GAM002-2			
Isotope	Aliquot	Activity pCi/g*	2 σ TPU	MDC	Standard ID	Added pCi/g*	% Recovery
^{60}Co	1.0	5.21E+04	6.51E+03	5.80E+01	SP2-081	5.219E+04	100
^{137}Cs	1.0	3.10E+04	3.88E+03	2.84E+01	SP2-081	3.200E+04	97

*Gamma LCS SP2-081 results reported in pCi/Sample.

Attachment 2

Laboratory Data Sheets for WQSP 6a

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

Lab Name: TraceAnalysis, Inc.

SDG No.: 7030720

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 03/07/07

WIPP Round No.	24
WIPP Well No.	6A

Concentration Units (mg/L or mg/Kg dry weight): mg/L

WIPP Sample No.	Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
WQ6ADLR24N8	T118242		Alkalinity	102		3/9/2007	SM 2320 B	4.0
WQ6ADLR24N8	T118242	7782-50-5	Chloride	484		3/8/2007	300.0	2.0
WQ6ADLR24N8	T118242		Density	1.00		3/7/2007	ASTM D 854-92	N/A
WQ6ADLR24N8	T118242	7727-37-9	Nitrate (as N)	5.79		3/8/2007	353.3	0.10
WQ6ADLR24N8	T118242		pH	7.09		3/7/2007	150.1	4-10
WQ6ADLR24N8	T118242		Conductivity	4102		3/7/2007	SM2510B	
WQ6ADLR24N8	T118242		Sulfate	2170		3/8/2007	300.0	2
WQ6ADLR24N8	T118242		Total Dissolved Solids (TDS)	3355		3/9/2007	160.1	10
WQ6ADLR24N5	T118236		Total Organic Carbon (TOC)	1.0	U	3/14/2007	415.1	1.0
WQ6ADLR24N4	T118234		Total Organic Halogen (TOX)	0.06	U	3/21/2007	5320B/9020B	0.06
WQ6ADLR24N8	T118242		Total Suspended Solids (TSS)	1.0	U	3/12/2007	160.2	1.0

(Density reported in g/mL, pH reported in s.u., Conductivity reported in uMHOs/cm, all other analytes reported in mg/L)

(pH ran as soon as received in laboratory)

Comments:

TOX ran by STL

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WQ6ADLR24N7

Lab Name: TraceAnalysis, Inc.

SDG No.: 7030720

Matrix (soil/water): Water

Lab Sample ID: Tt118240

Date Received: 03/07/07

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Analysis Date	Q	RL	M
7440-36-0	Antimony	0.013	U	03/09/07		0.013	P
7440-38-2	Arsenic	0.1	U	03/09/07		0.1	P
7440-39-3	Barium	0.02	U	03/09/07		0.02	P
7440-41-7	Beryllium	0.010	U	03/09/07		0.010	P
7440-43-9	Cadmium	0.010	U	03/09/07		0.010	P
7440-47-3	Chromium	0.025	U	03/09/07		0.025	P
7439-89-6	Iron	0.500	U	03/09/07		0.500	P
7439-92-1	Lead	0.02	U	03/09/07		0.02	P
7439-97-6	Mercury	0.0002	U	03/14/07		0.0002	CV
7440-02-0	Nickel	0.031		03/09/07		0.025	P
7782-49-2	Selenium	0.025	U	03/09/07		0.025	P
7440-22-4	Silver	0.013	U	03/09/07		0.013	P
7440-28-0	Thallium	0.040		03/09/07		0.025	P
7440-62-2	Vanadium	0.0560		03/09/07		0.05	P

Comments:

FORM I - IN

Attachment 3

Laboratory Data Summary Sheets for Subsurface Shallow Water Wells

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 | Lubbock, Texas 79424 | 800•378•1296 | 806•794•1296 | FAX 806•794•1298
200 East Sunset Road, Suite E | El Paso, Texas 79922 | 888•588•3443 | 915•585•3443 | FAX 915•585•4944
5002 Basin Street, Suite A1 | Midland, Texas 79703 | | 432•689•6301 | FAX 432•689•6313
6015 Harris Parkway, Suite 110 | Ft Worth, Texas 76132 | | 817•201•5260 |
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

R. Salness
WRES
P.O.Box 2078
Carlsbad, NM, 88221-2078

Report Date: June 5, 2007

Work Order: 7051014

Project Number: 403436-5

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
123780	SSW PZ9 R 7 N1	water	2007-05-09	07:15	2007-05-10
123781	SSW PZ9 R 7 N	water	2007-05-09	07:15	2007-05-10
123782	SSW @ 2507 R7 N1	water	2007-05-09	09:00	2007-05-10
123783	SSW @ 2507 R7 N2	water	2007-05-09	09:00	2007-05-10
123784	SSW PZ1 R7 N1	water	2007-05-09	10:35	2007-05-10
123785	SSW PZ1 R7 N2	water	2007-05-09	10:35	2007-05-10
123786	SSWW PZ6 R7 N1	water	2007-05-09	11:13	2007-05-10
123787	SSWW PZ6 R7 N2	water	2007-05-09	11:13	2007-05-10
123788	SSW PZ 5R 7N1	water	2007-05-09	11:50	2007-05-10
123789	SSW PZ 5R 7N2	water	2007-05-09	11:50	2007-05-10
123790	SSW PZ5 R7 N1D	water	2007-05-09	11:50	2007-05-10
123791	SSW PZ5 R7 N2D	water	2007-05-09	11:50	2007-05-10
123792	SSW PZ5R 7N1EB	water	2007-05-09	11:50	2007-05-10
123793	SSW PZ5R 7N1EB	water	2007-05-09	11:50	2007-05-10

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 22 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Standard Flags

B - The sample contains less than ten times the concentration found in the method blank.

Case Narrative

Samples for project were received by TraceAnalysis, Inc. on 2007-05-10 and assigned to work order 7051014. Samples for work order 7051014 were received intact at a temperature of 4 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method
Chloride (IC)	E 300.0
Cr, Total	S 6010B
NO3 (Spec)	SM 4500-NO3 E
Se, Total	S 6010B
SO4 (IC)	E 300.0
TDS	SM 2540C

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 7051014 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Analytical Report

Sample: 123780 - SSW PZ9 R 7 N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	37147	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32215	Sample Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		89600		mg/L	10000	0.500

Sample: 123780 - SSW PZ9 R 7 N1

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	37132	Date Analyzed:	2007-05-10	Analyzed By:	JS
Prep Batch:	32205	Sample Preparation:	2007-05-10	Prepared By:	SM

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		3.28		mg/L	25	0.100

Sample: 123780 - SSW PZ9 R 7 N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	37147	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32215	Sample Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		4320		mg/L	100	0.500

Sample: 123780 - SSW PZ9 R 7 N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	37469	Date Analyzed:	2007-05-24	Analyzed By:	ER
Prep Batch:	32492	Sample Preparation:	2007-05-16	Prepared By:	ER

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		164000		mg/L	500	10.00

Sample: 123781 - SSW PZ9 R 7 N

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	37186	Date Analyzed:	2007-05-14	Analyzed By:	RR
Prep Batch:	32217	Sample Preparation:	2007-05-11	Prepared By:	TS

Parameter	Flag	RL Result	Units	Dilution	RL
Total Chromium		<0.0250	mg/L	5	0.00500

Sample: 123781 - SSW PZ9 R 7 N

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	37186	Date Analyzed:	2007-05-14	Analyzed By:	RR
Prep Batch:	32217	Sample Preparation:	2007-05-11	Prepared By:	TS

Parameter	Flag	RL Result	Units	Dilution	RL
Total Selenium		<0.0500	mg/L	5	0.0100

Sample: 123782 - SSW @ 2507 R7 N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	37147	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32215	Sample Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		3060	mg/L	500	0.500

Sample: 123782 - SSW @ 2507 R7 N1

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	37132	Date Analyzed:	2007-05-10	Analyzed By:	JS
Prep Batch:	32205	Sample Preparation:	2007-05-10	Prepared By:	SM

Parameter	Flag	RL Result	Units	Dilution	RL
Nitrate-N		6.62	mg/L	25	0.100

Sample: 123782 - SSW @ 2507 R7 N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	37147	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32215	Sample Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		1110	mg/L	50	0.500

Sample: 123782 - SSW @ 2507 R7 N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	37469	Date Analyzed:	2007-05-24	Analyzed By:	ER
Prep Batch:	32492	Sample Preparation:	2007-05-16	Prepared By:	ER

Parameter	Flag	Result	RL Units	Dilution	RL
Total Dissolved Solids		5485	mg/L	5	10.00

Sample: 123783 - SSW @ 2507 R7 N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	37186	Date Analyzed:	2007-05-14	Analyzed By:	RR
Prep Batch:	32217	Sample Preparation:	2007-05-11	Prepared By:	TS

Parameter	Flag	Result	RL Units	Dilution	RL
Total Chromium		<0.0250	mg/L	5	0.00500

Sample: 123783 - SSW @ 2507 R7 N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	37186	Date Analyzed:	2007-05-14	Analyzed By:	RR
Prep Batch:	32217	Sample Preparation:	2007-05-11	Prepared By:	TS

Parameter	Flag	Result	RL Units	Dilution	RL
Total Selenium		<0.0500	mg/L	5	0.0100

Sample: 123784 - SSW PZ1 R7 N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	37147	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32215	Sample Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		63000	mg/L	10000	0.500

Sample: 123784 - SSW PZ1 R7 N1

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	37132	Date Analyzed:	2007-05-10	Analyzed By:	JS
Prep Batch:	32205	Sample Preparation:	2007-05-10	Prepared By:	SM

Parameter	Flag	Result	RL Units	Dilution	RL
Nitrate-N		2.70	mg/L	10	0.100

Sample: 123784 - SSW PZ1 R7 N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	37147	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32215	Sample Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		2220		mg/L	100	0.500

Sample: 123784 - SSW PZ1 R7 N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	37469	Date Analyzed:	2007-05-24	Analyzed By:	ER
Prep Batch:	32492	Sample Preparation:	2007-05-16	Prepared By:	ER

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		107000		mg/L	500	10.00

Sample: 123785 - SSW PZ1 R7 N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	37186	Date Analyzed:	2007-05-14	Analyzed By:	RR
Prep Batch:	32217	Sample Preparation:	2007-05-11	Prepared By:	TS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.0250		mg/L	5	0.00500

Sample: 123785 - SSW PZ1 R7 N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	37186	Date Analyzed:	2007-05-14	Analyzed By:	RR
Prep Batch:	32217	Sample Preparation:	2007-05-11	Prepared By:	TS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		<0.0500		mg/L	5	0.0100

Sample: 123786 - SSWW PZ6 R7 N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	37164	Date Analyzed:	2007-05-11	Analyzed By:	ER
Prep Batch:	32242	Sample Preparation:	2007-05-11	Prepared By:	ER

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		73500		mg/L	10000	0.500

Sample: 123786 - SSWW PZ6 R7 N1

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	37132	Date Analyzed:	2007-05-10	Analyzed By:	JS
Prep Batch:	32205	Sample Preparation:	2007-05-10	Prepared By:	SM

Parameter	Flag	Result	RL Units	Dilution	RL
Nitrate-N		6.65	mg/L	25	0.100

Sample: 123786 - SSWW PZ6 R7 N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	37164	Date Analyzed:	2007-05-11	Analyzed By:	ER
Prep Batch:	32242	Sample Preparation:	2007-05-11	Prepared By:	ER

Parameter	Flag	Result	RL Units	Dilution	RL
Sulfate		2840	mg/L	100	0.500

Sample: 123786 - SSWW PZ6 R7 N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	37469	Date Analyzed:	2007-05-24	Analyzed By:	ER
Prep Batch:	32492	Sample Preparation:	2007-05-16	Prepared By:	ER

Parameter	Flag	Result	RL Units	Dilution	RL
Total Dissolved Solids		122500	mg/L	500	10.00

Sample: 123787 - SSWW PZ6 R7 N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	37186	Date Analyzed:	2007-05-14	Analyzed By:	RR
Prep Batch:	32217	Sample Preparation:	2007-05-11	Prepared By:	TS

Parameter	Flag	Result	RL Units	Dilution	RL
Total Chromium		<0.0250	mg/L	5	0.00500

Sample: 123787 - SSWW PZ6 R7 N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	37186	Date Analyzed:	2007-05-14	Analyzed By:	RR
Prep Batch:	32217	Sample Preparation:	2007-05-11	Prepared By:	TS

Parameter	Flag	Result	RL Units	Dilution	RL
Total Selenium		<0.0500	mg/L	5	0.0100

Sample: 123788 - SSW PZ 5R 7N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	37147	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32215	Sample Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		17300		mg/L	1000	0.500

Sample: 123788 - SSW PZ 5R 7N1

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	37132	Date Analyzed:	2007-05-10	Analyzed By:	JS
Prep Batch:	32205	Sample Preparation:	2007-05-10	Prepared By:	SM

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		4.60		mg/L	25	0.100

Sample: 123788 - SSW PZ 5R 7N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	37147	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32215	Sample Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		1640		mg/L	100	0.500

Sample: 123788 - SSW PZ 5R 7N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	37469	Date Analyzed:	2007-05-24	Analyzed By:	ER
Prep Batch:	32492	Sample Preparation:	2007-05-16	Prepared By:	ER

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		32400		mg/L	200	10.00

Sample: 123789 - SSW PZ 5R 7N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	37186	Date Analyzed:	2007-05-14	Analyzed By:	RR
Prep Batch:	32217	Sample Preparation:	2007-05-11	Prepared By:	TS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.0250		mg/L	5	0.00500

Sample: 123789 - SSW PZ 5R 7N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	37186	Date Analyzed:	2007-05-14	Analyzed By:	RR
Prep Batch:	32217	Sample Preparation:	2007-05-11	Prepared By:	TS

Parameter	Flag	Result	RL Units	Dilution	RL
Total Selenium		<0.0500	mg/L	5	0.0100

Sample: 123790 - SSW PZ5 R7 N1D

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	37164	Date Analyzed:	2007-05-11	Analyzed By:	ER
Prep Batch:	32242	Sample Preparation:	2007-05-11	Prepared By:	ER

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		17800	mg/L	1000	0.500

Sample: 123790 - SSW PZ5 R7 N1D

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	37132	Date Analyzed:	2007-05-10	Analyzed By:	JS
Prep Batch:	32205	Sample Preparation:	2007-05-10	Prepared By:	SM

Parameter	Flag	Result	RL Units	Dilution	RL
Nitrate-N		4.75	mg/L	25	0.100

Sample: 123790 - SSW PZ5 R7 N1D

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	37164	Date Analyzed:	2007-05-11	Analyzed By:	ER
Prep Batch:	32242	Sample Preparation:	2007-05-11	Prepared By:	ER

Parameter	Flag	Result	RL Units	Dilution	RL
Sulfate		1640	mg/L	100	0.500

Sample: 123790 - SSW PZ5 R7 N1D

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	37469	Date Analyzed:	2007-05-24	Analyzed By:	ER
Prep Batch:	32492	Sample Preparation:	2007-05-16	Prepared By:	ER

Parameter	Flag	Result	RL Units	Dilution	RL
Total Dissolved Solids		32250	mg/L	50	10.00

Sample: 123791 - SSW PZ5 R7 N2D

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	37186	Date Analyzed:	2007-05-14	Analyzed By:	RR
Prep Batch:	32217	Sample Preparation:	2007-05-11	Prepared By:	TS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.0250		mg/L	5	0.00500

Sample: 123791 - SSW PZ5 R7 N2D

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	37186	Date Analyzed:	2007-05-14	Analyzed By:	RR
Prep Batch:	32217	Sample Preparation:	2007-05-11	Prepared By:	TS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		<0.0500		mg/L	5	0.0100

Sample: 123792 - SSW PZ5R 7N1EB

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	37164	Date Analyzed:	2007-05-11	Analyzed By:	ER
Prep Batch:	32242	Sample Preparation:	2007-05-11	Prepared By:	ER

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		6.68		mg/L	1	0.500

Sample: 123792 - SSW PZ5R 7N1EB

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	37132	Date Analyzed:	2007-05-10	Analyzed By:	JS
Prep Batch:	32205	Sample Preparation:	2007-05-10	Prepared By:	SM

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		0.524		mg/L	5	0.100

Sample: 123792 - SSW PZ5R 7N1EB

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	37164	Date Analyzed:	2007-05-11	Analyzed By:	ER
Prep Batch:	32242	Sample Preparation:	2007-05-11	Prepared By:	ER

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		1.60		mg/L	1	0.500

Sample: 123792 - SSW PZ5R 7N1EB

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	37774	Date Analyzed:	2007-06-01	Analyzed By:	ER
Prep Batch:	32727	Sample Preparation:	2007-05-25	Prepared By:	ER

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		24.00	mg/L	1	10.00

Sample: 123793 - SSW PZ5R 7N1EB

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	37186	Date Analyzed:	2007-05-14	Analyzed By:	RR
Prep Batch:	32217	Sample Preparation:	2007-05-11	Prepared By:	TS

Parameter	Flag	RL Result	Units	Dilution	RL
Total Chromium		<0.0250	mg/L	5	0.00500

Sample: 123793 - SSW PZ5R 7N1EB

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	37186	Date Analyzed:	2007-05-14	Analyzed By:	RR
Prep Batch:	32217	Sample Preparation:	2007-05-11	Prepared By:	TS

Parameter	Flag	RL Result	Units	Dilution	RL
Total Selenium		<0.0500	mg/L	5	0.0100

Method Blank (1) QC Batch: 37132

QC Batch:	37132	Date Analyzed:	2007-05-10	Analyzed By:	JS
Prep Batch:	32205	QC Preparation:	2007-05-10	Prepared By:	JS

Parameter	Flag	MDL Result	Units	RL
Nitrate-N		<0.0124	mg/L	0.1

Method Blank (1) QC Batch: 37147

QC Batch:	37147	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32215	QC Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.172	mg/L	0.5

Method Blank (1) QC Batch: 37147

QC Batch:	37147	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32215	QC Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	MDL Result	Units	RL
Sulfate		<0.777	mg/L	0.5

Method Blank (1) QC Batch: 37164

QC Batch:	37164	Date Analyzed:	2007-05-11	Analyzed By:	ER
Prep Batch:	32242	QC Preparation:	2007-05-11	Prepared By:	ER

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.172	mg/L	0.5

Method Blank (1) QC Batch: 37164

QC Batch:	37164	Date Analyzed:	2007-05-11	Analyzed By:	ER
Prep Batch:	32242	QC Preparation:	2007-05-11	Prepared By:	ER

Parameter	Flag	MDL Result	Units	RL
Sulfate		<0.777	mg/L	0.5

Method Blank (1) QC Batch: 37186

QC Batch:	37186	Date Analyzed:	2007-05-14	Analyzed By:	RR
Prep Batch:	32217	QC Preparation:	2007-05-11	Prepared By:	TS

Parameter	Flag	MDL Result	Units	RL
Total Chromium		<0.000900	mg/L	0.005

Method Blank (1) QC Batch: 37186

QC Batch:	37186	Date Analyzed:	2007-05-14	Analyzed By:	RR
Prep Batch:	32217	QC Preparation:	2007-05-11	Prepared By:	TS

Parameter	Flag	MDL Result	Units	RL
Total Selenium		<0.0131	mg/L	0.01

Method Blank (1) QC Batch: 37469

QC Batch:	37469	Date Analyzed:	2007-05-24	Analyzed By:	ER
Prep Batch:	32492	QC Preparation:	2007-05-16	Prepared By:	ER

Parameter	Flag	MDL Result	Units	RL
Total Dissolved Solids		<5.000	mg/L	10

Method Blank (1) QC Batch: 37774

QC Batch:	37774	Date Analyzed:	2007-06-01	Analyzed By:	ER
Prep Batch:	32727	QC Preparation:	2007-05-25	Prepared By:	ER

Parameter	Flag	MDL Result	Units	RL
Total Dissolved Solids		<5.000	mg/L	10

Duplicates (1)

QC Batch:	37469	Date Analyzed:	2007-05-24	Analyzed By:	ER
Prep Batch:	32492	QC Preparation:	2007-05-16	Prepared By:	ER

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	5210	5485	mg/L	5	5	17.2

Duplicates (1)

QC Batch:	37774	Date Analyzed:	2007-06-01	Analyzed By:	ER
Prep Batch:	32727	QC Preparation:	2007-05-25	Prepared By:	ER

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	21.00	24.00	mg/L	1	13	17.2

Laboratory Control Spike (LCS-1)

QC Batch:	37132	Date Analyzed:	2007-05-10	Analyzed By:	JS
Prep Batch:	32205	QC Preparation:	2007-05-10	Prepared By:	JS

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Nitrate-N	0.144	mg/L	1	0.160	<0.0124	90	81.9 - 124

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Nitrate-N	0.146	mg/L	1	0.160	<0.0124	91	81.9 - 124	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 37147 Date Analyzed: 2007-05-10 Analyzed By: ER
Prep Batch: 32215 QC Preparation: 2007-05-10 Prepared By: ER

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	12.2	mg/L	1	12.5	<0.172	98	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	12.3	mg/L	1	12.5	<0.172	98	90 - 110	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 37147 Date Analyzed: 2007-05-10 Analyzed By: ER
Prep Batch: 32215 QC Preparation: 2007-05-10 Prepared By: ER

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	12.5	mg/L	1	12.5	<0.777	100	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate	12.7	mg/L	1	12.5	<0.777	102	90 - 110	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 37164 Date Analyzed: 2007-05-11 Analyzed By: ER
Prep Batch: 32242 QC Preparation: 2007-05-11 Prepared By: ER

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	12.2	mg/L	1	12.5	<0.172	98	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	12.3	mg/L	1	12.5	<0.172	98	90 - 110	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 37164 Date Analyzed: 2007-05-11 Analyzed By: ER
Prep Batch: 32242 QC Preparation: 2007-05-11 Prepared By: ER

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	12.2	mg/L	1	12.5	<0.777	98	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate	12.6	mg/L	1	12.5	<0.777	101	90 - 110	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 37186 Date Analyzed: 2007-05-14 Analyzed By: RR
Prep Batch: 32217 QC Preparation: 2007-05-11 Prepared By: TS

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Chromium	0.0990	mg/L	1	0.100	<0.000900	99	86.5 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Chromium	0.0910	mg/L	1	0.100	<0.000900	91	86.5 - 115	8	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 37186 Date Analyzed: 2007-05-14 Analyzed By: RR
Prep Batch: 32217 QC Preparation: 2007-05-11 Prepared By: TS

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Selenium	0.549	mg/L	1	0.500	<0.0131	110	70.2 - 111

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Selenium	0.553	mg/L	1	0.500	<0.0131	111	70.2 - 111	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 123792

QC Batch: 37132 Date Analyzed: 2007-05-10 Analyzed By: JS
Prep Batch: 32205 QC Preparation: 2007-05-10 Prepared By: JS

Param		MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Nitrate-N	[1]	0.205	mg/L	5	0.800	0.524	-38	32.8 - 167

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param		MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Nitrate-N	[2]	0.174	mg/L	5	0.800	0.524	-42	32.8 - 167	16	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 123782

QC Batch: 37147 Date Analyzed: 2007-05-10 Analyzed By: ER
Prep Batch: 32215 QC Preparation: 2007-05-10 Prepared By: ER

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	8970	mg/L	500	6250	3062.07	94	10 - 188

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	8920	mg/L	500	6250	3062.07	94	10 - 188	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 123782

QC Batch: 37147 Date Analyzed: 2007-05-10 Analyzed By: ER
Prep Batch: 32215 QC Preparation: 2007-05-10 Prepared By: ER

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	7330	mg/L	500	6250	1112.91	99	83.1 - 114

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate	7480	mg/L	500	6250	1112.91	102	83.1 - 114	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 123792

QC Batch: 37164 Date Analyzed: 2007-05-11 Analyzed By: ER
Prep Batch: 32242 QC Preparation: 2007-05-11 Prepared By: ER

[1]Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.
[2]Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	20.0	mg/L	1	12.5	6.6766	106	10 - 188

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	18.8	mg/L	1	12.5	6.6766	97	10 - 188	6	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 123792

QC Batch: 37164 Date Analyzed: 2007-05-11 Analyzed By: ER
Prep Batch: 32242 QC Preparation: 2007-05-11 Prepared By: ER

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	12.8	mg/L	1	12.5	1.5988	90	83.1 - 114

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate	12.8	mg/L	1	12.5	1.5988	90	83.1 - 114	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 123781

QC Batch: 37186 Date Analyzed: 2007-05-14 Analyzed By: RR
Prep Batch: 32217 QC Preparation: 2007-05-11 Prepared By: TS

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Chromium [3]	0.321	mg/L	5	0.500	<0.00450	64	66.2 - 121

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Chromium [4]	0.304	mg/L	5	0.500	<0.00450	61	66.2 - 121	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 123781

QC Batch: 37186 Date Analyzed: 2007-05-14 Analyzed By: RR
Prep Batch: 32217 QC Preparation: 2007-05-11 Prepared By: TS

[3]Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.
[4]Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Selenium	1.68	mg/L	5	2.50	<0.0655	67	64.3 - 111

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param		MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Selenium	[5]	1.41	mg/L	5	2.50	<0.0655	56	64.3 - 111	18	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1)

QC Batch: 37132 Date Analyzed: 2007-05-10 Analyzed By: JS

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	0.160	0.139	87	85 - 115	2007-05-10

Standard (CCV-1)

QC Batch: 37132 Date Analyzed: 2007-05-10 Analyzed By: JS

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	0.160	0.157	98	85 - 115	2007-05-10

Standard (ICV-1)

QC Batch: 37147 Date Analyzed: 2007-05-10 Analyzed By: ER

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.2	98	90 - 110	2007-05-10

Standard (ICV-1)

QC Batch: 37147 Date Analyzed: 2007-05-10 Analyzed By: ER

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.7	102	90 - 110	2007-05-10

Standard (CCV-1)

QC Batch: 37147 Date Analyzed: 2007-05-10 Analyzed By: ER

[5]MSD analyte out of range. MS/MSD has a RPD within limits. Therfore, MS shows extraction occured properly.

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.2	98	90 - 110	2007-05-10

Standard (CCV-1)

QC Batch: 37147 Date Analyzed: 2007-05-10 Analyzed By: ER

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.6	101	90 - 110	2007-05-10

Standard (ICV-1)

QC Batch: 37164 Date Analyzed: 2007-05-11 Analyzed By: ER

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	13.1	105	90 - 110	2007-05-11

Standard (ICV-1)

QC Batch: 37164 Date Analyzed: 2007-05-11 Analyzed By: ER

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.5	100	90 - 110	2007-05-11

Standard (CCV-1)

QC Batch: 37164 Date Analyzed: 2007-05-11 Analyzed By: ER

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.2	98	90 - 110	2007-05-11

Standard (CCV-1)

QC Batch: 37164 Date Analyzed: 2007-05-11 Analyzed By: ER

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.6	101	90 - 110	2007-05-11

Standard (ICV-1)

QC Batch: 37186 Date Analyzed: 2007-05-14 Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		mg/L	1.00	1.02	102	90 - 110	2007-05-14

Standard (ICV-1)

QC Batch: 37186 Date Analyzed: 2007-05-14 Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1.00	0.994	99	90 - 110	2007-05-14

Standard (CCV-1)

QC Batch: 37186 Date Analyzed: 2007-05-14 Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		mg/L	1.00	1.06	106	90 - 110	2007-05-14

Standard (CCV-1)

QC Batch: 37186 Date Analyzed: 2007-05-14 Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1.00	1.01	101	90 - 110	2007-05-14

Standard (ICV-1)

QC Batch: 37469 Date Analyzed: 2007-05-24 Analyzed By: ER

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	983.0	98	90 - 110	2007-05-24

Standard (CCV-1)

QC Batch: 37469 Date Analyzed: 2007-05-24 Analyzed By: ER

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	953.0	95	90 - 110	2007-05-24

Standard (ICV-1)

QC Batch: 37774 Date Analyzed: 2007-06-01 Analyzed By: ER

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1003	100	90 - 110	2007-06-01

Standard (CCV-1)

QC Batch: 37774 Date Analyzed: 2007-06-01 Analyzed By: ER

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	992.0	99	90 - 110	2007-06-01

7651017

CHAIN-OF-CUSTODY RECORD

C of C Control № 6467

RFA Control № 6467

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

SAMPLING PROGRAM WIPP / SSWMP LAB DESTINATION Trace Analysis

SAMPLE TEAM MEMBERS R. Salazar, J. Neathery, P. Contreras CARRIER/WAYBILL NO.

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
SSWPZ9RTN1	PZ9, SSW	5/9/07; 0715	Groundwater	1 Liter Plastic x 1	COC 123780	
SSWPZ9RTN2	PZ9, SSW	5/9/07; 0715				81
SSWC2507AN1	C2507, SSW	5-9-07; 0900				82
SSWC2507AN2	C2507, SSW	5-9-07; 0900				83
SSWPZ1RTN1	PZ1, SSW	5-9-07; 1035				84
SSWPZ1RTN2	PZ1, SSW	5-9-07; 1035				85
SSWPZ6RTN1	PZ6, SSW	5-9-07; 1113				86
SSWPZ6RTN2	PZ6, SSW	5-9-07; 1113				87
SSWPZ5RTN1	PZ5, SSW	5-9-07, 1150				88
SSWPZ5RTN2	PZ5, SSW					89
SSWPZ5RTN1FD	PZ5, SSW					90
SSWPZ5RTN2D	PZ5, SSW		Groundwater			91
SSWPZ5RTN1EB	PZ5, SSW		EB			92
SSWPZ5RTN2EB	PZ5, SSW		EB	1 Liter Plastic X1		93

Special Instructions: NONE

Possible Sample Hazards: NONE

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: [signature] Intera 5/9/07 13:14
   Received By: Hallie Kuva WTS 5/9/07 13:14
2. Relinquished By: Hallie Kuva WTS 5/10/07 10:37
   Received By: [signature] 5/10/07 1037
3. Relinquished By:
   Received By:
4. Relinquished By:
   Received By:

WP 02-EM3001 WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

03959

REQUEST FOR ANALYSIS 5/10/07

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED 5/8/07 RAS 5/8/07 | QA Control No 6467

LAB DESTINATION Trace Analysis

LABORATORY CONTACT Mike Abel

SEND LAB REPORT TO Judy Lanier | C of C Control No 6467
P.O. BOX 2078
Carlsbad, NM 88221

DATE REPORT REQUIRED 5/8/07

PROJECT CONTACT Rick Salazar

PROJECT CONTACT PHONE NO. 505-234-8964

SAMPLING PROGRAM WIPP/SSWMP

PURCHASE ORDER NO. 403426-5

Sample Number	Sample Type	Sample Quantity	Preservative	Req't. Testing Program	Special Instructions
SSWPZ9RTN1	Groundwater	1 liter x 1	123780 NONE	Gen Chem	EPA 160.1, 300
SSWPZ9RTN2			81	Selenium, Chromium	Method 6010B
SSWC2507RTN1			82	Gen Chem	160.1, 300
SSWC2507RTN2			83	Se, Cr	6010B
SSWPZ1RTN1			84	Gen Chem	160.1, 300
SSWPZ1RTN2			85	Se, Cr	6010B
SSWPZ6RTN1			86	Gen Chem	160.1, 300
SSWPZ6RTN2			87	Se, Cr	6010B
SSWPZ5RTN1			88	Gen Chem	160.1, 300
SSWPZ5RTN2			89	Se, Cr	6010B
SSWPZ5RTN1D			90	Gen Chem	160.1, 300
SSWPZ5RTN2D	Groundwater		91	Se, Cr	6010B
SSWPZ5RTN1EB	FB		92	Gen Chem	160.1, 300
SSW PZ5RTN1EB	EB	1 liter x 1	93 NONE	Se, Cr	

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL _____ RUSH _____ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NONHAZARD X FLAMMABLE _____ SKIN IRRITANT _____ HIGHLY TOXIC _____ BIOLOGICAL _____ OTHER _____ (Specify)

* EPA 160.1 = TDS ONLY EPA 300 - Chloride, Sulfate and Nitrate ONLY

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT _____ DISPOSAL BY LAB X

FOR LAB USE ONLY

RECEIVED BY Trace Analysis DATE/TIME 5-10-07 1035

WP 02-EM3001 WHITE - Original to accompany sample YELLOW - Field copy PINK - Other

03960

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 | Lubbock, Texas 79424 | 800•378•1296 | 806•794•1296 | FAX 806•794•1298
200 East Sunset Road, Suite E | El Paso, Texas 79922 | 888•588•3443 | 915•585•3443 | FAX 915•585•4944
5002 Basin Street, Suite A1 | Midland, Texas 79703 | | 432•689•6301 | FAX 432•689•6313
6015 Harris Parkway, Suite 110 | Ft. Worth, Texas 76132 | | 817•201•5260 |
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

R. Salness
WRES
P.O.Box 2078
Carlsbad, NM, 88221-2078

Report Date: June 5, 2007

Work Order: 7050811

Project Number: TO403436-5

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
123580	SSWC2811R7N1	water	2007-05-07	08:30	2007-05-08
123581	SSWC2811R7N2	water	2007-05-07	08:30	2007-05-08
123582	SSWPZ12R7N1	water	2007-05-07	09:15	2007-05-08
123583	SSWPZ12R7N2	water	2007-05-07	09:15	2007-05-08
123584	SSWPZ10R7N1	water	2007-05-07	10:10	2007-05-08
123585	SSWPZ10R7N2	water	2007-05-07	10:10	2007-05-08
123586	SSWPZ7R7N1	water	2007-05-07	11:15	2007-05-08
123587	SSWPZ7R7N2	water	2007-05-07	12:48	2007-05-08
123588	SSWPZ11R7N1	water	2007-05-07	14:00	2007-05-08
123589	SSWPZ11R7N2	water	2007-05-07	14:00	2007-05-08
123590	SSWPZ11R7N1EB	water	2007-05-07	14:30	2007-05-08
123591	SSWPZ11R7N2EB	water	2007-05-07	14:30	2007-05-08

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 20 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Standard Flags

B - The sample contains less than ten times the concentration found in the method blank.

Case Narrative

Samples for project were received by TraceAnalysis, Inc. on 2007-05-08 and assigned to work order 7050811. Samples for work order 7050811 were received intact at a temperature of 4 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method
Chloride (IC)	E 300.0
Cr, Total	S 6010B
NO3 (Spec)	SM 4500-NO3 E
Se, Total	S 6010B
SO4 (IC)	E 300.0
TDS	SM 2540C

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 7050811 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Analytical Report

Sample: 123580 - SSWC2811R7N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	37142	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32212	Sample Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		1760		mg/L	100	0.500

Sample: 123580 - SSWC2811R7N1

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	37073	Date Analyzed:	2007-05-08	Analyzed By:	JS
Prep Batch:	32160	Sample Preparation:	2007-05-08	Prepared By:	JS

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		5.31		mg/L	25	0.100

Sample: 123580 - SSWC2811R7N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	37142	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32212	Sample Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		516		mg/L	100	0.500

Sample: 123580 - SSWC2811R7N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	37347	Date Analyzed:	2007-05-18	Analyzed By:	ER
Prep Batch:	32383	Sample Preparation:	2007-05-14	Prepared By:	JS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		4205		mg/L	5	10.00

Sample: 123581 - SSWC2811R7N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	37148	Date Analyzed:	2007-05-11	Analyzed By:	RR
Prep Batch:	32187	Sample Preparation:	2007-05-10	Prepared By:	TS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		0.0310		mg/L	2	0.00500

Sample: 123581 - SSWC2811R7N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	37148	Date Analyzed:	2007-05-11	Analyzed By:	RR
Prep Batch:	32187	Sample Preparation:	2007-05-10	Prepared By:	TS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		<0.0200		mg/L	2	0.0100

Sample: 123582 - SSWPZ12R7N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	37142	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32212	Sample Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		3780		mg/L	500	0.500

Sample: 123582 - SSWPZ12R7N1

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	37073	Date Analyzed:	2007-05-08	Analyzed By:	JS
Prep Batch:	32160	Sample Preparation:	2007-05-08	Prepared By:	JS

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		10.8		mg/L	50	0.100

Sample: 123582 - SSWPZ12R7N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	37142	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32212	Sample Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		831		mg/L	50	0.500

Sample: 123582 - SSWPZ12R7N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	37347	Date Analyzed:	2007-05-18	Analyzed By:	ER
Prep Batch:	32383	Sample Preparation:	2007-05-14	Prepared By:	JS

Parameter	Flag	Result	RL Units	Dilution	RL
Total Dissolved Solids		7010	mg/L	10	10.00

Sample: 123583 - SSWPZ12R7N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	37148	Date Analyzed:	2007-05-11	Analyzed By:	RR
Prep Batch:	32187	Sample Preparation:	2007-05-10	Prepared By:	TS

Parameter	Flag	Result	RL Units	Dilution	RL
Total Chromium		0.0240	mg/L	2	0.00500

Sample: 123583 - SSWPZ12R7N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	37148	Date Analyzed:	2007-05-11	Analyzed By:	RR
Prep Batch:	32187	Sample Preparation:	2007-05-10	Prepared By:	TS

Parameter	Flag	Result	RL Units	Dilution	RL
Total Selenium		<0.0200	mg/L	2	0.0100

Sample: 123584 - SSWPZ10R7N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	37145	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32214	Sample Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		274	mg/L	50	0.500

Sample: 123584 - SSWPZ10R7N1

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	37073	Date Analyzed:	2007-05-08	Analyzed By:	JS
Prep Batch:	32160	Sample Preparation:	2007-05-08	Prepared By:	JS

Parameter	Flag	Result	RL Units	Dilution	RL
Nitrate-N		14.8	mg/L	50	0.100

Sample: 123584 - SSWPZ10R7N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	37145	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32214	Sample Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	Result	RL Units	Dilution	RL
Sulfate		407	mg/L	50	0.500

Sample: 123584 - SSWPZ10R7N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	37347	Date Analyzed:	2007-05-18	Analyzed By:	ER
Prep Batch:	32383	Sample Preparation:	2007-05-14	Prepared By:	JS

Parameter	Flag	Result	RL Units	Dilution	RL
Total Dissolved Solids		1504	mg/L	2	10.00

Sample: 123585 - SSWPZ10R7N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	37148	Date Analyzed:	2007-05-11	Analyzed By:	RR
Prep Batch:	32187	Sample Preparation:	2007-05-10	Prepared By:	TS

Parameter	Flag	Result	RL Units	Dilution	RL
Total Chromium		0.0200	mg/L	2	0.00500

Sample: 123585 - SSWPZ10R7N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	37148	Date Analyzed:	2007-05-11	Analyzed By:	RR
Prep Batch:	32187	Sample Preparation:	2007-05-10	Prepared By:	TS

Parameter	Flag	Result	RL Units	Dilution	RL
Total Selenium		<0.0200	mg/L	2	0.0100

Sample: 123586 - SSWPZ7R7N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	37145	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32214	Sample Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		64800	mg/L	10000	0.500

Sample: 123586 - SSWPZ7R7N1

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	37073	Date Analyzed:	2007-05-08	Analyzed By:	JS
Prep Batch:	32160	Sample Preparation:	2007-05-08	Prepared By:	JS

Parameter	Flag	Result	RL Units	Dilution	RL
Nitrate-N		5.15	mg/L	25	0.100

Sample: 123586 - SSWPZ7R7N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	37145	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32214	Sample Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	Result	RL Units	Dilution	RL
Sulfate		3190	mg/L	100	0.500

Sample: 123586 - SSWPZ7R7N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	37347	Date Analyzed:	2007-05-18	Analyzed By:	ER
Prep Batch:	32383	Sample Preparation:	2007-05-14	Prepared By:	JS

Parameter	Flag	Result	RL Units	Dilution	RL
Total Dissolved Solids		119000	mg/L	500	10.00

Sample: 123587 - SSWPZ7R7N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	37148	Date Analyzed:	2007-05-11	Analyzed By:	RR
Prep Batch:	32187	Sample Preparation:	2007-05-10	Prepared By:	TS

Parameter	Flag	Result	RL Units	Dilution	RL
Total Chromium		0.0200	mg/L	2	0.00500

Sample: 123587 - SSWPZ7R7N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	37148	Date Analyzed:	2007-05-11	Analyzed By:	RR
Prep Batch:	32187	Sample Preparation:	2007-05-10	Prepared By:	TS

Parameter	Flag	Result	RL Units	Dilution	RL
Total Selenium		<0.0200	mg/L	2	0.0100

Sample: 123588 - SSWPZ11R7N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	37145	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32214	Sample Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		68700		mg/L	10000	0.500

Sample: 123588 - SSWPZ11R7N1

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	37073	Date Analyzed:	2007-05-08	Analyzed By:	JS
Prep Batch:	32160	Sample Preparation:	2007-05-08	Prepared By:	JS

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		3.84		mg/L	25	0.100

Sample: 123588 - SSWPZ11R7N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	37145	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32214	Sample Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		2620		mg/L	100	0.500

Sample: 123588 - SSWPZ11R7N1

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	37347	Date Analyzed:	2007-05-18	Analyzed By:	ER
Prep Batch:	32383	Sample Preparation:	2007-05-14	Prepared By:	JS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		135000		mg/L	500	10.00

Sample: 123589 - SSWPZ11R7N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	37148	Date Analyzed:	2007-05-11	Analyzed By:	RR
Prep Batch:	32187	Sample Preparation:	2007-05-10	Prepared By:	TS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.0100		mg/L	2	0.00500

Sample: 123589 - SSWPZ11R7N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	37148	Date Analyzed:	2007-05-11	Analyzed By:	RR
Prep Batch:	32187	Sample Preparation:	2007-05-10	Prepared By:	TS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		<0.0200		mg/L	2	0.0100

Sample: 123590 - SSWPZ11R7N1EB

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	37142	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32212	Sample Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		10.4		mg/L	1	0.500

Sample: 123590 - SSWPZ11R7N1EB

Analysis:	NO3 (Spec)	Analytical Method:	SM 4500-NO3 E	Prep Method:	N/A
QC Batch:	37073	Date Analyzed:	2007-05-08	Analyzed By:	JS
Prep Batch:	32160	Sample Preparation:	2007-05-08	Prepared By:	JS

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		0.453		mg/L	2	0.100

Sample: 123590 - SSWPZ11R7N1EB

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	37142	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32212	Sample Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		1.25		mg/L	1	0.500

Sample: 123590 - SSWPZ11R7N1EB

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	37347	Date Analyzed:	2007-05-18	Analyzed By:	ER
Prep Batch:	32383	Sample Preparation:	2007-05-14	Prepared By:	JS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		60.00		mg/L	1	10.00

Sample: 123591 - SSWPZ11R7N2EB

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	37148	Date Analyzed:	2007-05-11	Analyzed By:	RR
Prep Batch:	32187	Sample Preparation:	2007-05-10	Prepared By:	TS

Parameter	Flag	RL Result	Units	Dilution	RL
Total Chromium		0.0120	mg/L	2	0.00500

Sample: 123591 - SSWPZ11R7N2EB

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	37148	Date Analyzed:	2007-05-11	Analyzed By:	RR
Prep Batch:	32187	Sample Preparation:	2007-05-10	Prepared By:	TS

Parameter	Flag	RL Result	Units	Dilution	RL
Total Selenium		<0.0200	mg/L	2	0.0100

Method Blank (1) QC Batch: 37073

QC Batch:	37073	Date Analyzed:	2007-05-08	Analyzed By:	JS
Prep Batch:	32160	QC Preparation:	2007-05-08	Prepared By:	JS

Parameter	Flag	MDL Result	Units	RL
Nitrate-N		<0.0124	mg/L	0.1

Method Blank (1) QC Batch: 37142

QC Batch:	37142	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32212	QC Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.172	mg/L	0.5

Method Blank (1) QC Batch: 37142

QC Batch:	37142	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32212	QC Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	MDL Result	Units	RL
Sulfate		<0.777	mg/L	0.5

Method Blank (1) QC Batch: 37145

QC Batch:	37145	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32214	QC Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.172	mg/L	0.5

Method Blank (1) QC Batch: 37145

QC Batch:	37145	Date Analyzed:	2007-05-10	Analyzed By:	ER
Prep Batch:	32214	QC Preparation:	2007-05-10	Prepared By:	ER

Parameter	Flag	MDL Result	Units	RL
Sulfate		<0.777	mg/L	0.5

Method Blank (1) QC Batch: 37148

QC Batch:	37148	Date Analyzed:	2007-05-11	Analyzed By:	RR
Prep Batch:	32187	QC Preparation:	2007-05-10	Prepared By:	TS

Parameter	Flag	MDL Result	Units	RL
Total Chromium		<0.000900	mg/L	0.005

Method Blank (1) QC Batch: 37148

QC Batch:	37148	Date Analyzed:	2007-05-11	Analyzed By:	RR
Prep Batch:	32187	QC Preparation:	2007-05-10	Prepared By:	TS

Parameter	Flag	MDL Result	Units	RL
Total Selenium		<0.0131	mg/L	0.01

Method Blank (1) QC Batch: 37347

QC Batch:	37347	Date Analyzed:	2007-05-18	Analyzed By:	ER
Prep Batch:	32383	QC Preparation:	2007-05-14	Prepared By:	ER

Parameter	Flag	MDL Result	Units	RL
Total Dissolved Solids		<5.000	mg/L	10

Duplicates (1)

QC Batch: 37347 Date Analyzed: 2007-05-18 Analyzed By: ER
Prep Batch: 32383 QC Preparation: 2007-05-14 Prepared By: ER

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	4270	4205	mg/L	5	2	17.2

Laboratory Control Spike (LCS-1)

QC Batch: 37073 Date Analyzed: 2007-05-08 Analyzed By: JS
Prep Batch: 32160 QC Preparation: 2007-05-08 Prepared By: JS

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Nitrate-N	0.154	mg/L	1	0.160	<0.0124	96	81.9 - 124

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Nitrate-N	0.158	mg/L	1	0.160	<0.0124	99	81.9 - 124	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 37142 Date Analyzed: 2007-05-10 Analyzed By: ER
Prep Batch: 32212 QC Preparation: 2007-05-10 Prepared By: ER

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	12.1	mg/L	1	12.5	<0.172	97	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	12.2	mg/L	1	12.5	<0.172	98	90 - 110	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 37142 Date Analyzed: 2007-05-10 Analyzed By: ER
Prep Batch: 32212 QC Preparation: 2007-05-10 Prepared By: ER

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	12.5	mg/L	1	12.5	<0.777	100	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate	12.5	mg/L	1	12.5	<0.777	100	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 37145 Date Analyzed: 2007-05-10 Analyzed By: ER
Prep Batch: 32214 QC Preparation: 2007-05-10 Prepared By: ER

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	12.2	mg/L	1	12.5	<0.172	98	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	12.2	mg/L	1	12.5	<0.172	98	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 37145 Date Analyzed: 2007-05-10 Analyzed By: ER
Prep Batch: 32214 QC Preparation: 2007-05-10 Prepared By: ER

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	12.7	mg/L	1	12.5	<0.777	102	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate	12.6	mg/L	1	12.5	<0.777	101	90 - 110	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 37148 Date Analyzed: 2007-05-11 Analyzed By: RR
Prep Batch: 32187 QC Preparation: 2007-05-10 Prepared By: TS

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Chromium	0.101	mg/L	1	0.100	<0.000900	101	86.5 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Chromium	0.106	mg/L	1	0.100	<0.000900	106	86.5 - 115	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 37148 Date Analyzed: 2007-05-11 Analyzed By: RR
Prep Batch: 32187 QC Preparation: 2007-05-10 Prepared By: TS

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Selenium	0.476	mg/L	1	0.500	<0.0131	95	70.2 - 111

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Selenium	0.405	mg/L	1	0.500	<0.0131	81	70.2 - 111	16	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 123590

QC Batch: 37073 Date Analyzed: 2007-05-08 Analyzed By: JS
Prep Batch: 32160 QC Preparation: 2007-05-08 Prepared By: JS

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Nitrate-N [1]	0.272	mg/L	2	0.320	0.453	-56	32.8 - 167

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Nitrate-N [2]	0.252	mg/L	2	0.320	0.453	-61	32.8 - 167	8	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 123590

QC Batch: 37142 Date Analyzed: 2007-05-10 Analyzed By: ER
Prep Batch: 32212 QC Preparation: 2007-05-10 Prepared By: ER

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	24.4	mg/L	1	12.5	10.3625	112	10 - 188

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	24.0	mg/L	1	12.5	10.3625	109	10 - 188	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

[1] Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.
[2] Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

Matrix Spike (MS-1) Spiked Sample: 123590

QC Batch: 37142 Date Analyzed: 2007-05-10 Analyzed By: ER
Prep Batch: 32212 QC Preparation: 2007-05-10 Prepared By: ER

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	13.0	mg/L	1	12.5	1.2465	94	83.1 - 114

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate	13.3	mg/L	1	12.5	1.2465	96	83.1 - 114	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 123588

QC Batch: 37145 Date Analyzed: 2007-05-10 Analyzed By: ER
Prep Batch: 32214 QC Preparation: 2007-05-10 Prepared By: ER

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	199000	mg/L	10000	125000	68712.2	104	10 - 188

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	194000	mg/L	10000	125000	68712.2	100	10 - 188	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 123588

QC Batch: 37145 Date Analyzed: 2007-05-10 Analyzed By: ER
Prep Batch: 32214 QC Preparation: 2007-05-10 Prepared By: ER

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	132000	mg/L	10000	125000	<7770	104	83.1 - 114

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate	131000	mg/L	10000	125000	<7770	103	83.1 - 114	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 123581

QC Batch: 37148 Date Analyzed: 2007-05-11 Analyzed By: RR
Prep Batch: 32187 QC Preparation: 2007-05-10 Prepared By: TS

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Chromium	0.211	mg/L	2	0.200	0.031	90	66.2 - 121

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Chromium	0.212	mg/L	2	0.200	0.031	90	66.2 - 121	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 123581

QC Batch: 37148 Date Analyzed: 2007-05-11 Analyzed By: RR
Prep Batch: 32187 QC Preparation: 2007-05-10 Prepared By: TS

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Selenium	0.998	mg/L	2	1.00	<0.0262	100	64.3 - 111

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Selenium	0.858	mg/L	2	1.00	<0.0262	86	64.3 - 111	15	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1)

QC Batch: 37073 Date Analyzed: 2007-05-08 Analyzed By: JS

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	0.160	0.168	105	85 - 115	2007-05-08

Standard (CCV-1)

QC Batch: 37073 Date Analyzed: 2007-05-08 Analyzed By: JS

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	0.160	0.157	98	85 - 115	2007-05-08

Standard (ICV-1)

QC Batch: 37142 Date Analyzed: 2007-05-10 Analyzed By: ER

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.0	96	90 - 110	2007-05-10

Standard (ICV-1)

QC Batch: 37142 Date Analyzed: 2007-05-10 Analyzed By: ER

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.4	99	90 - 110	2007-05-10

Standard (CCV-1)

QC Batch: 37142 Date Analyzed: 2007-05-10 Analyzed By: ER

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.2	98	90 - 110	2007-05-10

Standard (CCV-1)

QC Batch: 37142 Date Analyzed: 2007-05-10 Analyzed By: ER

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.4	99	90 - 110	2007-05-10

Standard (ICV-1)

QC Batch: 37145 Date Analyzed: 2007-05-10 Analyzed By: ER

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.2	98	90 - 110	2007-05-10

Standard (ICV-1)

QC Batch: 37145 Date Analyzed: 2007-05-10 Analyzed By: ER

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	12.4	99	90 - 110	2007-05-10

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1.00	1.03	103	90 - 110	2007-05-11

Standard (ICV-1)

QC Batch: 37347 Date Analyzed: 2007-05-18 Analyzed By: ER

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1027	103	90 - 110	2007-05-18

Standard (CCV-1)

QC Batch: 37347 Date Analyzed: 2007-05-18 Analyzed By: ER

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1021	102	90 - 110	2007-05-18

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

JAN 2 6 2007

Mr. Clint Marshall
New Mexico Environment Department
Ground Water Quality Bureau
Mining and Environmental Compliance Section
P.O. Box 26110
Santa Fe, NM 87502

RECEIVED
JAN 31 2007
BY:----------

Subject: Semi-Annual Discharge Monitoring Report for July 1, 2006 through December 31, 2006

Dear Mr. Marshall:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Discharge Monitoring Report for the period of July 1, 2006 through December 31, 2006. This report is required by Discharge Permit 831.

If you have any questions about this report or require any additional information, please contact me at (505) 234-7349.

Sincerely,

Harold Johnson

Harold E. Johnson
NEPA Compliance Manager

Enclosures

cc: w/enclosures
S. Zappe, NMED *ED
D. Foster, NMED/DOE AIP ED

cc: w/o enclosures
J. Bearzi, NMED ED
*ED denotes electronic distribution

CBFO:AMO:HJ:KJB:07-0415:UFC5486

03980

PLEASE NOTE:

The numbering sequence of the data sheets enclosed are not sequential.

This is due to our submittal of only those data sheets required by DP-831.

WASTE ISOLATION PILOT PLANT (WIPP) SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831

REPORT NUMBER 46: July 1, 2006 through December 31, 2006

SPECIFIC REQUIREMENTS OF DP-831

1.0 DISCHARGE VOLUMES:

Facultative Lagoon System	
Month	**Volume (gallons)**
July	36,880
August	59,817
September	81,510
October	675,740*
November	380,670*
December	604,702*

* Flow meter was providing sporadic and abnormally high readings on numerous occasions throughout October, November and December. Typically this occurs due to a build up of debris on the weir at the discharge point. Operators have been instructed to clean the weir more frequently and submit an Action Request if trouble persists. The meter was out of order completely December 4-9, 2006.

Miscellaneous Water Discharged to the Facultative Lagoon System — None

Facultative Lagoon System Evaporation Pond B — None

H-19 Evaporation Pond	
Month	**Volume (gallons)**
July	3,910
August	10,250
September	5,675
October	3,550
November	2,675
December	200

2.0 FACULTATIVE LAGOON AND H-19 EVAPORATION POND MONITORING AND REPORTING

Table 1 contains the analytical results for the Facultative Lagoon System and the H-19 Evaporation Pond. Table 2 contains the analytical results for the infiltration control evaporation ponds and the laboratory data sheets are included in Attachment 2.

The laboratory data sheets are included in Attachment 1. The non-hazardous water disposed of in the H-19 Evaporation Pond included Exhaust Shaft Fan Condensate, purged water from groundwater monitoring activities and observation borehole water from the underground. Other miscellaneous wastewaters generated include 750 gallons of rainwater that collected in a firewater sump in the Waste Handling Building (WHB) while repairs where being performed on the WHB roof. The rainwater removed from the WHB sump was analyzed to verify and document that it was not a hazardous waste and that no radionuclide contamination was present.

During this reporting period the following activities were conducted as required by your letter dated December 22, 2005, *Conditional Approval of the Corrective Action Plan based on the Sewage Lagoon Leak Testing Results and Liner Integrity Evaluation.*

- The liners of the Settling Pond 2A and Polishing Pond 2B were replaced with 60-mil high density polyethylene liners in July 2006.

3.0 INFILTRATION CONTROL ACTIVITIES (DECEMBER 22, 2003, MODIFICATION)

The following maintenance and erosion control enhancements that were proposed to the Ground Water Quality Bureau in a letter dated September 12, 2005 have been accomplished during this reporting period:

- A berm was constructed on the top of the salt pile, one on the north and south portion of the salt pile to divert run-off to lined discharge channels. The berms have been covered with turf reinforcement mats, the installation of which was 80 percent complete as of June 30, 2006 and work was completed in July 2006.
- Repairs of the erosion of the Salt Pile side slopes were 90 percent complete as of June 30, 2006. This work was completed in July 2006.

Remaining maintenance and erosion control work includes the construction of the lined discharge channels on the north east and the center of the south side of the Salt Pile and the establishment of vegetation on the salt pile. Originally the design of the erosion control enhancements included discharge channels that were lined with rip rap. The liner contractor recommended a design that consisted of lining the discharge channels with 80-mil polyethylene to minimize potential damage to the liner from the weight of the rip rap. Incorporating this design change and the postponement of work due to winter weather has resulted in delays completing this work.

4.0 SUMMARY OF ACTIVITIES RELATED TO THE SHALLOW SUBSURFACE WATER (SSW) MONITORING AND SAMPLING PROGRAM

Water levels in the shallow wells (PZ-1 through PZ-12, C-2505, C-2506, C-2507 and 2811) were obtained September 14 and December 4, 2006, and are included in Table 3: These were taken on the quarterly milestones outlined in Table 2, Ground Water Monitoring Schedule, in the December 22, 2003, DP-831 Modification. Figure 1 represents a potentiometric surface map for the December 2006 monitoring data.

Total rainfall in the area of WIPP for this reporting period was 17.34 inches compared to 9.96 inches for the same time period in 2005, a difference of 7.38 inches more in 2006. The total rainfall recorded for calendar year 2006 was 18.92 inches. This reporting period recorded 93 percent of the total rainfall for the year. The change in water level for the wells and piezometers monitored during this period was an average decrease of -0.18 inches feet the site. The highest decrease in water level was 1.07 feet identified in PZ-9. The highest increase in water level over this period was 0.80 feet in C-2811.

WQSP-6A was sampled in May and September 2006 as part of the WIPP Hazardous Waste Facility Permit Detection Monitoring Program. WQSP-6A data for both months are summarized in Table 3 and the laboratory data sheets are included in Attachment 3.

Concentrations for selenium and chromium in the WQSP-6A sample were below the method detection limits of 0.0250 mg/l for both samples rounds 22 and 23. Nitrate concentrations for WQSP-6A were 2.50 mg/l and 6.00 mg/l for the respective rounds 22 and 23. Sulfate, chloride, and total dissolved solids (TDS) concentrations were detected at concentrations exceeding standards of 20.6.2.3103 NMAC, *Standards for Ground Water of 10,000 mg/l TDS Concentration or Less* for Human Health and Domestic Water Supply. Although the concentrations were higher than the standards, they are less than background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality*

Baseline Report (DOE/WIPP 98-2285). The shallow subsurface water identified at the WIPP site has not impacted the Dewey Lake groundwater in WQSP-6A.

The shallow wells were sampled for field and general chemistry parameters in October 2006 as required by the December 22, 2003, modification to DP-831. Five wells were sampled on October 9, 2006, while the remaining wells were sampled on October 10, 2006. Results for the field sampling parameters and laboratory analyses are presented in Table 3. Laboratory reports for all shallow well analyses are included in Attachment 4. Chloride concentrations exceeded values listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply in all shallow wells sampled. The maximum concentration was 102,000 mg/l in PZ-9, while the minimum concentration was 350 mg/l in PZ-10. Total dissolved solids concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in all shallow wells sampled with the maximum concentration of 135,000 mg/l in PZ-9. Nitrate concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in two wells with a concentration of 252 mg/l in PZ-6 and 13.2 mg/l in PZ-12. Sulfate concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in nine of ten wells sampled with a maximum concentration of 3,370 mg/l in PZ-9. Chromium and Selenium concentrations were below detection limits and below 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply for all wells.

Washington
Regulatory and Environmental Services
FIGURE 1
SHALLOW SUBSURFACE WATER POTENTIOMETRIC SURFACE
Monitoring Date: December 04, 2006
Salt Storage Extension
PZ-11
PZ-12
PZ-10
PZ-09
PZ-08
POND 1
POND 2
C-2811
NORTH MACDONALD ROAD
TO US 89/89A 13.5 MILES

Table 1: Sewage Lagoon and H-19 Semi-Annual Analytical Results								
Analyte	**Influent to Facultative Lagoon System**		**Evaporation Pond B**		**Evaporation Pond C**		**H-19 Evaporation Pond**	
Nitrate (mg/l)	**<0.200**		**NA**		**NA**		**NA**	
TKN (mg/l)	**94.6**		**NA**		**NA**		**NA**	
TDS (mg/l)	**548.0**		**7,880**		**13850**		**211,800**	
	Activity	**TPU 2 σ**	**Activity**	**TPU 2 σ**	**Activity**	**TPU 2 σ**	**Activity**	**TPU 2 σ**
$U^{233/234}$ (Bq/l)	1.46E-02	3.69E-03	4.15E-03	1.60E-03	1.11E-02	3.45E-03	1.75E-01	3.60E-02
U^{235} (Bq/l)	2.26E-04	3.80E-04	6.77E-05	3.40E-04	1.07E-04	3.72E-04	3.08E-03	1.46E-03
U^{238} (Bq/l)	5.26E-03	1.77E-03	1.22E-03	7.87E-04	3.51E-03	1.57E-03	4.67E-02	1.03E-02
Pu^{238} (Bq/l)	1.25E-04	4.09E-04	-3.30E-05	3.17E-04	5.36E-05	4.08E-04	-2.38E-04	5.03E-04
$Pu^{239/240}$ (Bq/l)	-6.26E-05	1.71E-04	2.64E-04	3.91E-04	1.68E-04	3.42E-04	1.33E-04	6.67E-04
Am^{241} (Bq/l)	6.04E-04	7.18E-04	7.72E-05	3.27E-04	1.56E-04	4.90E-04	-2.21E-04	4.12E-04
Sr^{90} (Bq/l)	1.48E-02	2.73E-02	1.36E-02	2.81E-02	1.66E-02	2.97E-02	-7.40E-03	2.61E-02
TPU 2 σ = total propagated uncertainty at 2-sigma (95% confidence interval)								
NA: The analytical parameter is not required.								
NS: Not Sampled								
TKN: Total Kjeldahl Nitrogen								
TDS: Total Dissolved Solids								
Bq/l: Becquerel per liter								
"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply								

Table 2: Infiltration Control Evaporation Ponds Annual Analytical Results							
Evaporation Pond	**Chloride (mg/l)**	**Nitrate-N (mg/l)**	**Sulfate (mg/l)**	**TDS (mg/l)**	**Selenium (mg/l) total (dissolved)**	**Chromium (mg/l) total (dissolved)**	**Water Depth (ft)/Volume (gallons)**
Salt Pile Evaporation Pond	**5,830**	**<2.00**	**71.7**	**8,470**	**<0.010 (<0.02)**	**<0.010 (<0.02)**	**1.6*/1,671,701**
Salt Storage Extension Evaporation Basin	**204,000**	**1.87**	**11,000**	**249,000**	**< 0.0100 (<0.02)**	**<0.010 (< 0.02)**	**NR**
Pond 1	**70.2**	**<1.00**	**10.0**	**208.0**	**<0.010 (<0.02)**	**<0.010 (<0.02)**	**4.45*/563562**
Pond 2	**156**	**<1.00**	**10.6**	**334.0**	**<0.010 (<0.02)**	**<0.010 (<0.02)**	**4.75*/1,374634**
Pond A	**129**	**<1.00**	**12.8**	**299.0**	**<0.010 (<0.02)**	**<0.010 (<0.02)**	**5.05*/5,506,867**

Bold: Concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply
NR: No reading due to broken staff gauge
*** Sampling personnel forgot to take depth readings during the sampling event in November. Levels shown and the corresponding volume calculations are based January 8, 2007 readings.**

Table 3
SUMMARY OF SHALLOW SUBSURFACE WATER LEVELS, FIELD PARAMETERS, AND ANALYTICAL RESULTS

	Water Level Monitoring (Ft AMSL)		Field Parameters			General Chemistry Parameters					Trace Metals	
Monitoring Site	09/14/06	12/04/06	pH (SU)	Temp. (°C)	Specific Conductivity @25 °C (µS/cm)	Sample Date	Nitrate (mg/l)	Sulfate (mg/l)	Chloride (mg/l)	TDS (mg/l)	Selenium (mg/l)	Chromium (mg/l)
PZ-1	3373.11	3372.81	6.88	19.9	108,200	10/10/06	<1.00	1390	55300	70200	<0.0500	<0.0250
PZ-2	3372.64	3372.31	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
PZ-3	3374.18	3373.85	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
PZ-4	3367.76	3367.56	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
PZ-5	3375.36	3375.03	7.13	20.0	57,500	10/10/06	5.04	1330	28800	47400	<0.0500	<0.0250
PZ-6	3371.65	3371.65	6.69	20.0	142,700	10/10/06	252	2790	79800	134000	<0.0500	<0.0250
PZ-7	3378.48	3378.02	6.72	19.4	100,700	10/09/06	<1.00	2890	66800	81500	<0.00100	<0.0500
PZ-8	DRY	DRY	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
PZ-9	3365.49	3364.75	6.70	18.1	153,200	10/10/06	<20.0	3370	102000	135000	<0.0500	<0.0250
PZ-10	3370.29	3371.21	7.36		2,343	10/09/06	5.5	549	350	1600	<0.00100	<0.0500
PZ-11	3375.52	3374.90	6.83	20.2	126,200	10/09/06	<1.00	2550	85800	123000	<0.00100	<0.0500
PZ-12	3358.31	3358.44	7.14	20.3	14,830	10/09/06	13.2	795	5340	9150	<0.00100	<0.0500
C-2811	3344.27	3344.92	7.5	20.4	4,325	10/09/06	6.05	402	1310	2100	<0.00100	<0.0500
C-2505	3369.22	3369.24	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
C-2506	3369.69	3370.65	NA	NA	NA	NS	NS	NS	NS	NS	NS	NS
C-2507	3366.20	3366.06	7.33	18.7	7,340	10/10/06	5.04	1330	28800	47400	<0.0500	<0.0250
WQSP-6a (Round 22)	3197.06 [1]	3196.84 [2]	7.23	22.7	4,020	05/03/06	2.50	2210	450	3200	<0.025	<0.025
WQSP-6a (Round 23)	3196.92 [3]	3196.91 [4]	7.23	22.9	4,010	09/20/06	6.00	2,120	360	3515	<0.025	<0.025

Explanation:
[1] Water Level Measurement Taken on 03/07/06
[2] Water Level Measurement Taken on 06/13/06
[3] Water Level Measurement Taken on 09/12/06
[4] Water Level Measurement Taken on 12/06/06

Attachment 1

Laboratory Data Summary Sheets for the Sewage Lagoon System and the H-19 Evaporation Pond

CHAIN-OF-CUSTODY RECORD

4110119

C of C Control № 6509

RFA Control № 6509

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

SAMPLING PROGRAM Envir-Monit- DP-831 LAB DESTINATION Trace Analysis

SAMPLE TEAM MEMBERS A. Rivas J. Hernandez ENV-Tech CARRIER/WAYBILL NO. Hand carry

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
EC-SUL-20061031-1.16	Pond 1A	10-31-06 0828	Sewage	1 Liter Plastic	Good	167405
2.16	Pond 1A	0829		500mL Plastic		01
3.16	Pond 1A	0830				02
4.16	Pond A	0855				03
5.16	Pond B	0908				04
6.16	Pond C	0916				05
7.16	Pond 1A	0837		1 Liter Plastic		06
8.16	H-19	09:42		500mL Plastic		07
9.16	BLANK	0952	BLANK	500mL Plastic		08

N/A 10-31-06 AR

Special Instructions: N/A

Possible Sample Hazards: Bio Hazard

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: JHernandez WTS 11-1-06 ~~1005~~ 1100 11-1-06
   Received By: Teresa Ripley, Trace Analysis, 11-1-06 ~~1005~~ 11:00 AR
2. Relinquished By: _____
   Received By: _____
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: _____

SECTION II Page 2

WP 02-EM3001

MA 20C

WHITE - Original to accompany samples YELLOW - Field copy PINK - Other NICHOLS PRINTING INC.

03990

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
EC-SWL-20061031-1.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 6110119

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 11/01/06

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T107400	7727-37-9	Nitrate (as NO3)	1.00	U	11/2/2006	E 300.0	0.200

Comments:

SECTION I
Page 2

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
EC-SWL-20061031-2.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 6110119

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 11/01/06

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T107401		TKN	94.64		11/13/2006	E 351.3	4.0

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
EC-SWL-20061031-3.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 6110119

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 11/01/06

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T107402		Total Dissolved Solids (TDS)	548		11/2/2006	SM 2540C	10

Comments:

SECTION I
Page 4

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
EC-SWL-20061031-4.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 6110119

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 11/01/06

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T107403		Total Dissolved Solids (TDS)	1664		11/7/2006	SM 2540C	10

Comments:

SECTION I
Page 5

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
EC-SWL-20061031-5.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 6110119

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 11/01/06

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T107404		Total Dissolved Solids (TDS)	7880		11/2/2006	SM 2540C	10

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
EC-SWL-20061031-6.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 6110119

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 11/01/06

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T107405		Total Dissolved Solids (TDS)	13850		11/2/2006	SM 2540C	10

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
EC-SWL-2001031-7.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 6110119

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 11/01/06

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T107406	7727-37-9	Nitrate (as NO3)	1.00	U	11/2/2006	E 300.0	0.200

Comments:

SECTION I
Page 8

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
EC-SWL-200561031-8.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 6110119

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 11/01/06

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T107407		Total Dissolved Solids (TDS)	211800		11/2/2006	SM 2540C	10

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
EC-SWL-20061031-9.16

Lab Name: TraceAnalysis, Inc.

SDG No.: 6110119

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 11/01/06

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T107408		TKN	8.96		11/13/2006	E 351.3	4.0

Comments:

SECTION I
Page 10

Attachment 2
Laboratory Data Sheets for Infiltration Control Ponds

6111417

CHAIN-OF-CUSTODY RECORD

C of C Control № 6519

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

SECTION III Page 3

RFA Control № 6519

SAMPLING PROGRAM ENV-MONIT - INFILTRATION CONTROLS - DP-831 LAB DESTINATION TRACE ANALYSIS

SAMPLE TEAM MEMBERS A. Rivas, J. Hernandez Env-Monit/Spec CARRIER/WAYBILL NO. HAND CARRY

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
WR-SPE-20061113 - 1.23	Extension Evap Basin	11-13-06 0800	Water-RunOff	1 Liter Plastic	Good 11-14-06 WTJ	10879
2.23		0805		500 mL		98
3.23		0810		500 mL		99
4.23		0816		500 mL		800
WR-EEB-20061113 5.23	Salt Pile Evap	0825		1 Liter Plastic		01
6.23		0827		500mL		02
7.23		0832		500 mL		03
8.23		0837		500mL		04
WR-EBA-20061113 9.23	Evap Basin A	0843		1 Liter Plastic		05
10.23		0845		500mL		06
11.23		0850		500 mL		07
12.23		0853		500mL		08
	N/A	N/A 11-13-06				

Special Instructions: N/A

Possible Sample Hazards: N/A

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: J Hernandez WTJ 11-14-06 1035
   Received By: Vicki Cruz 11-14-06 10:35
2. Relinquished By: Carry Hand 2°
   Received By:
3. Relinquished By:
   Received By:
4. Relinquished By:
   Received By:

WP 02-EM3001

WHITE - Original to accompany samples

YELLOW - Field copy

PINK - Other

NICHOLS PRINTING INC.

04001

6111417

CHAIN-OF-CUSTODY RECORD

C of C Control № 6520

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

SECTION III Page 4

RFA Control № 6520

SAMPLING PROGRAM ENV-MONIT.-INFILTRATION CONTROLS DP-831 LAB DESTINATION TRACE ANALYSIS

SAMPLE TEAM MEMBERS A. RIVAS, J. Hernandez Env-Monit/Spec CARRIER/WAYBILL NO. HAND CARRY

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
WR-PD1-20061113 1323	Pond 1	11-13-06 0900	Water-Run off	1 Liter Plastic	good 11-14-06 JH	10880
1423		0904		500mL		10
1523		0910		500mL		11
1623		0916		500mL		12
WR-PD2-20061113 1723	Pond 2	0918		1 Liter Plastic		13
1823		0923		500mL		14
1923		0928		500mL		15
2023		0932		500mL		16
WR-EBA-20061113 2123	EVAP BASIN A	0857		1 Liter Plastic		17
WR-PD2-20061113 2223	Pond 2	0936		1 Liter Plastic		18
WR-BLANK-20061113 2323	BLANK	1000		1 Liter Plastic	✓	19
	N/A	N/A 11-13-06				

Special Instructions: N/A

Possible Sample Hazards: N/A

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: J Hernandez WTS 11-14-06 1035
   Received By: [signature] 11-14-06 10:35
2. Relinquished By: _____
   Received By: _____
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: _____

2° carry

WP 02-EM3001 WHITE - Original to accompany samples YELLOW - Field copy PINK - Other NICHOLS PRINTING INC.

04002

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

Lab Name: TraceAnalysis, Inc.

WIPP Sample No.
WR-SPE-20061113-1.23

SDG No.: 6111417

Matrix (aqueous/solid/leachate): aqueous

Receipt date 11/14/06

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T108797	7782-50-5	Chloride	204000		11/15/2006	300.0	0.500
T108797	7727-37-9	Nitrate (as NO3)	1.87		11/16/2006	SM 4500-NO3 E	0.100
T108797		Sulfate	11000		11/15/2006	300.0	0.500
T108797		Total Dissolved Solids (TDS)	249000		11/15/2006	SM 2540C	10

Comments:
Nitrate- Sample ran out of hold time.

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

Lab Name: TraceAnalysis, Inc.

WIPP Sample No.
WR-SPE-20061113-2.23

SDG No.: 6111417

Matrix (aqueous/solid/leachate): aqueous

Receipt date 11/14/06

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T108798		Total Kjeldahl Nitrogen (TKN)	4.00	U	11/16/2006	E 351.3	4.00

Comments:

SECTION I
Page 3

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

Lab Name: TraceAnalysis, Inc.

WIPP Sample No.
WR-SPE-20061113-5.23

SDG No.: 6111417

Matrix (aqueous/solid/leachate): aqueous

Receipt date 11/14/06

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T108801	7782-50-5	Chloride	5830		11/15/2006	300.0	0.500
T108801		Nitrate-N	0.200	U	11/15/2006	300.0	0.200
T108801		Sulfate	71.7		11/15/2006	300.0	0.500
T108801		Total Dissolved Solids (TDS)	8470		11/15/2006	SM 2540C	10

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
WR-SPE-20061113-6.23

Lab Name: TraceAnalysis, Inc.

SDG No.: 6111417

Matrix (aqueous/solid/leachate): aqueous

Receipt date 11/14/06

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T108802		Total Kjeldahl Nitrogen (TKN)	4.00	U	11/16/2006	E 351.3	4.00

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
WR-SPE-20061113-9.23

Lab Name: TraceAnalysis, Inc.

SDG No.: 6111417

Matrix (aqueous/solid/leachate): aqueous

Receipt date 11/14/06

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T108805	7782-50-5	Chloride	129		11/13/2006	300.0	0.500
T108805	7727-37-9	Nitrate-N	0.20	U	11/13/2006	300.0	0.200
T108805		Sulfate	12.8	U	11/13/2006	300.0	0.500
T108805		Total Dissolved Solids (TDS)	299		11/15/2006	SM 2540C	10

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

Lab Name: TraceAnalysis, Inc.

WIPP Sample No.
WR-SPE-20061113-10.23

SDG No.: 6111417

Matrix (aqueous/solid/leachate): aqueous

Receipt date 11/14/06

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T108806		Total Kjeldahl Nitrogen (TKN)	4.00	U	11/16/2006	E 351.3	4.00

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

Lab Name: TraceAnalysis, Inc.

WIPP Sample No.
WR-SPE-20061113-13.23

SDG No.: 6111417

Matrix (aqueous/solid/leachate): aqueous

Receipt date 11/14/06

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T108809	7782-50-5	Chloride	70.2		11/13/2006	300.0	0.500
T108809	7727-37-9	Nitrate (as NO3)	0.10	U	11/13/2006	300.0	0.100
T108809		Sulfate	10.0		11/13/2006	300.0	0.500
T108809		Total Dissolved Solids (TDS)	208		11/15/2006	SM 2540C	10

Comments:

SECTION I
Page 8

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

WIPP Sample No.
WR-SPE-20061113-14.23

Lab Name: TraceAnalysis, Inc.

SDG No.: 6111417

Matrix (aqueous/solid/leachate): aqueous

Receipt date 11/14/06

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T108810		Total Kjeldahl Nitrogen (TKN)	4.00	U	11/16/2006	E 351.3	4.00

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

Lab Name: TraceAnalysis, Inc.

WIPP Sample No.
WR-SPE-20061113-17.23

SDG No.: 6111417

Matrix (aqueous/solid/leachate): aqueous

Receipt date 11/14/06

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T108813	7782-50-5	Chloride	156		11/13/2006	300.0	0.500
T108813	7727-37-9	Nitrate (as NO3)	0.10	U	11/13/2006	300.0	0.100
T108813		Sulfate	10.6		11/13/2006	300.0	0.500
T108813		Total Dissolved Solids (TDS)	334		11/15/2006	SM 2540C	10

Comments:

SECTION I
Page 10

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

Lab Name: TraceAnalysis, Inc.

WIPP Sample No.
WR-SPE-20061113-18.23

SDG No.: 6111417

Matrix (aqueous/solid/leachate): aqueous

Receipt date 11/14/06

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T108814		Total Kjeldahl Nitrogen (TKN)	4.00	U	11/16/2006	E 351.3	4.00

Comments:

SECTION I
Page 11

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

Lab Name: TraceAnalysis, Inc.

WIPP Sample No.
WR-SPE-20061113-21.23

SDG No.: 6111417

Matrix (aqueous/solid/leachate): aqueous

Receipt date 11/14/06

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T108817	7782-50-5	Chloride	153		11/13/2006	300.0	0.500
T108817	7727-37-9	Nitrate (as NO3)	0.10	U	11/13/2006	300.0	0.100
T108817		Sulfate	10.3		11/13/2006	300.0	0.500
T108817		Total Dissolved Solids (TDS)	251		11/15/2006	SM 2540C	10

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

Lab Name: TraceAnalysis, Inc.

WIPP Sample No.
WR-SPE-20061113-22.23

SDG No.: 6111417

Matrix (aqueous/solid/leachate): aqueous

Receipt date 11/14/06

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T108818	7782-50-5	Chloride	89.7		11/13/2006	300.0	0.500
T108818	7727-37-9	Nitrate (as NO3)	0.10	U	11/13/2006	300.0	0.100
T108818		Sulfate	13.0		11/13/2006	300.0	0.500
T108818		Total Dissolved Solids (TDS)	52		11/15/2006	SM 2540C	10

Comments:

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

Lab Name: TraceAnalysis, Inc.

WIPP Sample No.
WR-SPE-20061113-23.23

SDG No.: 6111417

Matrix (aqueous/solid/leachate): aqueous

Receipt date 11/14/06

Concentration Units (mg/L or mg/Kg dry weight): mg/L

Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
T108819	7782-50-5	Chloride	10.9		11/13/2006	300.0	0.500
T108819	7727-37-9	Nitrate (as NO3)	1.22		11/13/2006	300.0	0.100
T108819		Sulfate	10.1		11/13/2006	300.0	0.500
T108819		Total Dissolved Solids (TDS)	343		11/15/2006	SM 2540C	10

Comments:

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WR-SPE-20061113-3.23

Lab Name: TraceAnalysis, Inc.

SDG No.: 6111417

Matrix (soil/water): Water

Lab Sample ID: T108799

Date Received: 11/14/06

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Analysis Date	Q	RL	M
7440-47-3	Chromium	0.010	U	12/04/06		0.010	P
7782-49-2	Selenium	0.010	U	12/04/06		0.010	P

Comments:

FORM I - IN

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WR-SPE-20061113-3.23

Lab Name: TraceAnalysis, Inc.

SDG No.: 6111417

Matrix (soil/water): Water

Lab Sample ID: T108800

Date Received: 11/14/06

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte Dissolved	Concentration	C	Analysis Date	Q	RL	M
7440-47-3	Chromium	0.02	U	11/22/06		0.02	P
7782-49-2	Selenium	0.02	U	11/22/06		0.02	P

Comments:

FORM I - IN

Forms by ChemSW(707)864-0845;p/n:11014;v:3.21;1/1/98
ILM02.0

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WR-SPE-20061113-4.23

Lab Name: TraceAnalysis, Inc.

SDG No.: 6111417

Matrix (soil/water): Water

Lab Sample ID: T108800

Date Received: 11/14/06

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Analysis Date	Q	RL	M
7440-47-3	Chromium	0.010	U	12/04/06		0.010	P
7782-49-2	Selenium	0.010	U	12/04/06		0.010	P

Comments:

FORM I - IN

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WR-SPE-20061113-4.23

Lab Name: TraceAnalysis, Inc.

SDG No.: 6111417

Matrix (soil/water): Water

Lab Sample ID: T108800

Date Received: 11/14/06

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte Dissolved	Concentration	C	Analysis Date	Q	RL	M
7440-47-3	Chromium	0.02	U	11/22/06		0.02	P
7782-49-2	Selenium	0.02	U	11/22/06		0.02	P

Comments:

FORM I - IN

Forms by ChemSW(707)884-0345;pln11014;v3.21;1/1/98
ILM02.0

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WR-SPE-20061113-7.23

Lab Name: TraceAnalysis, Inc.

SDG No.: 6111417

Matrix (soil/water): Water

Lab Sample ID: T108803

Date Received: 11/14/06

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Analysis Date	Q	RL	M
7440-47-3	Chromium	0.010	U	12/04/06		0.010	P
7782-49-2	Selenium	0.010	U	12/04/06		0.010	P

Comments:

FORM I - IN

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WR-SPE-20061113-7.23

Lab Name: TraceAnalysis, Inc.

SDG No.: 6111417

Matrix (soil/water): Water

Lab Sample ID: T108803

Date Received: 11/14/06

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte Dissolved	Concentration	C	Analysis Date	Q	RL	M
7440-47-3	Chromium	0.02	U	11/22/06		0.02	P
7782-49-2	Selenium	0.02	U	11/22/06		0.02	P

Comments:

FORM I - IN

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WR-SPE-20061113-8.23

Lab Name: TraceAnalysis, Inc.

SDG No.: 6111417

Matrix (soil/water): Water

Lab Sample ID: T108803

Date Received: 11/14/06

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte Dissolved	Concentration	C	Analysis Date	Q	RL	M
7440-47-3	Chromium	0.02	U	11/22/06		0.02	P
7782-49-2	Selenium	0.02	U	11/22/06		0.02	P

Comments:

FORM I - IN

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WR-SPE-20061113-8.23

Lab Name: TraceAnalysis, Inc.

SDG No.: 6111417

Matrix (soil/water): Water

Lab Sample ID: T108804

Date Received: 11/14/06

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Analysis Date	Q	RL	M
7440-47-3	Chromium	0.010	U	12/04/06		0.010	P
7782-49-2	Selenium	0.010	U	12/04/06		0.010	P

Comments:

FORM I - IN

Forms by ChemSW(707)544-6345;pfm11014;v3.21;1/1/98
ILM02.0

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WR-SPE-20061113-11.23

Lab Name: TraceAnalysis, Inc.

SDG No.: 6111417

Matrix (soil/water): Water

Lab Sample ID: T108807

Date Received: 11/14/06

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Analysis Date	Q	RL	M
7440-47-3	Chromium	0.010	U	12/04/06		0.010	P
7782-49-2	Selenium	0.010	U	12/04/06		0.010	P

Comments:

FORM I - IN

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WR-SPE-20061113-11.23

Lab Name: TraceAnalysis, Inc.

SDG No.: 6111417

Matrix (soil/water): Water

Lab Sample ID: T108807

Date Received: 11/14/06

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte Dissolved	Concentration	C	Analysis Date	Q	RL	M
7440-47-3	Chromium	0.02	U	11/22/06		0.02	P
7782-49-2	Selenium	0.02	U	11/22/06		0.02	P

Comments:

FORM I - IN

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WR-SPE-20061113-12.23

Lab Name: TraceAnalysis, Inc.

SDG No.: 6111417

Matrix (soil/water): Water

Lab Sample ID: T108808

Date Received: 11/14/06

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Analysis Date	Q	RL	M
7440-47-3	Chromium	0.010	U	12/04/06		0.010	P
7782-49-2	Selenium	0.010	U	12/04/06		0.010	P

Comments:

FORM I - IN

Forms by ChemSW(707)884-0845;phn11014;v3.21;1/1/99
ILM02.0

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WR-SPE-20061113-12.23

Lab Name: TraceAnalysis, Inc.

SDG No.: 6111417

Matrix (soil/water): Water

Lab Sample ID: T108808

Date Received: 11/14/06

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte Dissolved	Concentration	C	Analysis Date	Q	RL	M
7440-47-3	Chromium	0.02	U	11/22/06		0.02	P
7782-49-2	Selenium	0.02	U	11/22/06		0.02	P

Comments:

FORM I - IN

Forms by ChemSW(707)864-0345;phn11014;v3.21;1/1/98
ILM02.0

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WR-SPE-20061113-15.23

Lab Name: TraceAnalysis, Inc.

SDG No.: 6111417

Matrix (soil/water): Water

Lab Sample ID: T108811

Date Received: 11/14/06

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Analysis Date	Q	RL	M
7440-47-3	Chromium	0.010	U	12/04/06		0.010	P
7782-49-2	Selenium	0.010	U	12/04/06		0.010	P

Comments:

FORM I - IN

Forms by ChemSW(707)864-0845;p/n11014;v3.21;1/1/98
ILM02.0

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WR-SPE-20061113-15.23

Lab Name: TraceAnalysis, Inc.

SDG No.: 6111417

Matrix (soil/water): Water

Lab Sample ID: T108811

Date Received: 11/14/06

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte Dissolved	Concentration	C	Analysis Date	Q	RL	M
7440-47-3	Chromium	0.02	U	11/22/06		0.02	P
7782-49-2	Selenium	0.02	U	11/22/06		0.02	P

Comments:

FORM I - IN

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WR-SPE-20061113-16.23

Lab Name: TraceAnalysis, Inc.

SDG No.: 6111417

Matrix (soil/water): Water

Lab Sample ID: T108812

Date Received: 11/14/06

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Analysis Date	Q	RL	M
7440-47-3	Chromium	0.010	U	12/04/06		0.010	P
7782-49-2	Selenium	0.010	U	12/04/06		0.010	P

Comments:

FORM I - IN

Forms by ChemSW(707)864-0345;p/n11014;v3.21;1/1/99
ILM02.0

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WR-SPE-20061113-16.23

Lab Name: TraceAnalysis, Inc.

SDG No.: 6111417

Matrix (soil/water): Water

Lab Sample ID: T108812

Date Received: 11/14/06

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte Dissolved	Concentration	C	Analysis Date	Q	RL	M
7440-47-3	Chromium	0.02	U	11/22/06		0.02	P
7782-49-2	Selenium	0.02	U	11/22/06		0.02	P

Comments:

FORM I - IN

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WR-SPE-20061113-19.23

Lab Name: TraceAnalysis, Inc.

SDG No.: 6111417

Matrix (soil/water): Water

Lab Sample ID: T108815

Date Received: 11/14/06

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Analysis Date	Q	RL	M
7440-47-3	Chromium	0.010	U	12/04/06		0.010	P
7782-49-2	Selenium	0.010	U	12/04/06		0.010	P

Comments:

FORM I - IN

Forms by ChemSW(707)864-0345;phr11014;v3.21;1/1/88
ILM02.0

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WR-SPE-20061113-19.23

Lab Name: TraceAnalysis, Inc.

SDG No.: 6111417

Matrix (soil/water): Water

Lab Sample ID: T108815

Date Received: 11/14/06

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte Dissolved	Concentration	C	Analysis Date	Q	RL	M
7440-47-3	Chromium	0.02	U	11/22/06		0.02	P
7782-49-2	Selenium	0.02	U	11/22/06		0.02	P

Comments:

FORM I - IN

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WR-SPE-20061113-20.23

Lab Name: TraceAnalysis, Inc.

SDG No.: 6111417

Matrix (soil/water): Water

Lab Sample ID: T108816

Date Received: 11/14/06

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Analysis Date	Q	RL	M
7440-47-3	Chromium	0.010	U	12/04/06		0.010	P
7782-49-2	Selenium	0.010	U	12/04/06		0.010	P

Comments:

FORM I - IN

Forms by ChemSW(707)864-0343;p/n11914;v3.21;1/1/93
ILM02.0

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WR-SPE-20061113-20.23

Lab Name: TraceAnalysis, Inc.

SDG No.: 6111417

Matrix (soil/water): Water

Lab Sample ID: T108816

Date Received: 11/14/06

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte Dissolved	Concentration	C	Analysis Date	Q	RL	M
7440-47-3	Chromium	0.02	U	11/22/06		0.02	P
7782-49-2	Selenium	0.02	U	11/22/06		0.02	P

Comments:

FORM I - IN

Forms by ChemSW(707)884-0845;phr11014;v3.21;1/1/06
ILM02.0

Attachment 3

Laboratory Data Summary Sheets for WQSP 6a

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WQ6ADLR22N7

Lab Name: TraceAnalysis, Inc.

SDG No.: 6050331

Matrix (soil/water): Water

Lab Sample ID: T89405

Date Received: 05/03/06

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Analysis Date	Q	RL	M
7440-36-0	Antimony	0.013	U	05/09/06		0.013	P
7440-38-2	Arsenic	0.1	U	05/09/06		0.1	P
7440-39-3	Barium	0.02	U	05/09/06		0.02	P
7440-41-7	Beryllium	0.010	U	05/09/06		0.010	P
7440-43-9	Cadmium	0.010	U	05/09/06		0.010	P
7440-47-3	Chromium	0.025	U	05/09/06		0.025	P
7439-89-6	Iron	0.500	U	05/09/06		0.500	P
7439-92-1	Lead	0.02	U	05/09/06		0.02	P
7439-97-6	Mercury	0.0002	U	05/10/06		0.0002	CV
7440-02-0	Nickel	0.025	U	05/09/06		0.025	P
7782-49-2	Selenium	0.025	U	05/09/06		0.025	P
7440-22-4	Silver	0.013	U	05/09/06		0.013	P
7440-28-0	Thallium	0.025	U	05/09/06		0.025	P
7440-62-2	Vanadium	0.05	U	05/09/06		0.05	P

Comments:

FORM I - IN

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

Lab Name: TraceAnalysis, Inc.

SDG No.: 6050331

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 05/03/06

WIPP Round No.	22
WIPP Well No.	6A

Concentration Units (mg/L or mg/Kg dry weight): mg/L

WIPP Sample No.	Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
WQ6ADLR22N8	T89407		Alkalinity	106		5/4/2006	SM 2320 B	4.0
WQ6ADLR22N8	T89407	7782-50-5	Chloride	450		5/5/2006	300.0	2.0
WQ6ADLR22N8	T89407		Density	1.01		5/5/2006	ASTM D 854-92	N/A
WQ6ADLR22N8	T89407	7727-37-9	Nitrate (as N)	2.50		5/5/2006	353.3	0.10
WQ6ADLR22N8	T89407		pH	7.55		5/4/2006	150.1	4-10
WQ6ADLR22N8	T89407		Conductivity	3870		5/5/2006	SM2510B	
WQ6ADLR22N8	T89407		Sulfate	2210		5/5/2006	300.0	2
WQ6ADLR22N8	T89407		Total Dissolved Solids (TDS)	3200		5/4/2006	160.1	10
WQ6ADLR22N5	T89401		Total Organic Carbon (TOC)	2.9		5/13/2006	415.1	1.0
WQ6ADLR22N4	T89399		Total Organic Halogen (TOX)	0.077	UJ	5/19/2006	5320B/9020B	0.03
WQ6ADLR22N8	T89407		Total Suspended Solids (TSS)	18.0		5/5/2006	160.2	1.0

(Density reported in g/mL, pH reported in s.u., Conductivity reported in uMHOs/cm, all other analytes reported in mg/L)
(pH ran as soon as received in laboratory)

Comments:
TOX and TOC ran by STL

TraceAnalysis, Inc.
1
INORGANIC ANALYSIS DATA SHEET

WIPP SAMPLE NO.

WQ6ADLR23N7

Lab Name: TraceAnalysis, Inc.

SDG No.: 6092028

Matrix (soil/water): Water

Lab Sample ID: T103920

Date Received: 09/20/06

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Analysis Date	Q	RL	M
7440-36-0	Antimony	0.013	U	09/22/06		0.013	P
7440-38-2	Arsenic	0.1	U	09/22/06		0.1	P
7440-39-3	Barium	0.02	U	09/22/06		0.02	P
7440-41-7	Beryllium	0.010	U	09/22/06		0.010	P
7440-43-9	Cadmium	0.010	U	09/22/06		0.010	P
7440-47-3	Chromium	0.025	U	09/22/06		0.025	P
7439-89-6	Iron	0.500	U	09/22/06		0.500	P
7439-92-1	Lead	0.02	U	09/22/06		0.02	P
7439-97-6	Mercury	0.0002	U	09/28/06		0.0002	CV
7440-02-0	Nickel	0.025	U	09/22/06		0.025	P
7782-49-2	Selenium	0.025	U	09/22/06		0.025	P
7440-22-4	Silver	0.013	U	09/22/06		0.013	P
7440-28-0	Thallium	0.025	U	09/22/06		0.025	P
7440-62-2	Vanadium	0.0560		09/22/06		0.05	P

Comments:

FORM I - IN

TRACEANALYSIS

FORM 1
CLASSICALS ANALYSIS DATA SHEET

Lab Name: TraceAnalysis, Inc.

SDG No.: 6092028

WIPP Round No. 23

WIPP Well No. 6A

Matrix (aqueous/solid/leachate): aqueous

Receipt date: 09/20/06

Concentration Units (mg/L or mg/Kg dry weight): mg/L

WIPP Sample No.	Lab Sample No.	CAS No.	Analyte	Conc.	C	Analysis Date	EPA Method No. (unless otherwise noted)	RL
WQ6ADLR23N8	T103922		Alkalinity	108		9/24/2006	SM 2320 B	4.0
WQ6ADLR23N8	T103922	7782-50-5	Chloride	360		9/21/2006	300.0	2.0
WQ6ADLR23N8	T103922		Density	1.01		9/22/2006	ASTM D 854-92	N/A
WQ6ADLR23N8	T103922	7727-37-9	Nitrate (as N)	6.00		9/22/2006	353.3	0.10
WQ6ADLR23N8	T103922		pH	7.22		9/20/2006	150.1	4-10
WQ6ADLR23N8	T103922		Conductivity	3960		9/22/2006	SM2510B	
WQ6ADLR23N8	T103922		Sulfate	2120		9/21/2006	300.0	2
WQ6ADLR23N8	T103922		Total Dissolved Solids (TDS)	3515		9/24/2006	160.1	10
WQ6ADLR23N6	T103916		Total Organic Carbon (TOC)	1.0	U	9/26/2006	415.1	1.0
WQ6ADLR23N4	T103914		Total Organic Halogen (TOX)	0.06	U	10/2/2006	5320B/9020B	0.03
WQ6ADLR23N8	T103922		Total Suspended Solids (TSS)	1.0	U	9/26/2006	160.2	1.0

(Density reported in g/mL, pH reported in s.u., Conductivity reported in uMHOs/cm, all other analytes reported in mg/L)
(pH ran as soon as received in laboratory)

Comments:
TOX and TOC ran by STL

Attachment 4

Laboratory Data Summary Sheets for Subsurface Shallow Water Wells

Summary Report

R. Salness
WRES
P.O.Box 2078
Carlsbad, NM, 88221-2078

Report Date: October 19, 2006

Work Order: 6101009

Project Number: 403426-3 Lines 3

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
105480	SSWC2811R6N1	water	2006-10-09	08:17	2006-10-10
105481	SSWC2811R6N2	water	2006-10-09	08:18	2006-10-10
105482	SSWPZ12R6N1	water	2006-10-09	09:20	2006-10-10
105483	SSWPZ12R6N2	water	2006-10-09	09:21	2006-10-10
105484	SSWPZ10R6N1	water	2006-10-09	10:02	2006-10-10
105485	SSWPZ10R6N2	water	2006-10-09	10:03	2006-10-10
105486	SSWPZ7R6N1	water	2006-10-09	10:50	2006-10-10
105487	SSWPZ7R6N2	water	2006-10-09	10:51	2006-10-10
105488	SSWPZ11R6N1	water	2006-10-09	11:35	2006-10-10
105489	SSWPZ11R6N2	water	2006-10-09	11:36	2006-10-10
105490	SSWPZ11R6N1EB	water	2006-10-09	11:50	2006-10-10
105491	SSWPZ11R6N2EB	water	2006-10-09	11:51	2006-10-10

Sample: 105480 - SSWC2811R6N1

Param	Flag	Result	Units	RL
Chloride		1310	mg/L	0.500
Nitrate-N		6.05	mg/L	0.200
Sulfate		402	mg/L	0.500
Total Dissolved Solids		2100	mg/L	10.0

Sample: 105481 - SSWC2811R6N2

Param	Flag	Result	Units	RL
Total Chromium		<0.00500	mg/L	0.00500
Total Selenium		<0.0100	mg/L	0.0100

Sample: 105482 - SSWPZ12R6N1

Param	Flag	Result	Units	RL
Chloride		5340	mg/L	0.500

continued ...

sample 105482 continued ...

Param	Flag	Result	Units	RL
Nitrate-N		13.2	mg/L	0.200
Sulfate		795	mg/L	0.500
Total Dissolved Solids		9150	mg/L	10.0

Sample: 105483 - SSWPZ12R6N2

Param	Flag	Result	Units	RL
Total Chromium		<0.00500	mg/L	0.00500
Total Selenium		<0.0100	mg/L	0.0100

Sample: 105484 - SSWPZ10R6N1

Param	Flag	Result	Units	RL
Chloride		350	mg/L	0.500
Nitrate-N		5.50	mg/L	0.200
Sulfate		549	mg/L	0.500
Total Dissolved Solids		1600	mg/L	10.0

Sample: 105485 - SSWPZ10R6N2

Param	Flag	Result	Units	RL
Total Chromium		<0.00500	mg/L	0.00500
Total Selenium		<0.0100	mg/L	0.0100

Sample: 105486 - SSWPZ7R6N1

Param	Flag	Result	Units	RL
Chloride		66800	mg/L	0.500
Nitrate-N		<1.00	mg/L	0.200
Sulfate		2890	mg/L	0.500
Total Dissolved Solids		81500	mg/L	10.0

Sample: 105487 - SSWPZ7R6N2

Param	Flag	Result	Units	RL
Total Chromium		<0.00500	mg/L	0.00500
Total Selenium		<0.0100	mg/L	0.0100

Sample: 105488 - SSWPZ11R6N1

Param	Flag	Result	Units	RL
Chloride		85800	mg/L	0.500
Nitrate-N		<1.00	mg/L	0.200
Sulfate		2550	mg/L	0.500

continued ...

sample 105488 continued ...

Param	Flag	Result	Units	RL
Total Dissolved Solids		123000	mg/L	10.0

Sample: 105489 - SSWPZ11R6N2

Param	Flag	Result	Units	RL
Total Chromium		<0.00500	mg/L	0.00500
Total Selenium		<0.0100	mg/L	0.0100

Sample: 105490 - SSWPZ11R6N1EB

Param	Flag	Result	Units	RL
Chloride		8.64	mg/L	0.500
Nitrate-N		<1.00	mg/L	0.200
Sulfate		<2.50	mg/L	0.500
Total Dissolved Solids		<10.0	mg/L	10.0

Sample: 105491 - SSWPZ11R6N2EB

Param	Flag	Result	Units	RL
Total Chromium		<0.00500	mg/L	0.00500
Total Selenium		<0.0100	mg/L	0.0100

Summary Report

R. Salness
WRES
P.O.Box 2078
Carlsbad, NM, 88221-2078

Report Date: October 19, 2006

Work Order: 6101114

Project Number: 403426-3 Lines 3

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
105581	SSWPZ9R6N1	water	2006-10-10	07:50	2006-10-11
105582	SSWPZ9R6N2	water	2006-10-10	07:51	2006-10-11
105583	SSWC2507R6N1	water	2006-10-10	08:40	2006-10-11
105584	SSWCR507R6N2	water	2006-10-10	08:41	2006-10-11
105585	SSWPZ1R6N1	water	2006-10-10	09:20	2006-10-11
105586	SSWPZ1R6N2	water	2006-10-10	09:21	2006-10-11
105587	SSWPZ5R6N1	water	2006-10-10	11:15	2006-10-11
105588	SSWPZ5R6N2	water	2006-10-10	11:16	2006-10-11
105589	SSWPZ6R6N1	water	2006-10-10	10:25	2006-10-11
105590	SSWPZ6R6N2	water	2006-10-10	10:26	2006-10-11
105591	SSWPZ5R6N1D	water	2006-10-10	11:15	2006-10-11
105592	SSWPZ5R6N2D	water	2006-10-10	11:16	2006-10-11
105593	SSWPZ5R6N1EB	water	2006-10-10	11:30	2006-10-11
105594	SSWPZ5R6N2EB	water	2006-10-10	11:31	2006-10-11

Sample: 105581 - SSWPZ9R6N1

Param	Flag	Result	Units	RL
Chloride		102000	mg/L	0.500
Nitrate-N		<20.0	mg/L	0.200
Sulfate		3370	mg/L	0.500
Total Dissolved Solids		135000	mg/L	10.0

Sample: 105582 - SSWPZ9R6N2

Param	Flag	Result	Units	RL
Total Chromium		<0.0250	mg/L	0.00500
Total Selenium		<0.0500	mg/L	0.0100

Sample: 105583 - SSWC2507R6N1

Param	Flag	Result	Units	RL
Chloride		1740	mg/L	0.500
Nitrate-N		2.90	mg/L	0.200
Sulfate		943	mg/L	0.500
Total Dissolved Solids		3640	mg/L	10.0

Sample: 105584 - SSWCR507R6N2

Param	Flag	Result	Units	RL
Total Chromium		<0.0250	mg/L	0.00500
Total Selenium		<0.0500	mg/L	0.0100

Sample: 105585 - SSWPZ1R6N1

Param	Flag	Result	Units	RL
Chloride		55300	mg/L	0.500
Nitrate-N		<1.00	mg/L	0.200
Sulfate		1390	mg/L	0.500
Total Dissolved Solids		70200	mg/L	10.0

Sample: 105586 - SSWPZ1R6N2

Param	Flag	Result	Units	RL
Total Chromium		<0.0250	mg/L	0.00500
Total Selenium		<0.0500	mg/L	0.0100

Sample: 105587 - SSWPZ5R6N1

Param	Flag	Result	Units	RL
Chloride		28800	mg/L	0.500
Nitrate-N		5.04	mg/L	0.200
Sulfate		1330	mg/L	0.500
Total Dissolved Solids		47400	mg/L	10.0

Sample: 105588 - SSWPZ5R6N2

Param	Flag	Result	Units	RL
Total Chromium		<0.0250	mg/L	0.00500
Total Selenium		<0.0500	mg/L	0.0100

Sample: 105589 - SSWPZ6R6N1

Param	Flag	Result	Units	RL
Chloride		79800	mg/L	0.500
Nitrate-N		252	mg/L	0.200
Sulfate		2790	mg/L	0.500
Total Dissolved Solids		134000	mg/L	10.0

Sample: 105590 - SSWPZ6R6N2

Param	Flag	Result	Units	RL
Total Chromium		<0.0250	mg/L	0.00500
Total Selenium		<0.0500	mg/L	0.0100

Sample: 105591 - SSWPZ5R6N1D

Param	Flag	Result	Units	RL
Chloride		22900	mg/L	0.500
Nitrate-N		<1.00	mg/L	0.200
Sulfate		1330	mg/L	0.500
Total Dissolved Solids		38200	mg/L	10.0

Sample: 105592 - SSWPZ5R6N2D

Param	Flag	Result	Units	RL
Total Chromium		<0.0250	mg/L	0.00500
Total Selenium		<0.0500	mg/L	0.0100

Sample: 105593 - SSWPZ5R6N1EB

Param	Flag	Result	Units	RL
Chloride		18.2	mg/L	0.500
Nitrate-N		1.94	mg/L	0.200
Sulfate		7.40	mg/L	0.500
Total Dissolved Solids		34.0	mg/L	10.0

Sample: 105594 - SSWPZ5R6N2EB

Param	Flag	Result	Units	RL
Total Chromium		<0.0250	mg/L	0.00500
Total Selenium		<0.0500	mg/L	0.0100

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

R. Salness
WRES
P.O.Box 2078
Carlsbad, NM, 88221-2078

Report Date: October 19, 2006

Work Order: 6101009

Project Number: 403426-3 Lines 3

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
105480	SSWC2811R6N1	water	2006-10-09	08:17	2006-10-10
105481	SSWC2811R6N2	water	2006-10-09	08:18	2006-10-10
105482	SSWPZ12R6N1	water	2006-10-09	09:20	2006-10-10
105483	SSWPZ12R6N2	water	2006-10-09	09:21	2006-10-10
105484	SSWPZ10R6N1	water	2006-10-09	10:02	2006-10-10
105485	SSWPZ10R6N2	water	2006-10-09	10:03	2006-10-10
105486	SSWPZ7R6N1	water	2006-10-09	10:50	2006-10-10
105487	SSWPZ7R6N2	water	2006-10-09	10:51	2006-10-10
105488	SSWPZ11R6N1	water	2006-10-09	11:35	2006-10-10
105489	SSWPZ11R6N2	water	2006-10-09	11:36	2006-10-10
105490	SSWPZ11R6N1EB	water	2006-10-09	11:50	2006-10-10
105491	SSWPZ11R6N2EB	water	2006-10-09	11:51	2006-10-10

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 25 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Analytical Report

Sample: 105480 - SSWC2811R6N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30865	Date Analyzed:	2006-10-06	Analyzed By:	WB
Prep Batch:	26872	Sample Preparation:	2006-10-10	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		1310		mg/L	100	0.500

Sample: 105480 - SSWC2811R6N1

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30865	Date Analyzed:	2006-10-06	Analyzed By:	WB
Prep Batch:	26872	Sample Preparation:	2006-10-10	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		6.05		mg/L	5	0.200

Sample: 105480 - SSWC2811R6N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30865	Date Analyzed:	2006-10-06	Analyzed By:	WB
Prep Batch:	26872	Sample Preparation:	2006-10-10	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		402		mg/L	100	0.500

Sample: 105480 - SSWC2811R6N1

Analysis:	TDS	Analytical Method:	E 160.1	Prep Method:	N/A
QC Batch:	31039	Date Analyzed:	2006-10-17	Analyzed By:	SM
Prep Batch:	26945	Sample Preparation:	2006-10-13	Prepared By:	SM

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		2100		mg/L	5	10.0

Sample: 105481 - SSWC2811R6N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	30889	Date Analyzed:	2006-10-12	Analyzed By:	RR
Prep Batch:	26890	Sample Preparation:	2006-10-11	Prepared By:	TS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.00500		mg/L	1	0.00500

Sample: 105481 - SSWC2811R6N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	30889	Date Analyzed:	2006-10-12	Analyzed By:	RR
Prep Batch:	26890	Sample Preparation:	2006-10-11	Prepared By:	TS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		<0.0100		mg/L	1	0.0100

Sample: 105482 - SSWPZ12R6N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30865	Date Analyzed:	2006-10-06	Analyzed By:	WB
Prep Batch:	26872	Sample Preparation:	2006-10-10	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		5340		mg/L	500	0.500

Sample: 105482 - SSWPZ12R6N1

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30865	Date Analyzed:	2006-10-06	Analyzed By:	WB
Prep Batch:	26872	Sample Preparation:	2006-10-10	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		13.2		mg/L	5	0.200

Sample: 105482 - SSWPZ12R6N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30865	Date Analyzed:	2006-10-06	Analyzed By:	WB
Prep Batch:	26872	Sample Preparation:	2006-10-10	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		795		mg/L	50	0.500

Sample: 105482 - SSWPZ12R6N1

Analysis:	TDS	Analytical Method:	E 160.1	Prep Method:	N/A
QC Batch:	31039	Date Analyzed:	2006-10-17	Analyzed By:	SM
Prep Batch:	26945	Sample Preparation:	2006-10-13	Prepared By:	SM

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		9150		mg/L	50	10.0

Sample: 105483 - SSWPZ12R6N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	30889	Date Analyzed:	2006-10-12	Analyzed By:	RR
Prep Batch:	26890	Sample Preparation:	2006-10-11	Prepared By:	TS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.00500		mg/L	1	0.00500

Sample: 105483 - SSWPZ12R6N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	30889	Date Analyzed:	2006-10-12	Analyzed By:	RR
Prep Batch:	26890	Sample Preparation:	2006-10-11	Prepared By:	TS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		<0.0100		mg/L	1	0.0100

Sample: 105484 - SSWPZ10R6N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30865	Date Analyzed:	2006-10-06	Analyzed By:	WB
Prep Batch:	26872	Sample Preparation:	2006-10-10	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		350		mg/L	50	0.500

Sample: 105484 - SSWPZ10R6N1

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30865	Date Analyzed:	2006-10-06	Analyzed By:	WB
Prep Batch:	26872	Sample Preparation:	2006-10-10	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		5.50		mg/L	5	0.200

Sample: 105484 - SSWPZ10R6N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30865	Date Analyzed:	2006-10-06	Analyzed By:	WB
Prep Batch:	26872	Sample Preparation:	2006-10-10	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		549	mg/L	50	0.500

Sample: 105484 - SSWPZ10R6N1

Analysis:	TDS	Analytical Method:	E 160.1	Prep Method:	N/A
QC Batch:	31042	Date Analyzed:	2006-10-17	Analyzed By:	SM
Prep Batch:	26946	Sample Preparation:	2006-10-13	Prepared By:	SM

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		1600	mg/L	2	10.0

Sample: 105485 - SSWPZ10R6N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	30889	Date Analyzed:	2006-10-12	Analyzed By:	RR
Prep Batch:	26890	Sample Preparation:	2006-10-11	Prepared By:	TS

Parameter	Flag	RL Result	Units	Dilution	RL
Total Chromium		<0.00500	mg/L	1	0.00500

Sample: 105485 - SSWPZ10R6N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	30889	Date Analyzed:	2006-10-12	Analyzed By:	RR
Prep Batch:	26890	Sample Preparation:	2006-10-11	Prepared By:	TS

Parameter	Flag	RL Result	Units	Dilution	RL
Total Selenium		<0.0100	mg/L	1	0.0100

Sample: 105486 - SSWPZ7R6N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30866 [a]	Date Analyzed:	2006-10-06	Analyzed By:	WB
Prep Batch:	26873	Sample Preparation:	2006-10-10	Prepared By:	WB

[a]Matrix sample not reported but % IA is 87% Cl, 110% NO3; 111% SO4, RPD is 2 Cl, 1 NO3, and 3 for SO4.

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		66800	mg/L	10000	0.500

Sample: 105486 - SSWPZ7R6N1

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30866 [a]	Date Analyzed:	2006-10-06	Analyzed By:	WB
Prep Batch:	26873	Sample Preparation:	2006-10-10	Prepared By:	WB

[a]Matrix sample not reported but % IA is 87% Cl, 110% NO3, 111% SO4, RPD is 2 Cl, 1 NO3, and 3 for SO4.

Parameter	Flag	Result	RL Units	Dilution	RL
Nitrate-N		<1.00	mg/L	5	0.200

Sample: 105486 - SSWPZ7R6N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30866 [a]	Date Analyzed:	2006-10-06	Analyzed By:	WB
Prep Batch:	26873	Sample Preparation:	2006-10-10	Prepared By:	WB

[a]Matrix sample not reported but % IA is 87% Cl, 110% NO3, 111% SO4, RPD is 2 Cl, 1 NO3, and 3 for SO4.

Parameter	Flag	Result	RL Units	Dilution	RL
Sulfate		2890	mg/L	100	0.500

Sample: 105486 - SSWPZ7R6N1

Analysis:	TDS	Analytical Method:	E 160.1	Prep Method:	N/A
QC Batch:	31042	Date Analyzed:	2006-10-17	Analyzed By:	SM
Prep Batch:	26946	Sample Preparation:	2006-10-13	Prepared By:	SM

Parameter	Flag	Result	RL Units	Dilution	RL
Total Dissolved Solids		81500	mg/L	100	10.0

Sample: 105487 - SSWPZ7R6N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	30889	Date Analyzed:	2006-10-12	Analyzed By:	RR
Prep Batch:	26890	Sample Preparation:	2006-10-11	Prepared By:	TS

Parameter	Flag	Result	RL Units	Dilution	RL
Total Chromium		<0.00500	mg/L	1	0.00500

Sample: 105487 - SSWPZ7R6N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	30889	Date Analyzed:	2006-10-12	Analyzed By:	RR
Prep Batch:	26890	Sample Preparation:	2006-10-11	Prepared By:	TS

Parameter	Flag	Result	RL Units	Dilution	RL
Total Selenium		<0.0100	mg/L	1	0.0100

Sample: 105488 - SSWPZ11R6N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30866 [a]	Date Analyzed:	2006-10-06	Analyzed By:	WB
Prep Batch:	26873	Sample Preparation:	2006-10-10	Prepared By:	WB

[a]Matrix sample not reported but % IA is 87% Cl, 110% NO3, 111% SO4, RPD is 2 Cl, 1 NO3, and 3 for SO4.

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		85800	mg/L	10000	0.500

Sample: 105488 - SSWPZ11R6N1

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30866 [a]	Date Analyzed:	2006-10-06	Analyzed By:	WB
Prep Batch:	26873	Sample Preparation:	2006-10-10	Prepared By:	WB

[a]Matrix sample not reported but % IA is 87% Cl, 110% NO3, 111% SO4, RPD is 2 Cl, 1 NO3, and 3 for SO4.

Parameter	Flag	Result	RL Units	Dilution	RL
Nitrate-N		<1.00	mg/L	5	0.200

Sample: 105488 - SSWPZ11R6N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30866 [a]	Date Analyzed:	2006-10-06	Analyzed By:	WB
Prep Batch:	26873	Sample Preparation:	2006-10-10	Prepared By:	WB

[a]Matrix sample not reported but % IA is 87% Cl, 110% NO3, 111% SO4, RPD is 2 Cl, 1 NO3, and 3 for SO4.

Parameter	Flag	Result	RL Units	Dilution	RL
Sulfate		2550	mg/L	100	0.500

Sample: 105488 - SSWPZ11R6N1

Analysis:	TDS	Analytical Method:	E 160.1	Prep Method:	N/A
QC Batch:	31042	Date Analyzed:	2006-10-17	Analyzed By:	SM
Prep Batch:	26946	Sample Preparation:	2006-10-13	Prepared By:	SM

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		123000		mg/L	100	10.0

Sample: 105489 - SSWPZ11R6N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	30889	Date Analyzed:	2006-10-12	Analyzed By:	RR
Prep Batch:	26890	Sample Preparation:	2006-10-11	Prepared By:	TS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.00500		mg/L	1	0.00500

Sample: 105489 - SSWPZ11R6N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	30889	Date Analyzed:	2006-10-12	Analyzed By:	RR
Prep Batch:	26890	Sample Preparation:	2006-10-11	Prepared By:	TS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		<0.0100		mg/L	1	0.0100

Sample: 105490 - SSWPZ11R6N1EB

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30903	Date Analyzed:	2006-10-11	Analyzed By:	WB
Prep Batch:	26875	Sample Preparation:	2006-10-10	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		8.64		mg/L	5	0.500

Sample: 105490 - SSWPZ11R6N1EB

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30903	Date Analyzed:	2006-10-11	Analyzed By:	WB
Prep Batch:	26875	Sample Preparation:	2006-10-10	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		<1.00		mg/L	5	0.200

Sample: 105490 - SSWPZ11R6N1EB

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30903	Date Analyzed:	2006-10-11	Analyzed By:	WB
Prep Batch:	26875	Sample Preparation:	2006-10-10	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		<2.50		mg/L	5	0.500

Sample: 105490 - SSWPZ11R6N1EB

Analysis:	TDS	Analytical Method:	E 160.1	Prep Method:	N/A
QC Batch:	31042	Date Analyzed:	2006-10-17	Analyzed By:	SM
Prep Batch:	26946	Sample Preparation:	2006-10-13	Prepared By:	SM

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		<10.0		mg/L	1	10.0

Sample: 105491 - SSWPZ11R6N2EB

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	30889	Date Analyzed:	2006-10-12	Analyzed By:	RR
Prep Batch:	26890	Sample Preparation:	2006-10-11	Prepared By:	TS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.00500		mg/L	1	0.00500

Sample: 105491 - SSWPZ11R6N2EB

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	30889	Date Analyzed:	2006-10-12	Analyzed By:	RR
Prep Batch:	26890	Sample Preparation:	2006-10-11	Prepared By:	TS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		<0.0100		mg/L	1	0.0100

Method Blank (1) QC Batch: 30865

QC Batch:	30865	Date Analyzed:	2006-10-06	Analyzed By:	WB
Prep Batch:	26872	QC Preparation:	2006-10-10	Prepared By:	WB

Parameter	Flag	Result	MDL	Units	RL
Chloride		<0.0181		mg/L	0.5

Method Blank (1) QC Batch: 30865

QC Batch: 30865
Prep Batch: 26872

Date Analyzed: 2006-10-06
QC Preparation: 2006-10-10

Analyzed By: WB
Prepared By: WB

Parameter	Flag	MDL Result	Units	RL
Nitrate-N		<0.0106	mg/L	0.2

Method Blank (1) QC Batch: 30865

QC Batch: 30865
Prep Batch: 26872

Date Analyzed: 2006-10-06
QC Preparation: 2006-10-10

Analyzed By: WB
Prepared By: WB

Parameter	Flag	MDL Result	Units	RL
Sulfate		<0.0485	mg/L	0.5

Method Blank (1) QC Batch: 30866

QC Batch: 30866
Prep Batch: 26873

Date Analyzed: 2006-10-06
QC Preparation: 2006-10-10

Analyzed By: WB
Prepared By: WB

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.0181	mg/L	0.5

Method Blank (1) QC Batch: 30866

QC Batch: 30866
Prep Batch: 26873

Date Analyzed: 2006-10-06
QC Preparation: 2006-10-10

Analyzed By: WB
Prepared By: WB

Parameter	Flag	MDL Result	Units	RL
Nitrate-N		<0.0106	mg/L	0.2

Method Blank (1) QC Batch: 30866

QC Batch: 30866
Prep Batch: 26873

Date Analyzed: 2006-10-06
QC Preparation: 2006-10-10

Analyzed By: WB
Prepared By: WB

Parameter	Flag	MDL Result	Units	RL
Sulfate		<0.0485	mg/L	0.5

Method Blank (1) QC Batch: 30889

QC Batch: 30889
Prep Batch: 26890

Date Analyzed: 2006-10-12
QC Preparation: 2006-10-11

Analyzed By: RR
Prepared By: TS

Parameter	Flag	MDL Result	Units	RL
Total Chromium		<0.00357	mg/L	0.005

Method Blank (1) QC Batch: 30889

QC Batch: 30889
Prep Batch: 26890

Date Analyzed: 2006-10-12
QC Preparation: 2006-10-11

Analyzed By: RR
Prepared By: TS

Parameter	Flag	MDL Result	Units	RL
Total Selenium		<0.00556	mg/L	0.01

Method Blank (1) QC Batch: 30903

QC Batch: 30903
Prep Batch: 26875

Date Analyzed: 2006-10-11
QC Preparation: 2006-10-11

Analyzed By: WB
Prepared By: WB

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.0181	mg/L	0.5

Method Blank (1) QC Batch: 30903

QC Batch: 30903
Prep Batch: 26875

Date Analyzed: 2006-10-11
QC Preparation: 2006-10-11

Analyzed By: WB
Prepared By: WB

Parameter	Flag	MDL Result	Units	RL
Nitrate-N		<0.0106	mg/L	0.2

Method Blank (1) QC Batch: 30903

QC Batch: 30903
Prep Batch: 26875

Date Analyzed: 2006-10-11
QC Preparation: 2006-10-11

Analyzed By: WB
Prepared By: WB

Parameter	Flag	MDL Result	Units	RL
Sulfate		<0.0485	mg/L	0.5

Method Blank (1) QC Batch: 31039

QC Batch: 31039
Prep Batch: 26945

Date Analyzed: 2006-10-17
QC Preparation: 2006-10-13

Analyzed By: SM
Prepared By: SM

Parameter	Flag	MDL Result	Units	RL
Total Dissolved Solids		<10.0	mg/L	10

Method Blank (1) QC Batch: 31042

QC Batch: 31042
Prep Batch: 26946

Date Analyzed: 2006-10-17
QC Preparation: 2006-10-13

Analyzed By: SM
Prepared By: WB

Parameter	Flag	MDL Result	Units	RL
Total Dissolved Solids		<10.0	mg/L	10

Duplicates (1)

QC Batch: 31039
Prep Batch: 26945

Date Analyzed: 2006-10-17
QC Preparation: 2006-10-13

Analyzed By: SM
Prepared By: SM

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	2390	2100	mg/L	20	13	144

Duplicates (1)

QC Batch: 31042
Prep Batch: 26946

Date Analyzed: 2006-10-17
QC Preparation: 2006-10-13

Analyzed By: SM
Prepared By: WB

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	1680	1600	mg/L	2	5	144

Laboratory Control Spike (LCS-1)

QC Batch: 30865
Prep Batch: 26872

Date Analyzed: 2006-10-06
QC Preparation: 2006-10-10

Analyzed By: WB
Prepared By: WB

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	12.7	mg/L	1	12.5	<0.0181	102	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	12.8	mg/L	1	12.5	<0.0181	102	90 - 110	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 30865
Prep Batch: 26872

Date Analyzed: 2006-10-06
QC Preparation: 2006-10-10

Analyzed By: WB
Prepared By: WB

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Nitrate-N	2.63	mg/L	1	2.50	<0.0106	105	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Nitrate-N	2.38	mg/L	1	2.50	<0.0106	95	90 - 110	10	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 30865
Prep Batch: 26872

Date Analyzed: 2006-10-06
QC Preparation: 2006-10-10

Analyzed By: WB
Prepared By: WB

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	13.2	mg/L	1	12.5	<0.0485	106	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate	13.1	mg/L	1	12.5	<0.0485	105	90 - 110	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 30866
Prep Batch: 26873

Date Analyzed: 2006-10-06
QC Preparation: 2006-10-10

Analyzed By: WB
Prepared By: WB

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	12.7	mg/L	1	12.5	<0.0181	102	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	12.9	mg/L	1	12.5	<0.0181	103	90 - 110	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 30866
Prep Batch: 26873

Date Analyzed: 2006-10-06
QC Preparation: 2006-10-10

Analyzed By: WB
Prepared By: WB

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Nitrate-N	2.70	mg/L	1	2.50	<0.0106	108	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Nitrate-N	2.78	mg/L	1	2.50	<0.0106	111	90 - 110	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 30866
Prep Batch: 26873

Date Analyzed: 2006-10-06
QC Preparation: 2006-10-10

Analyzed By: WB
Prepared By: WB

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	13.3	mg/L	1	12.5	<0.0485	106	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate	13.3	mg/L	1	12.5	<0.0485	106	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 30889
Prep Batch: 26890

Date Analyzed: 2006-10-12
QC Preparation: 2006-10-11

Analyzed By: RR
Prepared By: TS

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Chromium	0.102	mg/L	1	0.100	<0.00357	102	86.5 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Chromium	0.103	mg/L	1	0.100	<0.00357	103	86.5 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 30889
Prep Batch: 26890

Date Analyzed: 2006-10-12
QC Preparation: 2006-10-11

Analyzed By: RR
Prepared By: TS

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Selenium	0.424	mg/L	1	0.500	<0.00556	85	75 - 112

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Selenium	0.416	mg/L	1	0.500	<0.00556	83	75 - 112	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 30903
Prep Batch: 26875

Date Analyzed: 2006-10-11
QC Preparation: 2006-10-11

Analyzed By: WB
Prepared By: WB

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	13.0	mg/L	1	12.5	<0.0181	104	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	13.0	mg/L	1	12.5	<0.0181	104	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 30903
Prep Batch: 26875

Date Analyzed: 2006-10-11
QC Preparation: 2006-10-11

Analyzed By: WB
Prepared By: WB

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Nitrate-N	2.74	mg/L	1	2.50	<0.0106	110	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Nitrate-N	2.55	mg/L	1	2.50	<0.0106	102	90 - 110	7	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 30903
Prep Batch: 26875

Date Analyzed: 2006-10-11
QC Preparation: 2006-10-11

Analyzed By: WB
Prepared By: WB

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	13.5	mg/L	1	12.5	<0.0485	108	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate	13.6	mg/L	1	12.5	<0.0485	109	90 - 110	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 105484

QC Batch: 30865 Date Analyzed: 2006-10-06 Analyzed By: WB
Prep Batch: 26872 QC Preparation: 2006-10-10 Prepared By: WB

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	952	mg/L	50	625	350	96	25.4 - 171

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	985	mg/L	50	625	350	102	25.4 - 171	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 105484

QC Batch: 30865 Date Analyzed: 2006-10-06 Analyzed By: WB
Prep Batch: 26872 QC Preparation: 2006-10-10 Prepared By: WB

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Nitrate-N	139	mg/L	50	125	5.5	107	77.3 - 128

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Nitrate-N	148	mg/L	50	125	5.5	114	77.3 - 128	6	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 105484

QC Batch: 30865 Date Analyzed: 2006-10-06 Analyzed By: WB
Prep Batch: 26872 QC Preparation: 2006-10-10 Prepared By: WB

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	1220	mg/L	50	625	549	107	10 - 200

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate	1230	mg/L	50	625	549	109	10 - 200	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 105136

QC Batch: 30889
Prep Batch: 26890

Date Analyzed: 2006-10-12
QC Preparation: 2006-10-11

Analyzed By: RR
Prepared By: TS

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Chromium	0.409	mg/L	5	0.500	<0.0179	82	69.2 - 129

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Chromium	0.402	mg/L	5	0.500	<0.0179	80	69.2 - 129	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 105136

QC Batch: 30889
Prep Batch: 26890

Date Analyzed: 2006-10-12
QC Preparation: 2006-10-11

Analyzed By: RR
Prepared By: TS

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Selenium	1.79	mg/L	5	2.50	<0.0278	72	66.8 - 116

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Selenium	1.75	mg/L	5	2.50	<0.0278	70	66.8 - 116	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 105490

QC Batch: 30903
Prep Batch: 26875

Date Analyzed: 2006-10-11
QC Preparation: 2006-10-11

Analyzed By: WB
Prepared By: WB

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	77.1	mg/L	5	62.5	8.64	110	25.4 - 171

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	77.0	mg/L	5	62.5	8.64	109	25.4 - 171	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 105490

QC Batch: 30903
Prep Batch: 26875

Date Analyzed: 2006-10-11
QC Preparation: 2006-10-11

Analyzed By: WB
Prepared By: WB

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Nitrate-N	13.1	mg/L	5	12.5	<0.0530	105	77.3 - 128

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Nitrate-N	13.3	mg/L	5	12.5	<0.0530	106	77.3 - 128	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 105490

QC Batch: 30903 Date Analyzed: 2006-10-11 Analyzed By: WB
Prep Batch: 26875 QC Preparation: 2006-10-11 Prepared By: WB

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	63.8	mg/L	5	62.5	<0.242	102	10 - 200

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate	63.9	mg/L	5	62.5	<0.242	102	10 - 200	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1)

QC Batch: 30865 Date Analyzed: 2006-10-06 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.4	99	90 - 110	2006-10-06

Standard (ICV-1)

QC Batch: 30865 Date Analyzed: 2006-10-06 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.57	103	90 - 110	2006-10-06

Standard (ICV-1)

QC Batch: 30865 Date Analyzed: 2006-10-06 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	13.3	106	90 - 110	2006-10-06

Standard (CCV-1)

QC Batch: 30865 Date Analyzed: 2006-10-06 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.8	102	90 - 110	2006-10-06

Standard (CCV-1)

QC Batch: 30865 Date Analyzed: 2006-10-06 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.69	108	90 - 110	2006-10-06

Standard (CCV-1)

QC Batch: 30865 Date Analyzed: 2006-10-06 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	13.4	107	90 - 110	2006-10-06

Standard (ICV-1)

QC Batch: 30866 Date Analyzed: 2006-10-06 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.8	102	90 - 110	2006-10-06

Standard (ICV-1)

QC Batch: 30866 Date Analyzed: 2006-10-06 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.69	108	90 - 110	2006-10-06

Standard (ICV-1)

QC Batch: 30866 Date Analyzed: 2006-10-06 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	13.4	107	90 - 110	2006-10-06

Standard (CCV-1)

QC Batch: 30866 Date Analyzed: 2006-10-06 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.7	102	90 - 110	2006-10-06

Standard (CCV-1)

QC Batch: 30866 Date Analyzed: 2006-10-06 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.66	106	90 - 110	2006-10-06

Standard (CCV-1)

QC Batch: 30866 Date Analyzed: 2006-10-06 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	13.2	106	90 - 110	2006-10-06

Standard (ICV-1)

QC Batch: 30889 Date Analyzed: 2006-10-12 Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		mg/L	1.00	1.01	101	90 - 110	2006-10-12

Standard (ICV-1)

QC Batch: 30889 Date Analyzed: 2006-10-12 Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1.00	1.01	101	90 - 110	2006-10-12

Standard (CCV-1)

QC Batch: 30889 Date Analyzed: 2006-10-12 Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		mg/L	1.00	0.958	96	90 - 110	2006-10-12

Standard (CCV-1)

QC Batch: 30889 Date Analyzed: 2006-10-12 Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1.00	0.920	92	90 - 110	2006-10-12

Standard (ICV-1)

QC Batch: 30903 Date Analyzed: 2006-10-11 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.9	103	90 - 110	2006-10-11

Standard (ICV-1)

QC Batch: 30903 Date Analyzed: 2006-10-11 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.73	109	90 - 110	2006-10-11

Standard (ICV-1)

QC Batch: 30903 Date Analyzed: 2006-10-11 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	13.5	108	90 - 110	2006-10-11

Standard (CCV-1)

QC Batch: 30903 Date Analyzed: 2006-10-11 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	13.0	104	90 - 110	2006-10-11

Standard (CCV-1)

QC Batch: 30903 Date Analyzed: 2006-10-11 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.59	104	90 - 110	2006-10-11

Standard (CCV-1)

QC Batch: 30903 Date Analyzed: 2006-10-11 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	13.6	109	90 - 110	2006-10-11

Standard (ICV-1)

QC Batch: 31039 Date Analyzed: 2006-10-17 Analyzed By: SM

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	976	98	90 - 110	2006-10-17

Standard (CCV-1)

QC Batch: 31039 Date Analyzed: 2006-10-17 Analyzed By: SM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	973	97	90 - 110	2006-10-17

Standard (ICV-1)

QC Batch: 31042 Date Analyzed: 2006-10-17 Analyzed By: SM

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	973	97	90 - 110	2006-10-17

Standard (CCV-1)

QC Batch: 31042 Date Analyzed: 2006-10-17 Analyzed By: SM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	974	97	90 - 110	2006-10-17

RECEIVED BY Monica Quigley DATE/TIME 10/10/06 9:00

WP 02-EM3001 WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

TSD 6101009

REQUEST FOR ANALYSIS

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED 10/9/06
LAB DESTINATION Trace Analysis
LABORATORY CONTACT Mike Abel
SEND LAB REPORT TO Judy Lanier
P.O. Box 2078
Carlsbad, N.M. 88221
DATE REPORT REQUIRED 11/9/06
PROJECT CONTACT Rick Salness
PROJECT CONTACT PHONE NO. 505 234-8966

RFA Control No 6428
C of C Control No 6428

SAMPLING PROGRAM WIPP/SSWMP
PURCHASE ORDER NO. TO 403436-3 Line-3

Sample Number	Sample Type	Sample Quantity	Preservative	Req't. Testing Program	Special Instructions	
SSWC2811R6N1	Ground Water	1 liter x 1	NONE	General Chemistry	EPA 160.1, 300	105480
SSWC2811RCN2			HNO3 pH<2	Selenium/Chromium	Method 6010B	81
SSWPZ12R6N1			NONE	General Chemistry	EPA 160.1, 300	82
SSWPZ12R6N2			HNO3 pH<2	Selenium/Chromium	Method 6010B	83
SSWPZ10R6N1			NONE	General Chemistry	EPA 160.1, 300	84
SSWPZ10R6N2			HNO3 pH<2	Selenium/Chromium	Method 6010B	85
SSWPZ7R6N1			NONE	General Chemistry	EPA 160.1, 300	86
SSWPZ7R6N2			HNO3 pH<2	Selenium/Chromium	Method 6010B	87
SSWPZ11R6N1			NONE	General Chemistry	EPA 160.1, 300	88
SSWPZ11R6N2			HNO3 pH<2	Selenium/Chromium	Method 6010B	89
SSWPZ11R6N1EB			NONE	General Chemistry	EPA 160.1, 300	90
SSWPZ11RCN2EB	Ground Water	1 liter x 1	HNO3 pH<2	Selenium/Chromium	Method 6010B	91

* General Chemistry EPA 160.1 = TAS only, EPA 300 = Chloride, Sulfate, and Nitrate only

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL X RUSH _____ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NON-HAZARD X FLAMMABLE _____ SKIN IRRITANT _____ HIGHLY TOXIC _____ BIOLOGICAL _____ OTHER _____ (Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT _____ DISPOSAL BY LAB X

FOR LAB USE ONLY

Report Date: October 19, 2006
403426-3 Lines 3

Work Order: 6101009

Page Number: 24 of 25

04071

Received By: _____ Received By: _____

WP 02-EM3001

WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

4°C Bus GLI 169013676

CHAIN-OF-CUSTODY RECORD

6101009

C of C Control No 6428

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

RFA Control No 6428

SAMPLING PROGRAM WIPP/SSWMP LAB DESTINATION Trace Analysis

SAMPLE TEAM MEMBERS B. Foster CARRIER/WAYBILL NO: GLI 169 013 3676

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
SSW C28H R6N1	C-2811, SSW	10/9/06 0817	Ground water	1 liter plastic	good	105480
SSW C28H R6N2	C-2811, SSW	0818				81
SSW PZ12 R6N1	PZ-12, SSW	0920				82
SSW PZ12 R6N2	PZ-12, SSW	0921				83
SSW PZ10 R6N1	PZ-10, SSW	1002				84
SSW PZ10 R6N2	PZ-10, SSW	1003				85
SSW PZ7 R6N1	PZ-7, SSW	1050				86
SSW PZ7 R6N2	PZ-7, SSW	1051				87
SSW PZ11 R6N1	PZ-11, SSW	1135				88
SSW PZ11 R6N2	PZ-11, SSW	1136	Ground Water			89
SSW PZ11 R6N1 EB	PZ-11, EB	1150	EB			90
SSW PZ11 R6N2 EB	PZ-11, EB	10/9/06 1151	EB	1 liter plastic		91

Special Instructions: NONE

Possible Sample Hazards: NONE

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Bill Foster WRES, 10/9/06, 12:45
   Received By: Diana Bigley, Trace Analysis, 10/10/06, 9:00
2. Relinquished By: _____
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____

Report Date: October 19, 2006
403426-3 Lines 3

Work Order: 6101009

Page Number: 25 of 25

04072

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

R. Salness
WRES
P.O.Box 2078
Carlsbad, NM, 88221-2078

Report Date: October 19, 2006

Work Order: 6101114

Project Number: 403426-3 Lines 3

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
105581	SSWPZ9R6N1	water	2006-10-10	07:50	2006-10-11
105582	SSWPZ9R6N2	water	2006-10-10	07:51	2006-10-11
105583	SSWC2507R6N1	water	2006-10-10	08:40	2006-10-11
105584	SSWCR507R6N2	water	2006-10-10	08:41	2006-10-11
105585	SSWPZ1R6N1	water	2006-10-10	09:20	2006-10-11
105586	SSWPZ1R6N2	water	2006-10-10	09:21	2006-10-11
105587	SSWPZ5R6N1	water	2006-10-10	11:15	2006-10-11
105588	SSWPZ5R6N2	water	2006-10-10	11:16	2006-10-11
105589	SSWPZ6R6N1	water	2006-10-10	10:25	2006-10-11
105590	SSWPZ6R6N2	water	2006-10-10	10:26	2006-10-11
105591	SSWPZ5R6N1D	water	2006-10-10	11:15	2006-10-11
105592	SSWPZ5R6N2D	water	2006-10-10	11:16	2006-10-11
105593	SSWPZ5R6N1EB	water	2006-10-10	11:30	2006-10-11
105594	SSWPZ5R6N2EB	water	2006-10-10	11:31	2006-10-11

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 26 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Analytical Report

Sample: 105581 - SSWPZ9R6N1

Analysis: Chloride (IC)
QC Batch: 30953
Prep Batch: 26952

Analytical Method: E 300.0
Date Analyzed: 2006-10-12
Sample Preparation: 2006-10-12

Prep Method: N/A
Analyzed By: WB
Prepared By: WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		102000		mg/L	10000	0.500

Sample: 105581 - SSWPZ9R6N1

Analysis: NO3 (IC)
QC Batch: 30953
Prep Batch: 26952

Analytical Method: E 300.0
Date Analyzed: 2006-10-12
Sample Preparation: 2006-10-12

Prep Method: N/A
Analyzed By: WB
Prepared By: WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		<20.0		mg/L	100	0.200

Sample: 105581 - SSWPZ9R6N1

Analysis: SO4 (IC)
QC Batch: 30953
Prep Batch: 26952

Analytical Method: E 300.0
Date Analyzed: 2006-10-12
Sample Preparation: 2006-10-12

Prep Method: N/A
Analyzed By: WB
Prepared By: WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		3370		mg/L	100	0.500

Sample: 105581 - SSWPZ9R6N1

Analysis: TDS
QC Batch: 31042
Prep Batch: 26946

Analytical Method: E 160.1
Date Analyzed: 2006-10-17
Sample Preparation: 2006-10-13

Prep Method: N/A
Analyzed By: SM
Prepared By: SM

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		135000		mg/L	100	10.0

Sample: 105582 - SSWPZ9R6N2

Analysis: Cr, Total
QC Batch: 31040
Prep Batch: 26996

Analytical Method: S 6010B
Date Analyzed: 2006-10-18
Sample Preparation: 2006-10-16

Prep Method: S 3010A
Analyzed By: RR
Prepared By: TS

Parameter	Flag	Result	RL Units	Dilution	RL
Total Chromium		<0.0250	mg/L	5	0.00500

Sample: 105582 - SSWPZ9R6N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	31040	Date Analyzed:	2006-10-18	Analyzed By:	RR
Prep Batch:	26996	Sample Preparation:	2006-10-16	Prepared By:	TS

Parameter	Flag	Result	RL Units	Dilution	RL
Total Selenium		<0.0500	mg/L	5	0.0100

Sample: 105583 - SSWC2507R6N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30953	Date Analyzed:	2006-10-12	Analyzed By:	WB
Prep Batch:	26952	Sample Preparation:	2006-10-12	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		1740	mg/L	100	0.500

Sample: 105583 - SSWC2507R6N1

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30951	Date Analyzed:	2006-10-12	Analyzed By:	WB
Prep Batch:	26952	Sample Preparation:	2006-10-12	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Nitrate-N		2.90	mg/L	5	0.200

Sample: 105583 - SSWC2507R6N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30953	Date Analyzed:	2006-10-12	Analyzed By:	WB
Prep Batch:	26952	Sample Preparation:	2006-10-12	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Sulfate		943	mg/L	100	0.500

Sample: 105583 - SSWC2507R6N1

Analysis:	TDS	Analytical Method:	E 160.1	Prep Method:	N/A
QC Batch:	31042	Date Analyzed:	2006-10-17	Analyzed By:	SM
Prep Batch:	26946	Sample Preparation:	2006-10-13	Prepared By:	SM

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		3640	mg/L	5	10.0

Sample: 105584 - SSWCR507R6N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	31040	Date Analyzed:	2006-10-18	Analyzed By:	RR
Prep Batch:	26996	Sample Preparation:	2006-10-16	Prepared By:	TS

Parameter	Flag	RL Result	Units	Dilution	RL
Total Chromium		<0.0250	mg/L	5	0.00500

Sample: 105584 - SSWCR507R6N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	31040	Date Analyzed:	2006-10-18	Analyzed By:	RR
Prep Batch:	26996	Sample Preparation:	2006-10-16	Prepared By:	TS

Parameter	Flag	RL Result	Units	Dilution	RL
Total Selenium		<0.0500	mg/L	5	0.0100

Sample: 105585 - SSWPZ1R6N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30953	Date Analyzed:	2006-10-12	Analyzed By:	WB
Prep Batch:	26952	Sample Preparation:	2006-10-12	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		55300	mg/L	5000	0.500

Sample: 105585 - SSWPZ1R6N1

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30951	Date Analyzed:	2006-10-12	Analyzed By:	WB
Prep Batch:	26950	Sample Preparation:	2006-10-12	Prepared By:	WB

Parameter	Flag	RL Result	Units	Dilution	RL
Nitrate-N		<1.00	mg/L	5	0.200

Sample: 105585 - SSWPZ1R6N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30953	Date Analyzed:	2006-10-12	Analyzed By:	WB
Prep Batch:	26952	Sample Preparation:	2006-10-12	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		1390		mg/L	50	0.500

Sample: 105585 - SSWPZ1R6N1

Analysis:	TDS	Analytical Method:	E 160.1	Prep Method:	N/A
QC Batch:	31042	Date Analyzed:	2006-10-17	Analyzed By:	SM
Prep Batch:	26946	Sample Preparation:	2006-10-13	Prepared By:	SM

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		70200		mg/L	100	10.0

Sample: 105586 - SSWPZ1R6N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	31040	Date Analyzed:	2006-10-18	Analyzed By:	RR
Prep Batch:	26996	Sample Preparation:	2006-10-16	Prepared By:	TS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.0250		mg/L	5	0.00500

Sample: 105586 - SSWPZ1R6N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	31040	Date Analyzed:	2006-10-18	Analyzed By:	RR
Prep Batch:	26996	Sample Preparation:	2006-10-16	Prepared By:	TS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		<0.0500		mg/L	5	0.0100

Sample: 105587 - SSWPZ5R6N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30953	Date Analyzed:	2006-10-12	Analyzed By:	WB
Prep Batch:	26952	Sample Preparation:	2006-10-12	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		28800		mg/L	5000	0.500

Sample: 105587 - SSWPZ5R6N1

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30951	Date Analyzed:	2006-10-12	Analyzed By:	WB
Prep Batch:	26950	Sample Preparation:	2006-10-12	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		5.04		mg/L	5	0.200

Sample: 105587 - SSWPZ5R6N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30954	Date Analyzed:	2006-10-13	Analyzed By:	WB
Prep Batch:	26953	Sample Preparation:	2006-10-12	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		1330		mg/L	50	0.500

Sample: 105587 - SSWPZ5R6N1

Analysis:	TDS	Analytical Method:	E 160.1	Prep Method:	N/A
QC Batch:	31042	Date Analyzed:	2006-10-17	Analyzed By:	SM
Prep Batch:	26946	Sample Preparation:	2006-10-13	Prepared By:	SM

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		47400		mg/L	50	10.0

Sample: 105588 - SSWPZ5R6N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	31040	Date Analyzed:	2006-10-18	Analyzed By:	RR
Prep Batch:	26996	Sample Preparation:	2006-10-16	Prepared By:	TS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.0250		mg/L	5	0.00500

Sample: 105588 - SSWPZ5R6N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	31040	Date Analyzed:	2006-10-18	Analyzed By:	RR
Prep Batch:	26996	Sample Preparation:	2006-10-16	Prepared By:	TS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Selenium		<0.0500		mg/L	5	0.0100

Sample: 105589 - SSWPZ6R6N1

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30954	Date Analyzed:	2006-10-13	Analyzed By:	WB
Prep Batch:	26953	Sample Preparation:	2006-10-12	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		79800		mg/L	10000	0.500

Sample: 105589 - SSWPZ6R6N1

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30951	Date Analyzed:	2006-10-12	Analyzed By:	WB
Prep Batch:	26950	Sample Preparation:	2006-10-12	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Nitrate-N		252		mg/L	5	0.200

Sample: 105589 - SSWPZ6R6N1

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30954	Date Analyzed:	2006-10-13	Analyzed By:	WB
Prep Batch:	26953	Sample Preparation:	2006-10-12	Prepared By:	WB

Parameter	Flag	Result	RL	Units	Dilution	RL
Sulfate		2790		mg/L	100	0.500

Sample: 105589 - SSWPZ6R6N1

Analysis:	TDS	Analytical Method:	E 160.1	Prep Method:	N/A
QC Batch:	31042	Date Analyzed:	2006-10-17	Analyzed By:	SM
Prep Batch:	26946	Sample Preparation:	2006-10-13	Prepared By:	SM

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Dissolved Solids		134000		mg/L	100	10.0

Sample: 105590 - SSWPZ6R6N2

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	31040	Date Analyzed:	2006-10-18	Analyzed By:	RR
Prep Batch:	26996	Sample Preparation:	2006-10-16	Prepared By:	TS

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Chromium		<0.0250		mg/L	5	0.00500

Sample: 105590 - SSWPZ6R6N2

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	31040	Date Analyzed:	2006-10-18	Analyzed By:	RR
Prep Batch:	26996	Sample Preparation:	2006-10-16	Prepared By:	TS

Parameter	Flag	Result	RL Units	Dilution	RL
Total Selenium		<0.0500	mg/L	5	0.0100

Sample: 105591 - SSWPZ5R6N1D

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30954	Date Analyzed:	2006-10-13	Analyzed By:	WB
Prep Batch:	26953	Sample Preparation:	2006-10-12	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		22900	mg/L	500	0.500

Sample: 105591 - SSWPZ5R6N1D

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30951	Date Analyzed:	2006-10-12	Analyzed By:	WB
Prep Batch:	26950	Sample Preparation:	2006-10-12	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Nitrate-N		<1.00	mg/L	5	0.200

Sample: 105591 - SSWPZ5R6N1D

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30954	Date Analyzed:	2006-10-13	Analyzed By:	WB
Prep Batch:	26953	Sample Preparation:	2006-10-12	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Sulfate		1330	mg/L	50	0.500

Sample: 105591 - SSWPZ5R6N1D

Analysis:	TDS	Analytical Method:	E 160.1	Prep Method:	N/A
QC Batch:	31042	Date Analyzed:	2006-10-17	Analyzed By:	SM
Prep Batch:	26946	Sample Preparation:	2006-10-13	Prepared By:	SM

Parameter	Flag	Result	RL Units	Dilution	RL
Total Dissolved Solids		38200	mg/L	50	10.0

Sample: 105592 - SSWPZ5R6N2D

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	31040	Date Analyzed:	2006-10-18	Analyzed By:	RR
Prep Batch:	26996	Sample Preparation:	2006-10-16	Prepared By:	TS

Parameter	Flag	Result	RL Units	Dilution	RL
Total Chromium		<0.0250	mg/L	5	0.00500

Sample: 105592 - SSWPZ5R6N2D

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	31040	Date Analyzed:	2006-10-18	Analyzed By:	RR
Prep Batch:	26996	Sample Preparation:	2006-10-16	Prepared By:	TS

Parameter	Flag	Result	RL Units	Dilution	RL
Total Selenium		<0.0500	mg/L	5	0.0100

Sample: 105593 - SSWPZ5R6N1EB

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30951	Date Analyzed:	2006-10-12	Analyzed By:	WB
Prep Batch:	26950	Sample Preparation:	2006-10-12	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		18.2	mg/L	5	0.500

Sample: 105593 - SSWPZ5R6N1EB

Analysis:	NO3 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30951	Date Analyzed:	2006-10-12	Analyzed By:	WB
Prep Batch:	26950	Sample Preparation:	2006-10-12	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Nitrate-N		1.94	mg/L	5	0.200

Sample: 105593 - SSWPZ5R6N1EB

Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	30951	Date Analyzed:	2006-10-12	Analyzed By:	WB
Prep Batch:	26950	Sample Preparation:	2006-10-12	Prepared By:	WB

Parameter	Flag	Result	RL Units	Dilution	RL
Sulfate		7.40	mg/L	5	0.500

Sample: 105593 - SSWPZ5R6N1EB

Analysis:	TDS	Analytical Method:	E 160.1	Prep Method:	N/A
QC Batch:	31047	Date Analyzed:	2006-10-17	Analyzed By:	WB
Prep Batch:	26947	Sample Preparation:	2006-10-13	Prepared By:	SM

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		34.0	mg/L	1	10.0

Sample: 105594 - SSWPZ5R6N2EB

Analysis:	Cr, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	31040	Date Analyzed:	2006-10-18	Analyzed By:	RR
Prep Batch:	26996	Sample Preparation:	2006-10-16	Prepared By:	TS

Parameter	Flag	RL Result	Units	Dilution	RL
Total Chromium		<0.0250	mg/L	5	0.00500

Sample: 105594 - SSWPZ5R6N2EB

Analysis:	Se, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	31040	Date Analyzed:	2006-10-18	Analyzed By:	RR
Prep Batch:	26996	Sample Preparation:	2006-10-16	Prepared By:	TS

Parameter	Flag	RL Result	Units	Dilution	RL
Total Selenium		<0.0500	mg/L	5	0.0100

Method Blank (1) QC Batch: 30951

QC Batch:	30951	Date Analyzed:	2006-10-12	Analyzed By:	WB
Prep Batch:	26950	QC Preparation:	2006-10-12	Prepared By:	WB

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.0181	mg/L	0.5

Method Blank (1) QC Batch: 30951

QC Batch:	30951	Date Analyzed:	2006-10-12	Analyzed By:	WB
Prep Batch:	26950	QC Preparation:	2006-10-12	Prepared By:	WB

Parameter	Flag	MDL Result	Units	RL
Nitrate-N		<0.0106	mg/L	0.2

Method Blank (1) QC Batch: 30951

QC Batch:	30951	Date Analyzed:	2006-10-12
Prep Batch:	26950	QC Preparation:	2006-10-12

Analyzed By: WB
Prepared By: WB

Parameter	Flag	MDL Result	Units	RL
Sulfate		<0.0485	mg/L	0.5

Method Blank (1) QC Batch: 30953

QC Batch:	30953	Date Analyzed:	2006-10-12
Prep Batch:	26952	QC Preparation:	2006-10-12

Analyzed By: WB
Prepared By: WB

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.0181	mg/L	0.5

Method Blank (1) QC Batch: 30953

QC Batch:	30953	Date Analyzed:	2006-10-12
Prep Batch:	26952	QC Preparation:	2006-10-12

Analyzed By: WB
Prepared By: WB

Parameter	Flag	MDL Result	Units	RL
Nitrate-N	[1]	<0.0106	mg/L	0.2

Method Blank (1) QC Batch: 30953

QC Batch:	30953	Date Analyzed:	2006-10-12
Prep Batch:	26952	QC Preparation:	2006-10-12

Analyzed By: WB
Prepared By: WB

Parameter	Flag	MDL Result	Units	RL
Sulfate		<0.0485	mg/L	0.5

Method Blank (1) QC Batch: 30954

QC Batch:	30954	Date Analyzed:	2006-10-13
Prep Batch:	26953	QC Preparation:	2006-10-12

Analyzed By: WB
Prepared By: WB

continued ...

[1] Not entered

method blank continued ...

Parameter	Flag	MDL Result	Units	RL

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.0181	mg/L	0.5

Method Blank (1) QC Batch: 30954

QC Batch: 30954
Prep Batch: 26953

Date Analyzed: 2006-10-13
QC Preparation: 2006-10-12

Analyzed By: WB
Prepared By: WB

Parameter	Flag	MDL Result	Units	RL
Sulfate		<0.0485	mg/L	0.5

Method Blank (1) QC Batch: 31040

QC Batch: 31040
Prep Batch: 26996

Date Analyzed: 2006-10-18
QC Preparation: 2006-10-16

Analyzed By: RR
Prepared By: TS

Parameter	Flag	MDL Result	Units	RL
Total Chromium		<0.00357	mg/L	0.005

Method Blank (1) QC Batch: 31040

QC Batch: 31040
Prep Batch: 26996

Date Analyzed: 2006-10-18
QC Preparation: 2006-10-16

Analyzed By: RR
Prepared By: TS

Parameter	Flag	MDL Result	Units	RL
Total Selenium		<0.00556	mg/L	0.01

Method Blank (1) QC Batch: 31042

QC Batch: 31042
Prep Batch: 26946

Date Analyzed: 2006-10-17
QC Preparation: 2006-10-13

Analyzed By: SM
Prepared By: WB

Parameter	Flag	MDL Result	Units	RL
Total Dissolved Solids		<10.0	mg/L	10

Method Blank (1) QC Batch: 31047

QC Batch: 31047
Prep Batch: 26947

Date Analyzed: 2006-10-17
QC Preparation: 2006-10-13

Analyzed By: WB
Prepared By: WB

Parameter	Flag	MDL Result	Units	RL
Total Dissolved Solids		<10.0	mg/L	10

Duplicates (1)

QC Batch: 31042
Prep Batch: 26946

Date Analyzed: 2006-10-17
QC Preparation: 2006-10-13

Analyzed By: SM
Prepared By: WB

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	1680	1600	mg/L	2	5	144

Duplicates (1)

QC Batch: 31047
Prep Batch: 26947

Date Analyzed: 2006-10-17
QC Preparation: 2006-10-13

Analyzed By: WB
Prepared By: WB

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	66.0	34.0	mg/L	1	64	144

Laboratory Control Spike (LCS-1)

QC Batch: 30951
Prep Batch: 26950

Date Analyzed: 2006-10-12
QC Preparation: 2006-10-12

Analyzed By: WB
Prepared By: WB

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	13.4	mg/L	1	12.5	<0.0181	107	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	13.7	mg/L	1	12.5	<0.0181	110	90 - 110	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 30951
Prep Batch: 26950

Date Analyzed: 2006-10-12
QC Preparation: 2006-10-12

Analyzed By: WB
Prepared By: WB

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Nitrate-N	2.55	mg/L	1	2.50	<0.0106	102	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Nitrate-N	2.52	mg/L	1	2.50	<0.0106	101	90 - 110	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 30951
Prep Batch: 26950

Date Analyzed: 2006-10-12
QC Preparation: 2006-10-12

Analyzed By: WB
Prepared By: WB

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	12.3	mg/L	1	12.5	<0.0485	98	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate	13.5	mg/L	1	12.5	<0.0485	108	90 - 110	9	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 30953
Prep Batch: 26952

Date Analyzed: 2006-10-12
QC Preparation: 2006-10-12

Analyzed By: WB
Prepared By: WB

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	13.4	mg/L	1	12.5	<0.0181	107	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	13.5	mg/L	1	12.5	<0.0181	108	90 - 110	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 30953
Prep Batch: 26952

Date Analyzed: 2006-10-12
QC Preparation: 2006-10-12

Analyzed By: WB
Prepared By: WB

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Nitrate-N	<0.0106	mg/L	1	2.50	<0.0106		90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Nitrate-N	<0.0106	mg/L	1	2.50	<0.0106		90 - 110		20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 30953
Prep Batch: 26952

Date Analyzed: 2006-10-12
QC Preparation: 2006-10-12

Analyzed By: WB
Prepared By: WB

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	13.5	mg/L	1	12.5	<0.0485	108	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate	13.4	mg/L	1	12.5	<0.0485	107	90 - 110	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 30954
Prep Batch: 26953

Date Analyzed: 2006-10-13
QC Preparation: 2006-10-12

Analyzed By: WB
Prepared By: WB

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	12.2	mg/L	1	12.5	<0.0181	98	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	12.1	mg/L	1	12.5	<0.0181	97	90 - 110	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 30954
Prep Batch: 26953

Date Analyzed: 2006-10-13
QC Preparation: 2006-10-12

Analyzed By: WB
Prepared By: WB

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	13.1	mg/L	1	12.5	<0.0485	105	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate	13.1	mg/L	1	12.5	<0.0485	105	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 31040
Prep Batch: 26996

Date Analyzed: 2006-10-18
QC Preparation: 2006-10-16

Analyzed By: RR
Prepared By: TS

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Chromium	0.110	mg/L	1	0.100	<0.00357	110	86.5 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Chromium	0.109	mg/L	1	0.100	<0.00357	109	86.5 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 31040
Prep Batch: 26996

Date Analyzed: 2006-10-18
QC Preparation: 2006-10-16

Analyzed By: RR
Prepared By: TS

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Selenium	0.439	mg/L	1	0.500	<0.00556	88	75 - 112

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Selenium	0.425	mg/L	1	0.500	<0.00556	85	75 - 112	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 105379

QC Batch: 30951
Prep Batch: 26950

Date Analyzed: 2006-10-12
QC Preparation: 2006-10-12

Analyzed By: WB
Prepared By: WB

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	2330	mg/L	50	625	1400	149	25.4 - 171

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	2290	mg/L	50	625	1400	142	25.4 - 171	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 105379

QC Batch: 30951
Prep Batch: 26950

Date Analyzed: 2006-10-12
QC Preparation: 2006-10-12

Analyzed By: WB
Prepared By: WB

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Nitrate-N	142	mg/L	50	125	<0.530	114	77.3 - 128

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Nitrate-N	140	mg/L	50	125	<0.530	112	77.3 - 128	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 105379

QC Batch: 30951 Date Analyzed: 2006-10-12 Analyzed By: WB
Prep Batch: 26950 QC Preparation: 2006-10-12 Prepared By: WB

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	1020	mg/L	50	625	268	120	10 - 200

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate	1000	mg/L	50	625	268	117	10 - 200	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 105583

QC Batch: 30953 Date Analyzed: 2006-10-12 Analyzed By: WB
Prep Batch: 26952 QC Preparation: 2006-10-12 Prepared By: WB

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	3340	mg/L	100	1250	1740	128	25.4 - 171

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	3520	mg/L	100	1250	1740	142	25.4 - 171	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 105583

QC Batch: 30953 Date Analyzed: 2006-10-12 Analyzed By: WB
Prep Batch: 26952 QC Preparation: 2006-10-12 Prepared By: WB

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Nitrate-N	<0.0106	mg/L	1	2.50	<0.0106		77.3 - 128

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Nitrate-N	<0.0106	mg/L	1	2.50	<0.0106		77.3 - 128		20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 105583

QC Batch: 30953
Prep Batch: 26952

Date Analyzed: 2006-10-12
QC Preparation: 2006-10-12

Analyzed By: WB
Prepared By: WB

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	2460	mg/L	100	1250	943	121	10 - 200

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate	2560	mg/L	100	1250	943	129	10 - 200	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 105591

QC Batch: 30954
Prep Batch: 26953

Date Analyzed: 2006-10-13
QC Preparation: 2006-10-12

Analyzed By: WB
Prepared By: WB

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	134000	mg/L	10000	125000	<181	107	25.4 - 171

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	132000	mg/L	10000	125000	<181	106	25.4 - 171	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 105591

QC Batch: 30954
Prep Batch: 26953

Date Analyzed: 2006-10-13
QC Preparation: 2006-10-12

Analyzed By: WB
Prepared By: WB

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	136000	mg/L	10000	125000	<485	109	10 - 200

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate	143000	mg/L	10000	125000	<485	114	10 - 200	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 105582

QC Batch: 31040 Date Analyzed: 2006-10-18 Analyzed By: RR
Prep Batch: 26996 QC Preparation: 2006-10-16 Prepared By: TS

Param		MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Chromium	[2]	0.333	mg/L	5	0.500	<0.0179	67	69.2 - 129

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param		MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Chromium	[3]	0.337	mg/L	5	0.500	<0.0179	67	69.2 - 129	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 105582

QC Batch: 31040 Date Analyzed: 2006-10-18 Analyzed By: RR
Prep Batch: 26996 QC Preparation: 2006-10-16 Prepared By: TS

Param		MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Selenium	[4]	1.57	mg/L	5	2.50	<0.0278	63	66.8 - 116

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param		MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Selenium	[5]	1.57	mg/L	5	2.50	<0.0278	63	66.8 - 116	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (ICV-1)

QC Batch: 30951 Date Analyzed: 2006-10-12 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	13.6	109	90 - 110	2006-10-12

Standard (ICV-1)

QC Batch: 30951 Date Analyzed: 2006-10-12 Analyzed By: WB

[2]Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.
[3]Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.
[4]Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.
[5]Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.38	95	90 - 110	2006-10-12

Standard (ICV-1)

QC Batch: 30951 Date Analyzed: 2006-10-12 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	11.7	94	90 - 110	2006-10-12

Standard (CCV-1)

QC Batch: 30951 Date Analyzed: 2006-10-12 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	13.2	106	90 - 110	2006-10-12

Standard (CCV-1)

QC Batch: 30951 Date Analyzed: 2006-10-12 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	2.50	100	90 - 110	2006-10-12

Standard (CCV-1)

QC Batch: 30951 Date Analyzed: 2006-10-12 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	11.8	94	90 - 110	2006-10-12

Standard (ICV-1)

QC Batch: 30953 Date Analyzed: 2006-10-12 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	13.4	107	90 - 110	2006-10-12

Standard (ICV-1)

QC Batch: 30953 Date Analyzed: 2006-10-12 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	<0.0106		90 - 110	2006-10-12

Standard (ICV-1)

QC Batch: 30953 Date Analyzed: 2006-10-12 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	13.5	108	90 - 110	2006-10-12

Standard (CCV-1)

QC Batch: 30953 Date Analyzed: 2006-10-12 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.2	98	90 - 110	2006-10-12

Standard (CCV-1)

QC Batch: 30953 Date Analyzed: 2006-10-12 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrate-N		mg/L	2.50	<0.0106		90 - 110	2006-10-12

Standard (CCV-1)

QC Batch: 30953 Date Analyzed: 2006-10-12 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	13.6	109	90 - 110	2006-10-12

Standard (ICV-1)

QC Batch: 30954 Date Analyzed: 2006-10-13 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.2	98	90 - 110	2006-10-13

Standard (ICV-1)

QC Batch: 30954 Date Analyzed: 2006-10-13 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	13.6	109	90 - 110	2006-10-13

Standard (CCV-1)

QC Batch: 30954 Date Analyzed: 2006-10-13 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.1	97	90 - 110	2006-10-13

Standard (CCV-1)

QC Batch: 30954 Date Analyzed: 2006-10-13 Analyzed By: WB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	12.5	13.3	106	90 - 110	2006-10-13

Standard (ICV-1)

QC Batch: 31040 Date Analyzed: 2006-10-18 Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		mg/L	1.00	0.990	99	90 - 110	2006-10-18

Standard (ICV-1)

QC Batch: 31040 Date Analyzed: 2006-10-18 Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1.00	0.968	97	90 - 110	2006-10-18

Standard (CCV-1)

QC Batch: 31040 Date Analyzed: 2006-10-18 Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		mg/L	1.00	0.954	95	90 - 110	2006-10-18

Standard (CCV-1)

QC Batch: 31040 Date Analyzed: 2006-10-18 Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Selenium		mg/L	1.00	0.956	96	90 - 110	2006-10-18

Standard (ICV-1)

QC Batch: 31042 Date Analyzed: 2006-10-17 Analyzed By: SM

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	973	97	90 - 110	2006-10-17

Standard (CCV-1)

QC Batch: 31042 Date Analyzed: 2006-10-17 Analyzed By: SM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	974	97	90 - 110	2006-10-17

Standard (ICV-1)

QC Batch: 31047 Date Analyzed: 2006-10-17 Analyzed By: WB

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1030	103	90 - 110	2006-10-17

Standard (CCV-1)

QC Batch: 31047 Date Analyzed: 2006-10-17 Analyzed By: WB

CHAIN-OF-CUSTODY RECORD

6101114

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

C of C Control No. 6429

RFA Control No. 6429

SAMPLING PROGRAM WIPP/SSWMP

LAB DESTINATION Trace Analysis

SAMPLE TEAM MEMBERS B. Foster

CARRIER/WAYBILL NO. GLI 669013 3687

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
SSWPZ9R6N1	PZ-9, SSW	10/10/06 0750	Groundwater	1 liter plastic x1	good 105581	
SSWPZ9R6N2	PZ-9, SSW	0751				82
SSWC2507R6N1	C-2507, SSW	0840				83
SSWC2507R6N2	C-2507, SSW	0841				84
SSWPZ1R6N1	PZ-1, SSW	0920				85
SSWPZ1R6N2	PZ-1, SSW	0921				86
SSWPZ5R6N1	PZ-5, SSW	1115				87
SSWPZ5R6N2	PZ-5, SSW	1116				88
SSWPZ6R6N1	PZ-6, SSW	1025				89
SSWPZ6R6N2	PZ-6, SSW	1026				90
SSWPZ5R6N1D	PZ-5, SSW	1115				91
SSWPZ5R6N2D	PZ-5, SSW	1116	Groundwater			92
SSWPZ5R6N1EB	PZ-5, EB	1130	EB			93
SSWPZ5R6N2EB	PZ-5, EB	10/10/06 1131	EB	1 liter plastic x1		94

Special Instructions: NONE

Possible Sample Hazards: NONE

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Bill Foster, WRES, 10/10/06, 12:45
   Received By: Sheena Shipley, Trace Analysis, 10/11/06, 9:00
2. Relinquished By: _____
   Received By: _____
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: _____

WP 02-EM3001

4°C Bus GLI 669013 3687 NM

WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

Report Date: October 19, 2006
403426-3 Lines 3

Work Order: 6101114

Page Number: 25 of 26

04096

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1030	103	90 - 110	2006-10-17

REQUEST FOR ANALYSIS

6101114

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED 10/10/06
LAB DESTINATION Trace Analysis
LABORATORY CONTACT Mike Abel
SEND LAB REPORT TO Judy Lanier
P.O. Box 2078
Carlsbad, NM 88221
DATE REPORT REQUIRED 11/10/06
PROJECT CONTACT Rick Salness
PROJECT CONTACT PHONE NO. 505 234-8966

RFA Control No 6429
C of C Control No 6429

SAMPLING PROGRAM WIPP/SSWMP
PURCHASE ORDER NO. TO 403436-3 Line-3

Sample Number	Sample Type	Sample Quantity	Preservative	Req't. Testing Program	Special Instructions	
SSW PZ9R6N1	Groundwater	1 liter x 1	NONE	General Chemistry	EPA 160.1, 300 1055	81
SSW PZ9RC N2	↑	↑	HNO_3 pH<2	Selenium/Chromium	Method 6010B	82
SSWC2507R6N1			NONE	General Chemistry	EPA 160.1, 300	83
SSWC2507R6N2			HNO_3 pH<2	Selenium/Chromium	Method 6010B	84
SSWPZ1R6N1			NONE	General Chemistry	EPA 160.1, 300	85
SSWPZ1R6N2			HNO_3 pH<2	Selenium/Chromium	Method 6010B	86
SSW PZ5R6N1			NONE	General Chemistry	EPA 160.1, 300	87
SSW PZ5R6N2			HNO_3 pH<2	Selenium/Chromium	Method 6010B	88
SSW PZ6R6N1			NONE	General Chemistry	EPA 160.1, 300	89
SSW PZ6RCN2			HNO_3 pH<2	Selenium/Chromium	Method 6010B	90
SSWPZ5R6N1D			NONE	General Chemistry	EPA 160.1, 300	91
SSWPZ5R6N2D	Groundwater	↓	HNO_3 pH<2	Selenium/Chromium	Method 6010B	92
SSW PZ5R6N1EB	EB		NONE	General Chemistry	EPA 160.1, 300	93
SSWPZ5R6N2EB	EB	1 liter x 1	HNO_3 pH<2	Selenium/Chromium	Method 6010B	

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL X RUSH _____ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NONHAZARD X FLAMMABLE _____ SKIN IRRITANT _____ HIGHLY TOXIC _____ BIOLOGICAL _____ OTHER _____ (Specify)

* EPA 160.1 = TDS only, EPA 300 = Chloride, sulfate, and nitrate only.

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT _____ DISPOSAL BY LAB X

FOR LAB USE ONLY

RECEIVED BY Teresa Ripley DATE/TIME 10/11/06 9:00

4°C Bus-Ltr 1A193387 MA

WP 02-EM3001

WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

Report Date: October 19, 2006
403426-3 Lines 3

Work Order: 6101114

Page Number: 26 of 26

04098

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

JAN 2 8 2016

GROUND WATER
FEB 0 2 2016
BUREAU

Ms. Michelle Hunter, Bureau Chief
Ground Water Quality Bureau
New Mexico Environment Department
P.O. Box 5469
Santa Fe, NM 87502-5469

Subject: Semi-Annual Discharge Monitoring Report for July 1, 2015 through December 31, 2015, Discharge Permit 831

Dear Ms. Hunter:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Discharge Monitoring Report, including the required attachments on compact disk, for the period of July 1 through December 31, 2015. This report is required by Discharge Permit 831.

If you have any further questions regarding this report or require any additional information, please contact Anthony Stone at (575) 234-7475.

Sincerely,

Anthony Stone FOR

George T. Basabilvazo, Director
Environmental Protection Division

Enclosure (2)

cc: w/o Enclosures

R. Maestas, NMED *ED
CBFO M&RC
*ED denotes electronic distribution

D:EPD:GTB:ELN:16-0502:UFC 5486.00

04099

bcc: (without enclosures)

A. Stone, CBFO	*ED
A. Ward, CBFO	ED
J. Blankenhorn, NWP	ED
P. Breidenbach, NWP	ED
B. Babb, NWP	ED
M. Cabrera, NWP	ED
D. Cook, NWP	ED
M. Gonzales, NWP	ED
A. Hill, NWP	ED
B. Hill, NWP	ED
B. Shagula, NWP	ED
K. Day, NWP	ED
R. Chavez, RES	ED
J. Haschets, RES	ED
W. Jaco, RES	ED
S. Jones, RES	ED
S. Kouba, RES	ED
H. Moore, RES	ED
W. Most, RES	ED
R. Salness, RES	ED
A. Waldram, RES	ED

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 04, 2015

Greg Jungclaus

Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8615
FAX

RE: Env Monit (DP-831 Sewage) OrderNo.: 1510799

Dear Greg Jungclaus:

Hall Environmental Analysis Laboratory received 8 sample(s) on 10/16/2015 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued November 03, 2015.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Workorder Sample Summary

WO#: **1510799**

04-Nov-15

CLIENT: Waste Isolation Pilot Plant
Project: Env Monit (DP-831 Sewage)

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1510799-001	EC-SL2-20151015-1.3		10/15/2015 9:22:00 AM	10/16/2015 8:40:00 AM	Aqueous
1510799-002	EC-SL2-20151015-2.3		10/15/2015 9:17:00 AM	10/16/2015 8:40:00 AM	Aqueous
1510799-003	EC-SL2-20151015-3.3		10/15/2015 9:13:00 AM	10/16/2015 8:40:00 AM	Aqueous
1510799-004	EC-ELB-20151015-1.1		10/15/2015 8:48:00 AM	10/16/2015 8:40:00 AM	Aqueous
1510799-005	EC-ELC-20151015-1.1		10/15/2015 8:52:00 AM	10/16/2015 8:40:00 AM	Aqueous
1510799-006	EC-H19-20151015-1.2		10/15/2015 8:27:00 AM	10/16/2015 8:40:00 AM	Aqueous
1510799-007	EC-H19-20151015-2.2		10/15/2015 8:27:00 AM	10/16/2015 8:40:00 AM	Aqueous
1510799-008	EC-BLK-20151015-1.1		10/15/2015 9:30:00 AM	10/16/2015 8:40:00 AM	Aqueous

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1510799**
Date: **11/4/2015**

CLIENT: Waste Isolation Pilot Plant
Project: Env Monit (DP-831 Sewage)

METHOD: 300.0

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: none
Analysis: 300.0

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Calibration: All acceptance criteria were met.
2. Blanks: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Spikes: All acceptance criteria were met.
5. Samples: All acceptance criteria were met.

METHOD: SM2540C

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: SM2540C
Analysis: SM2540C

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Blanks: All acceptance criteria were met.
2. Spikes: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Samples: All acceptance criteria were met.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1510799**
Date: **11/4/2015**

CLIENT: Waste Isolation Pilot Plant
Project: Env Monit (DP-831 Sewage)

METHOD: SM4500 NorgC

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: SM4500 NorgC
Analysis: SM4500 NorgC

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Blanks: All acceptance criteria were met.
2. Spikes: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Samples: All acceptance criteria were met.

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-SL2-20151015-1.3
Project: Env Monit (DP-831 Sewage)
Collection Date: 10/15/2015 9:22:00 AM
Lab ID: 1510799-001
Matrix: AQUEOUS
Received Date: 10/16/2015 8:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Nitrogen, Nitrate (As N)	ND	0.291	0.500		mg/L	5	10/16/2015 5:02:14 PM	R29631

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-SL2-20151015-2.3
Project: Env Monit (DP-831 Sewage)
Collection Date: 10/15/2015 9:17:00 AM
Lab ID: 1510799-002 **Matrix:** AQUEOUS **Received Date:** 10/16/2015 8:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM 4500 NORG C: TKN							Analyst: **MAW**	
Nitrogen, Kjeldahl, Total	93.1	2.20	5.00	D	mg/L	1	10/28/2015 12:45:00 PM	21918

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-SL2-20151015-3.3
Project: Env Monit (DP-831 Sewage)
Collection Date: 10/15/2015 9:13:00 AM
Lab ID: 1510799-003
Matrix: AQUEOUS
Received Date: 10/16/2015 8:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	92.3	3.40	5.00		mg/L	10	10/20/2015 1:51:31 PM	R29689
Sulfate	55.5	3.21	5.00		mg/L	10	10/20/2015 1:51:31 PM	R29689
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	610	145	200	*D	mg/L	1	10/25/2015 3:49:00 PM	21975

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-ELB-20151015-1.1
Project: Env Monit (DP-831 Sewage)
Collection Date: 10/15/2015 8:48:00 AM
Lab ID: 1510799-004
Matrix: AQUEOUS
Received Date: 10/16/2015 8:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	49100	1700	2500		mg/L	5000	10/20/2015 2:53:33 PM	R29689
Sulfate	7810	1600	2500		mg/L	5000	10/20/2015 2:53:33 PM	R29689
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	96400	1450	2000	*D	mg/L	1	10/25/2015 3:49:00 PM	21975

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-ELC-20151015-1.1
Project: Env Monit (DP-831 Sewage)
Collection Date: 10/15/2015 8:52:00 AM
Lab ID: 1510799-005 **Matrix:** AQUEOUS **Received Date:** 10/16/2015 8:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	41300	1700	2500	*	mg/L	5000	10/23/2015 4:32:25 AM	A29743
Sulfate	6570	321	500	*	mg/L	1000	10/22/2015 2:26:21 AM	A29719
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	78400	1450	2000	*D	mg/L	1	10/25/2015 3:49:00 PM	21975

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-H19-20151015-1.2
Project: Env Monit (DP-831 Sewage)
Collection Date: 10/15/2015 8:27:00 AM
Lab ID: 1510799-006 **Matrix:** AQUEOUS **Received Date:** 10/16/2015 8:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	57800	1700	2500		mg/L	5000	10/20/2015 4:08:01 PM	R29689
Sulfate	93.0	3.21	5.00		mg/L	10	10/20/2015 3:55:36 PM	R29689
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	110000	1450	2000	*D	mg/L	1	10/25/2015 3:49:00 PM	21975

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-H19-20151015-2.2
Project: Env Monit (DP-831 Sewage)
Collection Date: 10/15/2015 8:27:00 AM
Lab ID: 1510799-007
Matrix: AQUEOUS
Received Date: 10/16/2015 8:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	47800	1700	2500		mg/L	5000	10/20/2015 4:57:39 PM	R29689
Sulfate	90.8	3.21	5.00		mg/L	10	10/20/2015 4:20:25 PM	R29689
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	117000	1450	2000	*D	mg/L	1	10/25/2015 3:49:00 PM	21975

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-BLK-20151015-1.1
Project: Env Monit (DP-831 Sewage)
Collection Date: 10/15/2015 9:30:00 AM
Lab ID: 1510799-008
Matrix: AQUEOUS
Received Date: 10/16/2015 8:40:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	0.595	0.340	0.500		mg/L	1	10/20/2015 5:10:04 PM	R29689
Sulfate	ND	0.321	0.500		mg/L	1	10/20/2015 5:10:04 PM	R29689
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	ND	14.5	20.0		mg/L	1	10/25/2015 3:49:00 PM	21975

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

DATES REPORT

WO#: **1510799**

04-Nov-15

Client: Waste Isolation Pilot Plant

Project: Env Monit (DP-831 Sewage)

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1510799-001A	EC-SL2-20151015-1.3	10/15/2015 9:22:00 AM	Aqueous	EPA Method 300.0: Anions			10/16/2015 5:14:38 PM
				EPA Method 300.0: Anions			10/16/2015 5:02:14 PM
1510799-002A	EC-SL2-20151015-2.3	10/15/2015 9:17:00 AM		SM 4500 Norg C: TKN		10/20/2015 7:37:29 AM	10/28/2015 12:45:00 PM
1510799-003A	EC-SL2-20151015-3.3	10/15/2015 9:13:00 AM		EPA Method 300.0: Anions			10/20/2015 2:03:56 PM
				EPA Method 300.0: Anions			10/20/2015 1:51:31 PM
				SM2540C MOD: Total Dissolved Soli		10/22/2015 7:19:40 AM	10/25/2015 3:49:00 PM
1510799-004A	EC-ELB-20151015-1.1	10/15/2015 8:48:00 AM		EPA Method 300.0: Anions			10/20/2015 2:53:33 PM
				EPA Method 300.0: Anions			10/20/2015 2:16:20 PM
				SM2540C MOD: Total Dissolved Soli		10/22/2015 7:19:40 AM	10/25/2015 3:49:00 PM
1510799-005A	EC-ELC-20151015-1.1	10/15/2015 8:52:00 AM		EPA Method 300.0: Anions			10/23/2015 4:32:25 AM
				EPA Method 300.0: Anions			10/20/2015 3:18:22 PM
				EPA Method 300.0: Anions			10/20/2015 3:05:57 PM
				EPA Method 300.0: Anions			10/22/2015 2:26:21 AM
				SM2540C MOD: Total Dissolved Soli		10/22/2015 7:19:40 AM	10/25/2015 3:49:00 PM
1510799-006A	EC-H19-20151015-1.2	10/15/2015 8:27:00 AM		EPA Method 300.0: Anions			10/20/2015 4:08:01 PM
				EPA Method 300.0: Anions			10/20/2015 3:55:36 PM
				SM2540C MOD: Total Dissolved Soli		10/22/2015 7:19:40 AM	10/25/2015 3:49:00 PM
1510799-007A	EC-H19-20151015-2.2			EPA Method 300.0: Anions			10/20/2015 4:57:39 PM
				EPA Method 300.0: Anions			10/20/2015 4:20:25 PM
				SM2540C MOD: Total Dissolved Soli		10/22/2015 7:19:40 AM	10/25/2015 3:49:00 PM
1510799-008A	EC-BLK-20151015-1.1	10/15/2015 9:30:00 AM		EPA Method 300.0: Anions			10/20/2015 5:22:28 PM
				EPA Method 300.0: Anions			10/20/2015 5:10:04 PM
				SM2540C MOD: Total Dissolved Soli		10/22/2015 7:19:40 AM	10/25/2015 3:49:00 PM

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510799**

04-Nov-15

Client: Waste Isolation Pilot Plant

Project: Env Monit (DP-831 Sewage)

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R29631**	RunNo: **29631**
Prep Date:	Analysis Date: **10/16/2015**	SeqNo: **902319** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	ND	0.100								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R29631**	RunNo: **29631**
Prep Date:	Analysis Date: **10/16/2015**	SeqNo: **902320** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	2.57	0.100	2.500	0	103	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R29689**	RunNo: **29689**
Prep Date:	Analysis Date: **10/20/2015**	SeqNo: **904075** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.500								
Sulfate	ND	0.500								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R29689**	RunNo: **29689**
Prep Date:	Analysis Date: **10/20/2015**	SeqNo: **904076** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.69	0.500	5.000	0	93.9	90	110			
Sulfate	9.53	0.500	10.00	0	95.3	90	110			

Sample ID **1510799-007AMS**	SampType: **MS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **EC-H19-20151015-2.**	Batch ID: **R29689**	RunNo: **29689**
Prep Date:	Analysis Date: **10/20/2015**	SeqNo: **904090** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	183	5.00	100.0	90.79	91.9	84.2	113			

Sample ID **1510799-007AMSD**	SampType: **MSD**	TestCode: **EPA Method 300.0: Anions**
Client ID: **EC-H19-20151015-2.**	Batch ID: **R29689**	RunNo: **29689**
Prep Date:	Analysis Date: **10/20/2015**	SeqNo: **904091** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	179	5.00	100.0	90.79	88.5	84.2	113	1.86	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510799**

04-Nov-15

Client: Waste Isolation Pilot Plant

Project: Env Monit (DP-831 Sewage)

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A29719**	RunNo: **29719**
Prep Date:	Analysis Date: **10/22/2015**	SeqNo: **905180** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.500								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A29719**	RunNo: **29719**
Prep Date:	Analysis Date: **10/22/2015**	SeqNo: **905181** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.56	0.500	10.00	0	95.6	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A29743**	RunNo: **29743**
Prep Date:	Analysis Date: **10/23/2015**	SeqNo: **905921** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A29743**	RunNo: **29743**
Prep Date:	Analysis Date: **10/23/2015**	SeqNo: **905922** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510799**

04-Nov-15

Client: Waste Isolation Pilot Plant

Project: Env Monit (DP-831 Sewage)

Sample ID	**MB-21975**	SampType: **MBLK**			TestCode: **SM2540C MOD: Total Dissolved Solids**					
Client ID:	**PBW**	Batch ID: **21975**			RunNo: **29768**					
Prep Date:	**10/22/2015**	Analysis Date: **10/25/2015**			SeqNo: **906544**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	15.0	20.0								J

Sample ID	**LCS-21975**	SampType: **LCS**			TestCode: **SM2540C MOD: Total Dissolved Solids**					
Client ID:	**LCSW**	Batch ID: **21975**			RunNo: **29768**					
Prep Date:	**10/22/2015**	Analysis Date: **10/25/2015**			SeqNo: **906545**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	80	120			

Sample ID	**1510799-004AMS**	SampType: **MS**			TestCode: **SM2540C MOD: Total Dissolved Solids**					
Client ID:	**EC-ELB-20151015-1.**	Batch ID: **21975**			RunNo: **29768**					
Prep Date:	**10/22/2015**	Analysis Date: **10/25/2015**			SeqNo: **906548**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	197000	2000	100000	96400	101	80	120			D

Sample ID	**1510799-004AMSD**	SampType: **MSD**			TestCode: **SM2540C MOD: Total Dissolved Solids**					
Client ID:	**EC-ELB-20151015-1.**	Batch ID: **21975**			RunNo: **29768**					
Prep Date:	**10/22/2015**	Analysis Date: **10/25/2015**			SeqNo: **906549**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	198000	2000	100000	96400	102	80	120	0.809	5	D

Sample ID	**1510799-007AMS**	SampType: **MS**			TestCode: **SM2540C MOD: Total Dissolved Solids**					
Client ID:	**EC-H19-20151015-2.**	Batch ID: **21975**			RunNo: **29768**					
Prep Date:	**10/22/2015**	Analysis Date: **10/25/2015**			SeqNo: **906553**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	213000	2000	100000	117300	95.6	80	120			D

Sample ID	**1510799-007AMSD**	SampType: **MSD**			TestCode: **SM2540C MOD: Total Dissolved Solids**					
Client ID:	**EC-H19-20151015-2.**	Batch ID: **21975**			RunNo: **29768**					
Prep Date:	**10/22/2015**	Analysis Date: **10/25/2015**			SeqNo: **906554**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	221000	2000	100000	117300	104	80	120	3.73	5	D

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510799**

04-Nov-15

Client: Waste Isolation Pilot Plant

Project: Env Monit (DP-831 Sewage)

Sample ID **MB-21918**	SampType: **MBLK**	TestCode: **SM 4500 Norg C: TKN**
Client ID: **PBW**	Batch ID: **21918**	RunNo: **29856**
Prep Date: **10/20/2015**	Analysis Date: **10/28/2015**	SeqNo: **909220** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	1.00								

Sample ID **LCS-21918**	SampType: **LCS**	TestCode: **SM 4500 Norg C: TKN**
Client ID: **LCSW**	Batch ID: **21918**	RunNo: **29856**
Prep Date: **10/20/2015**	Analysis Date: **10/28/2015**	SeqNo: **909221** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10.5	1.00	10.00	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **WIPP** Work Order Number: **1510799** RcptNo: 1

Received by/date: JA 10/16/15

Logged By: **Anne Thorne** 10/16/2015 8:40:00 AM Anne Thorne

Completed By: **Anne Thorne** 10/16/2015 Anne Thorne

Reviewed By: MG 10/16/15

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☑	No ☐	Not Present ☐
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	FedEx		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: (<2 or >12 unless noted)

Adjusted?

Checked by: JA

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

04118

CHAIN-OF-CUSTODY RECORD

№ 09817

C of C Control _____

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

SIGN HERE

RFA Control № 09817

SAMPLING PROGRAM ENV- Monit (DP-831 Sewage) LAB DESTINATION Hall Environmental Lab (HEAL)

SAMPLE TEAM MEMBERS J Hernandez CARRIER/WAYBILL NO. Fed Ex

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
EC-SL2-20151015 - 1.3	Settling Lagoon 2	10-15-15 0922	Sewage	1 Liter	1510799 -	001 N/A
2.3		0917		500 mL		002
3.3		0913				003
EC-ELB-20151015 - 1.1	Effluent Lagoon B	0848				004
ELC 1.1	C	0852				005
H19 1.2	H-19	0827				006
H19 2.2		0827				007
BLK 1.1	Blank	0930	Blank			008

N/A

Special Instructions: Do Nitrate (1 Liter) within 48 hours of time Collected / USE ELB(1.1) for MS/MSD QC sample.

Possible Sample Hazards: ☐ Radiological ☒ Bio-Hazard

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Jerome Hernandez NWP 10-15-15 1020
   Received By: Joe Abbott 10/16/15 0840
   1.0 C°
2. Relinquished By: _____
   Received By: _____
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: _____

WP 02-EM3001- Environmental Monitoring | WHITE - Original to accompany samples | YELLOW - Field copy | PINK - Other

041119

REQUEST FOR ANALYSIS

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED 10-15-15
RFA Control № 09817
LAB DESTINATION Hall Environmental
LABORATORY CONTACT Andy Freeman
SEND LAB REPORT TO NWP
P.O. Box 2078 m/s 452-09
Carlsbad, N. Mex 88221
C of C Control № 09817
DATE REPORT REQUIRED Per S.O.W
PROJECT CONTACT c/o Greg Jungclaus
PROJECT CONTACT PHONE NO. (575) 234-8615
SAMPLING PROGRAM ENV-Monit (DP-831)
PURCHASE ORDER NO. 502542-4
1510799

Sample Number	Sample Type	Sample Quantity	Preservative	Req't. Testing Program	Special Instructions
EC-SL2-20151015 - 1.3	Sewage	1 Liter	≤4°C	Per S.O.W	MAX hold time 48 hrs-001
2.3		500 mL	H_2SO_4 to pH ≤2, ≤4°C		N/A 002
3.3			≤4°C		003
EC-ELB-20151015 - 1.1					004
ELC 1.1					005
H19 1.2					006
H19 2.2					Use for ms/msD QC Sample
Blk 1.1	Blank				N/A 008

N/A

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL X RUSH _____ (Subject in rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NONHAZARD _____ RADIOLOGICAL _____ FLAMMABLE _____ SKIN IRRITANT _____ HIGHLY TOXIC _____ BIOLOGICAL X OTHER _____ (Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT _____ DISPOSAL BY LAB X

FOR LAB USE ONLY

RECEIVED BY Jac. Abbott 1.0°C DATE/TIME 10/16/15 0840

WP 02-EM3001- Environmental Monitoring

WHITE - Original to accompany samples

YELLOW - Field copy

PINK - Other

04120

Attachment 1 – Sewage Lagoon Sample Data Work Sheet

SEWAGE SYSTEM LAGOONS SAMPLE DATA WORK SHEET

Sample Data Work Sheet No. 002

CMRO Entry Notification 0840 Time | CMRO Exit Notification 0937 Time | Biohazard Delivered to Nurse: 0950 Time

Pond:	SL1	SL2	PL1	PL2	ELA	ELB	ELC

TO CONTRACT LAB

SAMPLE CODES	LOCATION	SIZE	ANALYSIS	PRESERVATIVE	DATE/TIME
EC-SL2-20151015-1.3	Settling Lagoon 2	1 Liter	Nitrate	≤4°C	10-15-15 0922
↓ ↓ ↓ 2.3	↓	500 mL	TKN	H_2SO_4 to pH≤2, ≤4°C	0917
↓ ↓ ↓ 3.3	↓	↓	Sulfate, Chloride, TDS	≤4°C	0913
EC-ELB-20151015-1.1	Effluent Lagoon B	↓	↓	↓	0848
ELC 1.1	↓ C	↓	↓	↓	0852
H19 1.2	H-19	↓	↓	↓	0827
H19 2.2	↓	↓	↓	↓	0827
BLK 1.1	Blank	↓	↓	↓	0930

Personnel: Jerome Hernandez

Comments: Do not use Filed Blank sample for MS/MSD QC sample use ELB 1.1. Do Nitrate (1 Liter) within 48 hours
Pre-job briefing held; Acid safety; Slips & Falls

Collected by: Jerome Hernandez (Printed Name) | Env. Monit (Title) | [signature] (Signature) | 10-15-15 (Date)

Reviewed by: Rick Eggleston (Printed Name) | Env. Spec. (Title) | [signature] (Signature) | 10/15/15 (Date)

[signature] 10/16/15

REFERENCE USE
0944 1.0°C

Discharge to Facultative Lagoon System
July through December 2016

Date	Gallons Domestic	Gallons for the Month	Avg. Gal per day
06/29 - 07/05	108103		
07/06 - 07/12	81,389		
07/13 - 07/19	96,654		
07/20 - 07/26	80,612		
07/27 - 08/03	87,044	453,802	16,207
08/04 - 08/09	89,270		
08/10 - 08/16	90,605		
08/17 - 08/23	88,913		
08/24 - 08/30	94,132	362,920	12,961
08/31 - 09/06	89,342		
09/07 - 09/13	89,269		
09/14 - 09/20	94,205		
09/21 - 09/27	99,711		
09/28 - 10-04	97,059	469,586	13,417
10/05 - 10/11	96,160		
10/12 - 10/18	92,964		
10/19 - 10/25	95,224		
10/26 - 11/01	97,971	382,319	13,654
11/02 - 11/08	96,932		
11/09 - 11/15	100,428		
11/16 - 11/22	113,785		
11/23 - 11/30	106,730	417,875	14,924
11/30 - 12/06	203,123		
12/07 - 12/13	112,087		
12/14 - 12/20	117,678		
12/21 - 12/27	105,511		
12/28 - 12/31*	76,914	615,313	19,229
	Total Flow	2,701,815	

* - Flow for these four days is estimated.

04122

Facility Site Operations and Infrastructure Bldg 458 / 456 Round Sheet

Original

INFORMATION ONLY

Date: 6-29-15 - 7-5-15

Location:	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
456, PUMPHOUSE BUILDING	REVIEWER		[illegible]	[illegible]	RT	[illegible]	RT.	[illegible]	RT.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	FOT	C/O	[illegible]	LD	[illegible]	[illegible]	[illegible]	RDC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07)			0.5	1	0												
412 ODOR ABS CHAR FILTER (PDI-08)			0.5	1	0												
412 ODOR ABS MOD FILTER (PDI-09)			0.5	1	0												
403 AHU LOW FILTER (PDI-03)			0.5	SLB4	SLB4												
403 AHU MOD FILTER (PDI-04)			0.5	↓	↓												
456-CP-010-01 CONTROL PANEL																	
DOMESTIC WATER PRESS (PIC-01)	60	65	70	69	65	69	70	107	68	68	68	68	110	107	66	66	65	64	65
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS	RESET MONDAY [A]			125140	35363												
DOMESTIC WATER GALLONS	RESET MONDAY [A]			94350	28103												
456-FM-045-001 SEWAGE FLOW METER																	
SEWAGE FLOW GALLONS		[B]	23,000	317,900	317,300	318,000	415.50	322,200	685,100	744,300	203,700						
HACH TEST KIT																	
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	1.04	1.08	1.14	1.07	1.04	1.02	.95	.93						

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT

[B] - REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM

[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS

COMMENTS: ORP# 1506455 / DATA STEC

APPROVED FOR USE/DATE : [signature] 061713

Facility Site Operations and Infrastructure Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Date: 07065-071245

Location:	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
456, PUMPHOUSE BUILDING	REVIEWER															R.T.
	FOT	C/O														KM

ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07)			0.5		0												
412 ODOR ABS CHAR FILTER (PDI-08)			0.5		0												
412 ODOR ABS MOD FILTER (PDI-09)			0.5		0.02												
403 AHU LOW FILTER (PDI-03)			0.5														
403 AHU MOD FILTER (PDI-04)			0.5														
456-CP-010-01 CONTROL PANEL																	
DOMESTIC WATER PRESS (PIC-01)	60	65	70	64	65	67	67	65	64	64	65	65	65	65	67	66	
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS		RESET MONDAY [A]															
DOMESTIC WATER GALLONS		RESET MONDAY [A]			81534 / 81589												
456-FM-045-001 SEWAGE FLOW METER																	
SEWAGE FLOW GALLONS		[B]	23,000														
HACH TEST KIT																	
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2		.74 ②		.96		.73		.92		1.0		1.6 ③		1.59 ③

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT

[B] - REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM

[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS

COMMENTS:

① OUT OF SPEC A² # 150 C 455

② Add Chlorine

③ OUT OF Spec FSM NOTIFIED

APPROVED FOR USE/DATE: 061713

INFORMATION ONLY

Facility Site Operations and Infrastructure Bldg 458 / 456 Round Sheet

Date: 7/13/15 – 7/19/15

Location: 458, GUARD & SECURITY BUILDING 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER		DW								DP		RT		DP	
		FOT	C/O	CO	DP			LD				RT	FOS	DP			
ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07)			0.5	0													
412 ODOR ABS CHAR FILTER (PDI-08)			0.5	0													
412 ODOR ABS MOD FILTER (PDI-09)			0.5	.02	.02												
403 AHU LOW FILTER (PDI-03)			0.5	STBY	STBY												
403 AHU MOD FILTER (PDI-04)			0.5	↓	↓												
456-CP-010-01 CONTROL PANEL																	
DOMESTIC WATER PRESS (PIC-01)	60	65	70	66	66	66	66	66	65	65	63	64	64	64	64	64	66
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS		RESET MONDAY [A]		81534		96590											
DOMESTIC WATER GALLONS		RESET MONDAY [A]		81385		96654											
456-FM-045-001 SEWAGE FLOW METER																	
SEWAGE FLOW GALLONS		[B]	23,000	279700 (1)		312100 (1)		26600 (1)		22600		23500		17,700		16100	14000
HACH TEST KIT																	
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	1.59 (2)		1.25 (2)		1.03 (2)		1.27 (2)		1.20		1.26 (2)		1.26 (2)	1.2

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT

[B] - REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM

[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS

COMMENTS: (1) Out of Spec AR # 1506455

(2) Out of Spec FSM notified.

APPROVED FOR USE/DATE: [signature] 061715

Facility Site Operations and Infrastructure Bldg 458 / 456 Round Sheet

Original

INFORMATION ONLY

Date: 7/20/15 7/26/15

Location:	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
456, PUMPHOUSE BUILDING	REVIEWER		AHC	AHC												
	FOT	C/O	CO	EDS												

ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07)			0.5	0	0												
412 ODOR ABS CHAR FILTER (PDI-08)			0.5	0	0												
412 ODOR ABS MOD FILTER (PDI-09)			0.5	.02	.02												
403 AHU LOW FILTER (PDI-03)			0.5	STBY	STBY												
403 AHU MOD FILTER (PDI-04)			0.5	↓	↓												
456-CP-010-01 CONTROL PANEL																	
DOMESTIC WATER PRESS (PIC-01)	60	65	70	66	66	60											
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS	RESET MONDAY [A]			96390.4		139628											
DOMESTIC WATER GALLONS	RESET MONDAY [A]			96654.0		80,612											
456-FM-045-001 SEWAGE FLOW METER																	
SEWAGE FLOW GALLONS		[B]	23,000	14000 ①		20,600 ①											
HACH TEST KIT																	
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	1.2		1.09											

NFL

ROL

7-21-15

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT

[B] - REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM

[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS

COMMENTS: ① Out of Spec. AR# 1506455

APPROVED FOR USE/DATE: ① 061713

Facility Operations Bldg 458 / 456 Round Sheet

Master Copy

INFORMATION ONLY

Start Date: 7-21-15 End Date: 7-26-15

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
	START TIME	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	END TIME	N/A	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
	REVIEWER		↓	↓	RS	KM	MP	R.T.	MP	DP	AW	JL	RS	RS	RS	JA
	FOT	C/O	↓	↓	SR	R.T.	SR	DP	97		LD	TL	00	97	RDS	MW

ITEM		MIN	NORM	MAX
458, GUARD & SECURITY BUILDING				
412 ODOR ABS MOD FILTER	(PDI-07)			0.5
412 ODOR ABS CHAR FILTER	(PDI-08)			0.5
412 ODOR ABS MOD FILTER	(PDI-09)			0.5
403 AHU LOW FILTER	(PDI-03)			0.5
403 AHU MOD FILTER	(PDI-04)			0.5
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY				
456-CP-010-01 CONTROL PANEL				
DOMESTIC WATER PRESS	(PIC-01)	60	65	70
456-FIY-010-001 WATER FLOW METER				
RAW WATER GALLONS			RESET MONDAY [A]	
DOMESTIC WATER GALLONS			RESET MONDAY [A]	
456-FM-045-001 SEWAGE FLOW METER				
SEWAGE FLOW GALLONS			[B]	23,000
HACH TEST KIT				
COLORIMETER FREE CL2	(PPM)	0.7	[C]	1.2

	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
412 ODOR ABS MOD FILTER (PDI-07)	N/A	N/A													
412 ODOR ABS CHAR FILTER (PDI-08)	↓	↓													
412 ODOR ABS MOD FILTER (PDI-09)															
403 AHU LOW FILTER (PDI-03)															
403 AHU MOD FILTER (PDI-04)															
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY				(2)		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL															
DOMESTIC WATER PRESS (PIC-01)	N/A	N/A	N/A	67	66	62	65	65		65	68	66	68	68	67
456-FIY-010-001 WATER FLOW METER															
RAW WATER GALLONS	N/A		N/A												
DOMESTIC WATER GALLONS	↓		↓												
456-FM-045-001 SEWAGE FLOW METER															
SEWAGE FLOW GALLONS	N/A		N/A		43400 (3)		163000 (1)		20700		40400 (2)		15600		16000
HACH TEST KIT															
COLORIMETER FREE CL2 (PPM)	N/A		N/A		1.07		1.02		1.0		1.02		.90		.89

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT

[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]

[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS

[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS: (1) Out of Spec. – AR# 1506455
(2) Unable to login. FSM notified. repaired 072215. SR
(3) Second sample taken @ 1.0 ppm fsm nfo mad
" "

RW NAME (PRINT)	INITIAL	RW NAME (PRINT)	INITIAL	RW NAME (PRINT)	INITIAL	RW NAME (PRINT)	INITIAL
J.S. Rose	SR	Doug PIERCE	DP	L.D. Cam, III	LD	A. BLAKESLEE	MW
JERRY FOSTER	97	P.J. PANCAKE	PJP	DWG Hoffman	TL		
J. Mart		Russ Stark	RS	Gary Kissel			
J.E. DORADO		R.T. Tiffany	R.T.	RDSchutt	RDS		

APPROVED FOR USE/DATE: 072015

EA04AD3008-11-0
Rev. 3

July 20, 2015
Page 1 of 1

04127

INFORMATION ONLY

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 05/03/15 End Date: 05/09/15

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

		SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
DAY																
SHIFT		2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
START TIME									N/A							
END TIME									N/A							
REVIEWER																
FOT		C/O														

CO 8-3-15
CO 8-3-15

ITEM	MIN	NORM	MAX	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07)			0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)			0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)			0.5	.04	-.04													
403 AHU LOW FILTER (PDI-03)			0.5	.24	-.22													
403 AHU MOD FILTER (PDI-04)			0.5	0	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
DOMESTIC WATER PRESS (PIC-01)	60	65	70	68	67	69	67	68	67	67	65	68	69	68	70	68	68	68
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS		RESET MONDAY [A]		110710		84229												
DOMESTIC WATER GALLONS		RESET MONDAY [A]		87044		87270												
456-FM-045-001 SEWAGE FLOW METER																		
SEWAGE FLOW GALLONS		[B]	23,000	9400		18600		18300		7100		9300		32600		33200		30100
HACH TEST KIT																		
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	.71		1.3		1.29		1.25		.91		.83		.73		.76

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT

[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]

[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS

[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS: (1) OUT OF SPEC AT TIMES AR 1506455
(2) ADD WATER AS needed. [READING BROUGHT BACK TO SPEC] AR 0606615

RW NAME (PRINT)	INITIAL	RW NAME (PRINT)	INITIAL	RW NAME (PRINT)	INITIAL	RW NAME (PRINT)	INITIAL
J. Rose	SR	A. BUKERSTAFF	AB	C. D. Cam.llo	LD	R. Stroh	RS
A Gobel	AG	J. Bailey	9-B	Deleon		J. Beall	
Jerry Foster	JF	Doug Pierce	DP	Doug Huffman			
J. Dorado	JD			D. McBurney		R. T. Pfeifer	RT

APPROVED FOR USE/DATE: [signature] 07 2015

INFORMATION ONLY

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 8-10-15 End Date: 8-16-15

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
	START TIME							N/A								
	END TIME							N/A								
	REVIEWER		MC	RS	MC	JR	MC		MC	JR	LT	AC	R.T.	AC	JRR	RS
	FOT	C/O	C	R.T.	C	JR	TL		C	97	R.T.	90	RM	RDS	LT	LD

RT 8-9
RT 8-9

ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07)			0.5	0	0												
412 ODOR ABS CHAR FILTER (PDI-08)			0.5	0	0												
412 ODOR ABS MOD FILTER (PDI-09)			0.5	.04	.04												
403 AHU LOW FILTER (PDI-03)			0.5	.22	.21												
403 AHU MOD FILTER (PDI-04)			0.5	0	0												
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY					✓		✓		✓		✓		✓		✓		✓
456-CP-010-01 CONTROL PANEL																	
DOMESTIC WATER PRESS (PIC-01)	60	65	70	68	63	66	65	65	65	66	65	67	67	66	66	66	67	67
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS		RESET MONDAY [A]		84229		133502											
DOMESTIC WATER GALLONS		RESET MONDAY [A]		89270		90605											
456-FM-045-001 SEWAGE FLOW METER																	
SEWAGE FLOW GALLONS		[B]	23,000	30100 (1)		34400 (1)		39300 (1)		44300 (1)		82600 (1)		18500 (1)		37,100 (1)	40,500 (1)
HACH TEST KIT																	
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	.76		1.64 (2)		1.5 (2)		1.55 (2)		1.15		1.28 (2)		1.24 (2)	1.08

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT
[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]
[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS
[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS: (1) Out of spec AR# 150655
(2) Out of spec, Add water as level allows. FSM notified.
(3) Filling Del-tank to bring Cl2 in spec.

RW NAME (PRINT)	INITIAL	RW NAME (PRINT)	INITIAL	RW NAME (PRINT)	INITIAL	RW NAME (PRINT)	INITIAL
D. McGilvray		JERRY FOSTER	97	Doug Pierce	DP	PAUL ORR	
JR Rose	JR					A COOPER	
J Trahan				DOUG Hartman			
Roger T. Fisher	R.T.	J. DORADO		R.D. Schuett	RDS	L. DiCAMILLO	LD

APPROVED FOR USE/DATE: 07 2015

Facility Operations Bldg 458 / 456 Round Sheet

Master Copy
INFORMATION ONLY

Start Date: 8-17-15 End Date: 8-23-15

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

		SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
DAY																
SHIFT		2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
START TIME		←						N/A								→ LD 8-16 1.
END TIME		←						N/A								→ LD 8-16-1
REVIEWER								R.T.								
FOT		C/O			R.T.			RM			RDS		CD			

ITEM	MIN	NORM	MAX	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07)			0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)			0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)			0.5	-.04	0													
403 AHU LOW FILTER (PDI-03)			0.5	-.21	-.2													
403 AHU MOD FILTER (PDI-04)			0.5	0	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
DOMESTIC WATER PRESS (PIC-01)	60	65	70	67	66		66	62	65	64	67	64	66	66	66	64	65	67
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS		RESET MONDAY [A]		133502			62784.15											
DOMESTIC WATER GALLONS		RESET MONDAY [A]		90605			88913.19											
456-FM-045-001 SEWAGE FLOW METER																		
SEWAGE FLOW GALLONS		[B]	23,000	40,500 (1)			32100		18000		35400 (1)		9000		15400		22400 (1)	23400
HACH TEST KIT																		
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	1.08			1.12		(2)		.81		.71		.77		.74	.66 (3)

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT
[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]
[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS
[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS: (1) out of spec AR# 1506455 (2) No Chlorine ampules, FSM Notified.
(3) FSM INFORMED, BOTH CHLORINATORS TAGGED

APPROVED FOR USE/DATE: 0816

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Start Date: 082415 End Date: 083015

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

ITEM	MIN	NORM	MAX	SUN 2	MON 1	MON 2	TUES 1	TUES 2	WED 1	WED 2	THURS 1	THURS 2	FRI 1	FRI 2	SAT 1	SAT 2	SUN 1	SUN 2
DAY																		
SHIFT				2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
START TIME				←						N/A								→
END TIME				←						N/A								→
REVIEWER					TD		R.T.		KM									
FOT				C/O	R.T.		JCM	PDS	DK	CD	RT.	PS 082215						
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07)			0.5	Ø	0													
412 ODOR ABS CHAR FILTER (PDI-08)			0.5	Ø	0													
412 ODOR ABS MOD FILTER (PDI-09)			0.5	-.04	-.01													
403 AHU LOW FILTER (PDI-03)			0.5	-.21	.02													
403 AHU MOD FILTER (PDI-04)			0.5	Ø	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
DOMESTIC WATER PRESS (PIC-01)	60	65	70	67	66	66	64	66	66	67	66	67	66	66	66	64	67	67
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS		RESET MONDAY [A]		62784.15		98462												
DOMESTIC WATER GALLONS		RESET MONDAY [A]		88913.18		94132												
456-FM-045-001 SEWAGE FLOW METER																		
SEWAGE FLOW GALLONS		[B]	23,000	23,400 ⑥		20,200		17500 ①		17,800 ①		19,600 ⑥		37400 ⑧		40000		~~2500~~ 20500
HACH TEST KIT																		
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	.66 ②		.95		1.0		.71		1.12		.72		1.22		1.08

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT
[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]
[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS
[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS: ① AVL 1506455
② FSM INFORMED, BOTH CHLORINATORS TRIGGER (Cleared North Tank 8/25/15)

APPROVED FOR USE/DATE: 08/16/15

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Start Date: 8-31-15 End Date: 9-6-15

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

		SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
DAY																
SHIFT		2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
START TIME			0840													
END TIME			2910													
REVIEWER			RB	ARC	ARC		RB	MK	RB	MK	RB	RT	RB	RT	RB	
FOT		C/O	RBS													

ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07)			0.5	0	0												
412 ODOR ABS CHAR FILTER (PDI-08)			0.5	0	0												
412 ODOR ABS MOD FILTER (PDI-09)			0.5	.01	.30												
403 AHU LOW FILTER (PDI-03)			0.5	.02	.02												
403 AHU MOD FILTER (PDI-04)			0.5	0	0												
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY				✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																	
DOMESTIC WATER PRESS (PIC-01)	60	65	70	67	68	68	68	68	67.1	67	67	68	64	68	68	68	68
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS		RESET MONDAY [A]		98462	83260												
DOMESTIC WATER GALLONS		RESET MONDAY [A]		94132	89342												
456-FM-045-001 SEWAGE FLOW METER																	
SEWAGE FLOW GALLONS		[B]	23,000	20,500	39,700		43600		42600		50706 (1)		43600 (1)		25700 (1)		34400 (1)
HACH TEST KIT																	
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	1.08	1.1		1.1		.97		1.3 (2)		.73		.70		1.0

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT

[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]

[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS

[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS:
(1) AR # 1506455
(2) Out of Spec

APPROVED FOR USE/DATE: 09/6/15

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Start Date: 9/7/15 End Date: 9/13/15

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

DAY			SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
SHIFT			2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
START TIME			—	—	—	—	—	—	—	N/A	—	—	—	—	—	—	—
END TIME			—	—	—	—	—	—	—	N/A	—	—	—	—	—	—	—
REVIEWER				MK	DP	MK	JR	JR		MK	JR	RT	AC	DP	AC	KM	AC
FOT			C/O	MK	R.T.	MK	BJ	MK		MK	JR	KM	LD	R.T.	AC	LD	RDS
ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07)			0.5	0	0												
412 ODOR ABS CHAR FILTER (PDI-08)			0.5	0	0												
412 ODOR ABS MOD FILTER (PDI-09)		SP 9/6/15	0.5 .35	.01	.10												
403 AHU LOW FILTER (PDI-03)			0.5	.02	.01												
403 AHU MOD FILTER (PDI-04)			0.5	0	.01							9/11/15					
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY				0840		(2)		(2)		(2)		(2) ✓		✓		✓	
456-CP-010-01 CONTROL PANEL																	
DOMESTIC WATER PRESS (PIC-01)	60	65	70	68	68	67	65	67	65	69	67	66	68	68	68	67	67	67	67
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS	RESET MONDAY [A]			83260		65354											
DOMESTIC WATER GALLONS	RESET MONDAY [A]			89342		88269											
456-FM-045-001 SEWAGE FLOW METER				(1)		AR # 0907 15		(1)				(1)		(1)		(1)	
SEWAGE FLOW GALLONS		[B]	23,000	8400		~~12100~~ 16300 (1)		24800		4100		86900		25700		47900		26,100	
HACH TEST KIT																	
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	1.0		1.0		.98		1.01		.93		.93		1.01		1.05	

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT

[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]

[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS

[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS: (1) AR #1506455

(2) View only login, no control privelege for security

APPROVED FOR USE/DATE: 08/6/15

Facility Operations Bldg 458 / 456 Round Sheet

Master copy INFORMATION ONLY

Start Date: 091415 End Date: 092015

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

ITEM	MIN	NORM	MAX	SUN 2	MON 1		TUES 1		WED 1		THURS 1		FRI 1		SAT 1		SUN 1	
						2		2		2		2		2		2		2		2
DAY																				
SHIFT				2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
START TIME											0900									
END TIME											0900									
REVIEWER																				
FOT				C/O																
458, GUARD & SECURITY BUILDING																				
412 ODOR ABS MOD FILTER (PDI-07)			0.5	0	0															
412 ODOR ABS CHAR FILTER (PDI-08)			0.5	0	0															
412 ODOR ABS MOD FILTER (PDI-09)			0.5	.10	.10															
403 AHU LOW FILTER (PDI-03)			0.5	.01	0															
403 AHU MOD FILTER (PDI-04)			0.5	.01	01															
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY					✓		✓		✓		✓		✓		✓		✓			
456-CP-010-01 CONTROL PANEL																				
DOMESTIC WATER PRESS (PIC-01)	60	65	70	67	64	67	66	66	67	68	66	68	68	68	68	69	69	68		
456-FIY-010-001 WATER FLOW METER																				
RAW WATER GALLONS		RESET MONDAY [A]		60334		60218														
DOMESTIC WATER GALLONS		RESET MONDAY [A]		89269		94205														
456-FM-045-001 SEWAGE FLOW METER																				
SEWAGE FLOW GALLONS		[B]	23,000	51,000 (1)		26300		24500		8300		13600		29100		23600		185000		
HACH TEST KIT																				
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	1.05		.97		.99		1.3 (2)		1.2		1.2		1.04		.98		

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT

[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]

[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS

[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS: (1) Out of spec - AR 150445, FSM notified (2) out of spec. high, fsm informed - adding water I/P.

APPROVED FOR USE/DATE: 0916K

Facility Operations Bldg 458 / 456 Round Sheet

Master Copy

Start Date: 092115 End Date: 092715

Location: 458, GUARD & SECURITY BUILDING 456, PUMPHOUSE BUILDING	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
	START TIME	N/A														
	END TIME	N/A														
	REVIEWER															
	FOT	C/O	R.T.				R.T.	ROS								

ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07)			0.5	0	0												
412 ODOR ABS CHAR FILTER (PDI-08)			0.5	0	0												
412 ODOR ABS MOD FILTER (PDI-09)			0.5	.10	.03												
403 AHU LOW FILTER (PDI-03)			0.5	0	.24												
403 AHU MOD FILTER (PDI-04)			0.5	.01	0												
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY				✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																	
DOMESTIC WATER PRESS (PIC-01)	60	65	70	68	66	68	66	67	67	67	62	68	67	68	68	68	68	68	68
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS		RESET MONDAY [A]		60918		117600											
DOMESTIC WATER GALLONS		RESET MONDAY [A]		94205		99711											
456-FM-045-001 SEWAGE FLOW METER																	
SEWAGE FLOW GALLONS		[B]	23,000	18,500		22150		9-22-15 4504 40,400		41,200		44,900		90000		90990		256600
HACH TEST KIT																	
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	.98		1.0		.96		.95		.94		.95		.90		-8

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT

[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]

[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS

[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS: 1) AR # 150455 ON OUT OF SPEC. READINGS (INTERMITTENT)

APPROVED FOR USE/DATE: 09/16/15

1904

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY Start Date: 092815 End Date: 100415

Location: 458, GUARD & SECURITY BUILDING 456, PUMPHOUSE BUILDING	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
	START TIME								N/A							
	END TIME								N/A							
	REVIEWER															
	FOT	C/O														

ITEM	MIN	NORM	MAX	SUN 2	MON 1	MON 2	TUES 1	TUES 2	WED 1	WED 2	THURS 1	THURS 2	FRI 1	FRI 2	SAT 1	SAT 2	SUN 1	SUN 2
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07)			0.5	0	ST134													
412 ODOR ABS CHAR FILTER (PDI-08)			0.5	0	↓													
412 ODOR ABS MOD FILTER (PDI-09)			0.5	-03														
403 AHU LOW FILTER (PDI-03)			0.5	-24														
403 AHU MOD FILTER (PDI-04)			0.5	0	✓		✓		✓		✓		✓		✓		✓	
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY																		
456-CP-010-01 CONTROL PANEL																		
DOMESTIC WATER PRESS (PIC-01)	60	65	70	68	67	67	66	67	65	66	65	66	67	68	68	68	66	67
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS		RESET MONDAY [A]		17200		79847.63												
DOMESTIC WATER GALLONS		RESET MONDAY [A]		99711		97059.89												
456-FM-045-001 SEWAGE FLOW METER																		
SEWAGE FLOW GALLONS		[B]	23,000	256600 ①		238100 ①		572000 ①		340000 ①		161500 ①		153300 ①		38200 ①		125900 ①
HACH TEST KIT																		
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	.8		.85		0.77		0.85		0.85		1.0		1.0		1.0

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT

[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]

[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS

[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS: ① AR# 150655 OOS readings.

APPROVED FOR USE/DATE: 0816K

Facility Operations Bldg 458 / 456 Round Sheet

Master Copy INFORMATION ONLY

Start Date: 100515 End Date: 101115

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

		SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
DAY																
SHIFT		2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
START TIME									N/A							
END TIME										N/A						
REVIEWER			ME	R.T.	ME		ME									
FOT		C/O	ME 97	RT		97				97			R.T.	CD		

ITEM	MIN	NORM	MAX	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07)			0.5	STBY	0													
412 ODOR ABS CHAR FILTER (PDI-08)			0.5		0													
412 ODOR ABS MOD FILTER (PDI-09)			0.5		0													
403 AHU LOW FILTER (PDI-03)			0.5		0													
403 AHU MOD FILTER (PDI-04)			0.5	↓	0		↓											
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
DOMESTIC WATER PRESS (PIC-01)	60	65	70	69	67	66	66	65	66	67	64	64	67	67	65	67	67	66
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS	RESET MONDAY [A]			79847.63	65385.33													
DOMESTIC WATER GALLONS	RESET MONDAY [A]			97059.89	96160.48													
456-FM-045-001 SEWAGE FLOW METER																		
SEWAGE FLOW GALLONS		[B]	23,000	125700 ①	20500 ①		124400 ①		130000 ①		2300		9000		31,900 ①		27,000 ①	
HACH TEST KIT																		
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	1.0		1.0		1.01		1		.70		.77		.71		.65 ②

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT

[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]

[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS

[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS: ① AR #1506455 OOS READINGS
② Chlorine Added

APPROVED FOR USE/DATE: 08/6/15

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Start Date: 10-12-15 End Date: 10-18-15

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

		SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
DAY		2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
SHIFT									N/A							
START TIME																
END TIME									N/A							
REVIEWER																
FOT	C/O			RDS						RT.	LD				IRDS	

ITEM	MIN	NORM	MAX	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07)			0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)			0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)			0.5	0	0													
403 AHU LOW FILTER (PDI-03)			0.5	0	0													
403 AHU MOD FILTER (PDI-04)			0.5	0	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY					✓		✓		✓ (4)				✓		(6)		(7) OOS	
456-CP-010-01 CONTROL PANEL																		
DOMESTIC WATER PRESS (PIC-01)	60	65	70	66	67	Lele	66	64	64 (3)	65	64	67	66	66	66	66	Lele	66
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS		RESET MONDAY [A]		25,385.33		83290												
DOMESTIC WATER GALLONS		RESET MONDAY [A]		96,160.48		92,962												
456-FM-045-001 SEWAGE FLOW METER																		
SEWAGE FLOW GALLONS		[B]	23,000	27,000 (1)		58,100 (2)		41400 (1)		125300 (1)		168300 (1)		174600 (1)		7580		91400 (1)
HACH TEST KIT																		
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	.65 (4)		.81		.70		.80		.69 (4) (3) (5)		.76		.73		.73

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT

[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]

[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS

[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS:
(1) AR# 1506455 OOS Readings
(2) Chlorine Added
(3) As Found, alarm For low Flow in progress; reading now (normal) @ 64psi
(4) Reading "network connection failed" Egr not fired. Engineer reported back he was able to log on. Logged off after word. /cleared 10 15 15
(5) Both chlorine pumps OOS. Need to add chlorine to top of water tank. AR# 1511220 on #2 chlorine Tank.
(6) Power Outage I/P - BACK IN SERVICE
(7) Computer won't reboot / Eng. notified per FSM

APPROVED FOR USE/DATE: 08/16/15

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Start Date: 101915 End Date: 102515

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

ITEM	MIN	NORM	MAX	SUN 2	MON 1		TUES 1		WED 1		THURS 1		FRI 1		SAT 1		SUN 1	
						2		2		2		2		2		2		2
DAY																		
SHIFT																		
START TIME											N/A							
END TIME											N/A							
REVIEWER					AM	MK	AM	RT	AM	RT	AM	RJS	MK	JS	JS	JS	MK	JS
FOT				C/O			MK/RT		RT									
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07)			0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)			0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)			0.5	0	0													
403 AHU LOW FILTER (PDI-03)			0.5	0	0													
403 AHU MOD FILTER (PDI-04)			0.5	0	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY					(2)		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
DOMESTIC WATER PRESS (PIC-01)	60	65	70	66	66	65	65	65	65	65	66	67	67	67	66	67	67	67
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS	RESET MONDAY [A]			83290		59834												
DOMESTIC WATER GALLONS	RESET MONDAY [A]			92964		95224												
456-FM-045-001 SEWAGE FLOW METER																		
SEWAGE FLOW GALLONS		[B]	23,000	29400 (1)		31100 (1)		51200 (1)		28,100 (1)		17,000 (1)		8200		23700 (1)		15700
HACH TEST KIT																		
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	.73		.71		.74		2.20 (3)		2.2 (3)		2.2 (3)		2.20 (3)		2.0 (3)

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT

[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]

[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS

[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS: (1) AR# 1506455 OOS READING FSM NOTIFIED
(2) unable to Log in FSM Notified - (cleared 10-19-15 back I/S)
(3) ADDING WATER when possible - FSM Notified

APPROVED FOR USE/DATE: 0916KS

Facility Operations Bldg 458 / 456 Round Sheet

Master Copy
INFORMATION ONLY

Start Date: 102615 End Date: 110115

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

		MIN	NORM	MAX	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
DAY																			
SHIFT					2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
START TIME												N/A							
END TIME												N/A							
REVIEWER						RS	JR	RS	mc	RS	AD	AD	AD	JR	AD	JR	AD	JR	AD
FOT					C/O	RS	JR	RS	mc	RS	AD	AD	AD	JR	AD	JR	AD	JR	AD
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER	(PDI-07)			0.5	0	0													
412 ODOR ABS CHAR FILTER	(PDI-08)			0.5	0	0													
412 ODOR ABS MOD FILTER	(PDI-09)			0.5	0	0													
403 AHU LOW FILTER	(PDI-03)			0.5	0	0													
403 AHU MOD FILTER	(PDI-04)			0.5	0	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY						✓		✓		✓		✓		✓		✓		i	
456-CP-010-01 CONTROL PANEL																			
DOMESTIC WATER PRESS	(PIC-01)	60	65	70	67	67	67	65	66	66	67	67	66	67	64	65	65	65	63
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS		RESET MONDAY [A]			83290		117678												
DOMESTIC WATER GALLONS		RESET MONDAY [A]			92964		97971												
456-FM-045-001 SEWAGE FLOW METER																			
SEWAGE FLOW GALLONS			[B]	23,000	15700		9600		22800		7800		10600		3100		10800		13300
HACH TEST KIT																			
COLORIMETER FREE CL2	(PPM)	0.7	[C]	1.2	2.0		2.1 ③		2.0 ③		1.8 ③		1.7 ③		1.6 ③		1.7 ③		1.19

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT
[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]
[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS
[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS:
① AR # 1506455 OOS READING FSM NOTIFIED
② UNABLE TO LOGIN FSM INFORMED - (CLEARED 10-19-15 BACK I/S)
③ ADDING WATER WHEN POSSIBLE - FSM NOTIFIED

APPROVED FOR USE/DATE: [signature] 08/16/15

Master Copy
INFORMATION ONLY

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 11-2-15 End Date: 11-8-15

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

ITEM	MIN	NORM	MAX	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				START TIME															
				END TIME															
				REVIEWER															
				FOT	C/O		MK		MK		MK						RDS	BT	LD
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)			0.5		0	STBY													
412 ODOR ABS CHAR FILTER (PDI-08)			0.5		0														
412 ODOR ABS MOD FILTER (PDI-09)			0.5		0														
403 AHU LOW FILTER (PDI-03)			0.5		0														
403 AHU MOD FILTER (PDI-04)			0.5		0														
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY																			
456-CP-010-01 CONTROL PANEL																			
DOMESTIC WATER PRESS (PIC-01)	60	65	70		63	64	64	66	66.8	65	66	65	66	64	65	68	67	67	67
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS		RESET MONDAY [A]			117678		87952												
DOMESTIC WATER GALLONS		RESET MONDAY [A]			97971		96932												
456-FM-045-001 SEWAGE FLOW METER																			
SEWAGE FLOW GALLONS		[B]	23,000		13300		13700		13600		800		7500		11800		21600		23 00
HACH TEST KIT																			
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2		1.19		1.16		1.14		1.18		1.07		2.29 (3)		2.2 (2)		2.2 (2)

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT
[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]
[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS
[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS:
(1) AR # 1506455 - WRONG READING - FSM INFORMED
(2) ADDING WATER - FSM NOTIFIED
~~(3) UNABLE TO LOG IN UNDER CMR PASSWORD, LOG IN FOR SECURITY READ ONLY OK.~~ 11/7/15

APPROVED FOR USE/DATE: 08/16/15

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Start Date: 11/9/2015 End Date: 11/15/2015

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

ITEM	MIN	NORM	MAX	SUN 2	MON 1	2	TUES 1	2	WED 1	2	THURS 1	2	FRI 1	2	SAT 1	2	SUN 1	2
START TIME																		N/A
END TIME																		N/A
REVIEWER																		
FOT				C/O														
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07)			0.5	STBY	STBY													
412 ODOR ABS CHAR FILTER (PDI-08)			0.5															
412 ODOR ABS MOD FILTER (PDI-09)			0.5															
403 AHU LOW FILTER (PDI-03)			0.5															
403 AHU MOD FILTER (PDI-04)			0.5															
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY					✓		✓		✓		✓		✓		②		✓	
456-CP-010-01 CONTROL PANEL																		
DOMESTIC WATER PRESS (PIC-01)	60	65	70	67	67	66	66	65	67	67	67	66	65	67	67	67	66	67
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS		RESET MONDAY [A]		87952		57674												
DOMESTIC WATER GALLONS		RESET MONDAY [A]		96932		100428												
456-FM-045-001 SEWAGE FLOW METER																		
SEWAGE FLOW GALLONS		[B]	23,000	2300		1700		400		6100		3600		5900		2300		7900
HACH TEST KIT																		
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	2.2 ①		2.2 ①		2.2 ①		1.7 ①		1.50		1.49 ①		1.47 ①		1.33 ①

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT
[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]
[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS
[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS: ① ADDing water - FSM notified As tank level allows
② All cms system currently off line

APPROVED FOR USE/DATE: 0816KS

EA04AD3008-11-0
Rev. 4

August 7, 2015
Page 1 of 1

04142

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Start Date 11/16/15 End Date: 11/22/15

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

ITEM	MIN	NORM	MAX	SUN 2	MON 1		TUES 1		WED 1		THURS 1		FRI 1		SAT 1		SUN 1	
						2		2		2		2		2		2		2		2
START TIME				N/A														
END TIME				N/A														
REVIEWER																		
FOT				C/O	RM			ROS										
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07)			0.5	STBY	STBY													
412 ODOR ABS CHAR FILTER (PDI-08)			0.5	↓	↓													
412 ODOR ABS MOD FILTER (PDI-09)			0.5															
403 AHU LOW FILTER (PDI-03)			0.5															
403 AHU MOD FILTER (PDI-04)			0.5	↓	↓													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
DOMESTIC WATER PRESS (PIC-01)	60	65	70	67	67	67	66	66	67	67	65	66	65	65	66	65	67	67
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS		RESET MONDAY [A]		57674		102376												
DOMESTIC WATER GALLONS		RESET MONDAY [A]		100428		113785												
456-FM-045-001 SEWAGE FLOW METER																		
SEWAGE FLOW GALLONS		[B]	23,000	7900		2080		17,300		4300		3600		3000		38300 ②		16900
HACH TEST KIT																		
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	1.33 ①		1.32 ①		1.28 ①		1.06		1.09		.81		.84		.79

11/22/15

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT

[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]

[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS

[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS:
① Adding water as tank level allows. FSM notified.
② FSM notified.

APPROVED FOR USE/DATE: 08/16/15

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Start Date: 11/23/15 End Date: 11/30/15

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
	START TIME									N/A						
	END TIME									N/A						
	REVIEWER		JGW		JBW											
	FOT	C/O	RDS		CD				RDS			JRM		KT		JRM

ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07)			0.5	STBY													
412 ODOR ABS CHAR FILTER (PDI-08)			0.5														
412 ODOR ABS MOD FILTER (PDI-09)			0.5														
403 AHU LOW FILTER (PDI-03)			0.5														
403 AHU MOD FILTER (PDI-04)			0.5														
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY				✓	✓		✓		✓		②		✓		✓		
456-CP-010-01 CONTROL PANEL																	
DOMESTIC WATER PRESS (PIC-01)	60	65	70	67	67	68	68	67	67	68	67	68	67	68	67	67	66
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS		RESET MONDAY [A]		102376		107669											
DOMESTIC WATER GALLONS		RESET MONDAY [A]		113785		106730											
456-FM-045-001 SEWAGE FLOW METER																	
SEWAGE FLOW GALLONS		[B]	23,000	16900		9500		8100		5600		3300		4700		2700		10700
HACH TEST KIT																	
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	.79		1.62 ①		1.62 ①		1.49 ①		1.38 ①		1.33 ①		1.30 ①		1.31 ①

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT
[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]
[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS
[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS: ① 005 High - tank @ 100%, notified FSM, ADDING WATER AS TANK SPARE ALLOWS
② Could not restart, RESTART SAT

APPROVED FOR USE/DATE: 0816KS

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Start Date: 11-30-15 End Date: 12-6-15

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
START TIME							N/A								
END TIME							N/A								
REVIEWER															
FOT	C/O		R.T.					LD			LD	R.T.			

ITEM	MIN	NORM	MAX													
458, GUARD & SECURITY BUILDING																
412 ODOR ABS MOD FILTER (PDI-07)			0.5	Stby												
412 ODOR ABS CHAR FILTER (PDI-08)			0.5													
412 ODOR ABS MOD FILTER (PDI-09)			0.5													
403 AHU LOW FILTER (PDI-03)			0.5													
403 AHU MOD FILTER (PDI-04)			0.5	↓												
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY																
456-CP-010-01 CONTROL PANEL																
DOMESTIC WATER PRESS (PIC-01)	60	65	70	66	64	65	69	65	64	64	67	64	66	65	65	65	65	67
456-FIY-010-001 WATER FLOW METER																
RAW WATER GALLONS		RESET MONDAY [A]		107669		152979										
DOMESTIC WATER GALLONS		RESET MONDAY [A]		106730		203123										
456-FM-045-001 SEWAGE FLOW METER																
SEWAGE FLOW GALLONS		[B]	23,000	10700		10100		8500		5700		3400		1400		2300		1300
HACH TEST KIT																
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	1.31 ①		1.34 ①		1.03		1.04		1.23		1.13		1.15		2.20 ②

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT

[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]

[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS

[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS: ① Adding water as tank space allows/cleared 12-1-15 ② FSM notified

APPROVED FOR USE/DATE: 0816K

Facility Operations Bldg 458 / 456 Round Sheet

Master Copy
INFORMATION ONLY

Start Date: 120715 End Date: 121315

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

		MIN	NORM	MAX	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
DAY																			
SHIFT					2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
START TIME																			
END TIME																			
REVIEWER																			
FOT	C/O						ED				N/A						ROS		CD
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER	(PDI-07)			0.5	0	5734													
412 ODOR ABS CHAR FILTER	(PDI-08)			0.5	0														
412 ODOR ABS MOD FILTER	(PDI-09)			0.5	.01														
403 AHU LOW FILTER	(PDI-03)			0.5	.02														
403 AHU MOD FILTER	(PDI-04)			0.5	.03														
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
DOMESTIC WATER PRESS	(PIC-01)	60	65	70	~~67~~ 67	67	68	67	68	68	NRT	65	66	66	68	67	67	67	68
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS		RESET MONDAY [A]			152979	125963.31													
DOMESTIC WATER GALLONS		RESET MONDAY [A]			203123	112087.51													
456-FM-045-001 SEWAGE FLOW METER																			
SEWAGE FLOW GALLONS			[B]	23,000	10100		3100		3460		NRT		6,600		300		2400		1000
HACH TEST KIT																			
COLORIMETER FREE CL2	(PPM)	0.7	[C]	1.2	~~1.34~~		1.54 @	1.01			NRT		1.17		1.03		.94		.88

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT
[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]
[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS
[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS: (1) FSM Notified. out of spec

APPROVED FOR USE/DATE: 0816KS

Facility Operations Bldg 458 / 456 Round Sheet

Master Copy
INFORMATION COPY

Start Date: 12/21/15 End Date: 12/27/15

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

		SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
DAY																
SHIFT		2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
START TIME		N/A														
END TIME		N/A														
REVIEWER																
FOT		C/O														

ITEM	MIN	NORM	MAX	SUN 2	MON 1	MON 2	TUES 1	TUES 2	WED 1	WED 2	THURS 1	THURS 2	FRI 1	FRI 2	SAT 1	SAT 2	SUN 1	SUN 2
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07)			0.5	STBY	STBY													
412 ODOR ABS CHAR FILTER (PDI-08)			0.5															
412 ODOR ABS MOD FILTER (PDI-09)			0.5															
403 AHU LOW FILTER (PDI-03)			0.5															
403 AHU MOD FILTER (PDI-04)			0.5															
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY					✓		✓		✓		✓		✓				NRT	
456-CP-010-01 CONTROL PANEL																		
DOMESTIC WATER PRESS (PIC-01)	60	65	70	67	66	67	67	69	68	68	67	68	68	67	68	67	✓	NRT ①
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS		RESET MONDAY [A]		103021		84831												
DOMESTIC WATER GALLONS		RESET MONDAY [A]		117678		105511												
456-FM-045-001 SEWAGE FLOW METER																		
SEWAGE FLOW GALLONS		[B]	23,000	200		200		300		400		300		100		100		NRT ①
HACH TEST KIT																		
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	.9		.9		.79		.92		.86		.93		.91		NRT ①

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT
[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]
[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS
[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS: ① Inclement weather

APPROVED FOR USE/DATE: 08/16/15

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Start Date: 122815 End Date: 123115

Location: 458, GUARD & SECURITY BUILDING 456, PUMPHOUSE BUILDING	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
	START TIME	←							N/A							→
	END TIME	←							N/A							→
	REVIEWER		NL	NL	MC	JF	MC	JF	MC	JF						
	FOT	C/O	QR	R.T.	QB	JF	N	JF	T	QB						

ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07)			0.5	STBY ↓	STBY ↓												
412 ODOR ABS CHAR FILTER (PDI-08)			0.5														
412 ODOR ABS MOD FILTER (PDI-09)			0.5														
403 AHU LOW FILTER (PDI-03)			0.5														
403 AHU MOD FILTER (PDI-04)			0.5														
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY					✓	✓		✓									
456-CP-010-01 CONTROL PANEL																	
DOMESTIC WATER PRESS (PIC-01)	60	65	70	NRT (1)	66	NRT (1)	.66	NRT (1)	.67	NRT (1)	.66	NR (1)					
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS	RESET MONDAY [A]			84831		NRT (1) ↓											
DOMESTIC WATER GALLONS	RESET MONDAY [A]			10531													
456-FM-045-001 SEWAGE FLOW METER																	
SEWAGE FLOW GALLONS		[B]	23,000	NRT (1)		NRT (1)		NRT (1)		NRT (1)		NRT (1)					
HACH TEST KIT																	
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	NRT (1)		NRT (1)		NRT (1)		NRT (1)		NRT (1)					

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT

[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]

[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS

[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS: (1) INCLEMENT WEATHER

APPROVED FOR USE/DATE: 0916K

Water Level Measurement Field Data Sheet

From July to December Year 2015

Pond Name	Date	Time	Water Depth (ft)	Initials	Comments
Salt Storage Pond 2	7/9/15	~~—~~	~~—~~ N/A	~~—~~	NO ACCESS
Salt Storage Pond 3	7/9/15	0829	69.45	RJ	
Salt Storage Pond 2	8/6/15	0946	43.60	RJ	
Salt Storage Pond 3	8/6/15	0915	42.75	RJ	
Salt Storage Pond 2	9/9/15	0815	39.90	RJ	
Salt Storage Pond 3	9/9/15	0950	44.60	RJ	
Salt Storage Pond 2	10/5/15	1031	39.83	RJ	
Salt Storage Pond 3	10/5/15	1044	44.55	RJ	
Salt Storage Pond 2	11/16/15	0944	36.84	RJ	
Salt Storage Pond 3	11/16/15	0905	40.06	RJ	
Salt Storage Pond 2	12/10/15	~~1230~~ 11:06 RJ 12/10	37.91	RJ	
Salt Storage Pond 3	12/10/15	12:30	67.01	RJ	

Performer: Print Name: RICHARD JIMENEZ Signature: R Jimenez

Performer: Print Name: Signature:

Performer: Print Name: Signature:

04149

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

December 02, 2015

Brett Seal
Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8966
FAX

RE: SSW Sampling R24 OrderNo.: 1511512

Dear Brett Seal:

Hall Environmental Analysis Laboratory received 16 sample(s) on 11/12/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Workorder Sample Summary

WO#: **1511512**

02-Dec-15

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R24

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1511512-001	SSWC2811R24N1		11/9/2015 8:57:00 AM	11/12/2015 8:00:00 AM	Aqueous
1511512-002	SSWPZ12R24N1		11/9/2015 10:43:00 AM	11/12/2015 8:00:00 AM	Aqueous
1511512-003	SSWPZ10R24N1		11/9/2015 12:12:00 PM	11/12/2015 8:00:00 AM	Aqueous
1511512-004	SSWPZ9R24N1		11/10/2015 8:53:00 AM	11/12/2015 8:00:00 AM	Aqueous
1511512-005	SSWPZ7R24N1		11/9/2015 1:33:00 PM	11/12/2015 8:00:00 AM	Aqueous
1511512-006	SSWPZ13R24N1		11/10/2015 7:40:00 AM	11/12/2015 8:00:00 AM	Aqueous
1511512-007	SSWPZ11R24N1		11/9/2015 3:03:00 PM	11/12/2015 8:00:00 AM	Aqueous
1511512-008	SSWPZ11R24N1EB		11/9/2015 3:11:00 PM	11/12/2015 8:00:00 AM	Aqueous
1511512-009	SSWC2507R24N1		11/10/2015 10:27:00 AM	11/12/2015 8:00:00 AM	Aqueous
1511512-010	SSWPZ1R24N1		11/10/2015 11:53:00 AM	11/12/2015 8:00:00 AM	Aqueous
1511512-011	SSWPZ5R24N1		11/10/2015 3:32:00 PM	11/12/2015 8:00:00 AM	Aqueous
1511512-012	SSWPZ5R24N1D		11/10/2015 3:34:00 PM	11/12/2015 8:00:00 AM	Aqueous
1511512-013	SSWPZ5R24N1EB		11/10/2015 3:41:00 PM	11/12/2015 8:00:00 AM	Aqueous
1511512-014	SSWPZ6R24N1		11/10/2015 1:52:00 PM	11/12/2015 8:00:00 AM	Aqueous
1511512-015	SSWWQSP6AR24N1		11/11/2015 8:43:00 AM	11/12/2015 8:00:00 AM	Aqueous
1511512-016	SSWWQSP6AR24N2		11/11/2015 8:47:00 AM	11/12/2015 8:00:00 AM	Aqueous

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1511512**
Date: **12/2/2015**

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R24

All analytes reported are associated with passing CCVs.

METHOD: 300.0

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: none
Analysis: 300.0

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Calibration: All acceptance criteria were met.
2. Blanks: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Spikes: All acceptance criteria were met.
5. Samples: All acceptance criteria were met.

METHOD: SM2540C

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: SM2540C
Analysis: SM2540C

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Blanks: All acceptance criteria were met.
2. Spikes: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Samples: All acceptance criteria were met.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1511512**
Date: **12/2/2015**

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R24

METHOD: SM4500 NorgC

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: SM4500 NorgC
Analysis: SM4500 NorgC

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Blanks: All acceptance criteria were met.
2. Spikes: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Samples: All acceptance criteria were met.

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWC2811R24N1
Project: SSW Sampling R24
Collection Date: 11/9/2015 8:57:00 AM
Lab ID: 1511512-001
Matrix: AQUEOUS
Received Date: 11/12/2015 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	1260	67.9	100		mg/L	200	11/12/2015 4:25:34 PM	R30217
Sulfate	451	64.2	100		mg/L	200	11/12/2015 4:25:34 PM	R30217
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	3300	29.0	40.0	*D	mg/L	1	11/18/2015 10:35:00 AM	22359

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R24
Lab ID: 1511512-002 **Matrix:** AQUEOUS

Client Sample ID: SSWPZ12R24N1
Collection Date: 11/9/2015 10:43:00 AM
Received Date: 11/12/2015 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	3450	170	250		mg/L	500	11/12/2015 6:04:50 PM	R30217
Sulfate	627	32.1	50.0		mg/L	100	11/12/2015 5:52:26 PM	R30217
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	8280	72.4	100	*D	mg/L	1	11/18/2015 10:35:00 AM	22359

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ10R24N1
Project: SSW Sampling R24
Collection Date: 11/9/2015 12:12:00 PM
Lab ID: 1511512-003
Matrix: AQUEOUS
Received Date: 11/12/2015 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	255	34.0	50.0		mg/L	100	11/12/2015 5:15:12 PM	R30217
Sulfate	339	3.21	5.00		mg/L	10	11/12/2015 4:37:59 PM	R30217
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	1310	29.0	40.0	*D	mg/L	1	11/18/2015 10:35:00 AM	22359

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ9R24N1
Project: SSW Sampling R24
Collection Date: 11/10/2015 8:53:00 AM
Lab ID: 1511512-004
Matrix: AQUEOUS
Received Date: 11/12/2015 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	84300	3400	5000		mg/L	1E+0	11/12/2015 6:29:39 PM	R30217
Sulfate	4390	64.2	100		mg/L	200	11/12/2015 6:17:15 PM	R30217
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	176000	1450	2000	*D	mg/L	1	11/18/2015 10:35:00 AM	22359

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ7R24N1
Project: SSW Sampling R24
Collection Date: 11/9/2015 1:33:00 PM
Lab ID: 1511512-005
Matrix: AQUEOUS
Received Date: 11/12/2015 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	44900	17000	25000		mg/L	5E+0	11/12/2015 6:54:29 PM	R30217
Sulfate	2960	64.2	100		mg/L	200	11/12/2015 6:42:04 PM	R30217
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	114000	1450	2000	*D	mg/L	1	11/18/2015 10:35:00 AM	22359

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R24
Lab ID: 1511512-006 **Matrix:** AQUEOUS

Client Sample ID: SSWPZ13R24N1
Collection Date: 11/10/2015 7:40:00 AM
Received Date: 11/12/2015 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	118000	3400	5000		mg/L	1E+0	11/12/2015 7:19:18 PM	R30217
Sulfate	2980	32.1	50.0		mg/L	100	11/12/2015 7:06:54 PM	R30217
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	233000	1450	2000	*D	mg/L	1	11/18/2015 10:35:00 AM	22359

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ11R24N1
Project: SSW Sampling R24
Collection Date: 11/9/2015 3:03:00 PM
Lab ID: 1511512-007
Matrix: AQUEOUS
Received Date: 11/12/2015 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	59900	3400	5000		mg/L	1E+0	11/12/2015 7:44:07 PM	R30217
Sulfate	2770	32.1	50.0		mg/L	100	11/12/2015 7:31:43 PM	R30217
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	96400	1450	2000	*D	mg/L	1	11/18/2015 10:35:00 AM	22359

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ11R24N1EB
Project: SSW Sampling R24
Collection Date: 11/9/2015 3:11:00 PM
Lab ID: 1511512-008
Matrix: AQUEOUS
Received Date: 11/12/2015 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	85.2	6.79	10.0		mg/L	20	11/12/2015 8:33:45 PM	R30217
Sulfate	3.93	0.321	0.500		mg/L	1	11/12/2015 8:21:21 PM	R30217
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	169	14.5	20.0		mg/L	1	11/18/2015 10:35:00 AM	22359

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWC2507R24N1
Project: SSW Sampling R24
Collection Date: 11/10/2015 10:27:00 AM
Lab ID: 1511512-009
Matrix: AQUEOUS
Received Date: 11/12/2015 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	2800	340	500		mg/L	1000	11/12/2015 8:58:35 PM	R30217
Sulfate	605	32.1	50.0		mg/L	100	11/12/2015 8:46:10 PM	R30217
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	6850	145	200	*D	mg/L	1	11/18/2015 10:35:00 AM	22359

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ1R24N1
Project: SSW Sampling R24
Collection Date: 11/10/2015 11:53:00 AM
Lab ID: 1511512-010
Matrix: AQUEOUS
Received Date: 11/12/2015 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	37100	1700	2500		mg/L	5000	11/12/2015 9:23:23 PM	R30217
Sulfate	1740	32.1	50.0		mg/L	100	11/12/2015 9:10:59 PM	R30217
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	75800	724	1000	*D	mg/L	1	11/18/2015 10:35:00 AM	22359

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ5R24N1
Project: SSW Sampling R24
Collection Date: 11/10/2015 3:32:00 PM
Lab ID: 1511512-011
Matrix: AQUEOUS
Received Date: 11/12/2015 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	7470	679	1000		mg/L	2000	11/12/2015 9:48:13 PM	R30217
Sulfate	917	32.1	50.0		mg/L	100	11/12/2015 9:35:48 PM	R30217
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	15200	145	200	*D	mg/L	1	11/18/2015 10:35:00 AM	22359

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ5R24N1D
Project: SSW Sampling R24
Collection Date: 11/10/2015 3:34:00 PM
Lab ID: 1511512-012
Matrix: AQUEOUS
Received Date: 11/12/2015 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	7730	340	500		mg/L	1000	11/12/2015 10:13:02 PM	R30217
Sulfate	950	32.1	50.0		mg/L	100	11/12/2015 10:00:37 PM	R30217
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	15400	145	200	*D	mg/L	1	11/18/2015 10:35:00 AM	22359

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ5R24N1EB
Project: SSW Sampling R24
Collection Date: 11/10/2015 3:41:00 PM
Lab ID: 1511512-013
Matrix: AQUEOUS
Received Date: 11/12/2015 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	9.84	0.340	0.500		mg/L	1	11/12/2015 10:50:16 PM	R30217
Sulfate	1.92	0.321	0.500		mg/L	1	11/12/2015 10:50:16 PM	R30217
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	57.0	14.5	20.0		mg/L	1	11/18/2015 10:35:00 AM	22359

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ6R24N1
Project: SSW Sampling R24
Collection Date: 11/10/2015 1:52:00 PM
Lab ID: 1511512-014
Matrix: AQUEOUS
Received Date: 11/12/2015 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	37500	1700	2500		mg/L	5000	11/12/2015 11:27:30 PM	R30217
Sulfate	1900	32.1	50.0		mg/L	100	11/12/2015 11:15:05 PM	R30217
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	69200	724	1000	*D	mg/L	1	11/18/2015 10:35:00 AM	22359

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWWQSP6AR24N1
Project: SSW Sampling R24
Collection Date: 11/11/2015 8:43:00 AM
Lab ID: 1511512-015
Matrix: AQUEOUS
Received Date: 11/12/2015 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	296	17.0	25.0		mg/L	50	11/12/2015 11:52:19 PM	R30217
Nitrogen, Nitrate (As N)	5.45	0.0582	0.100		mg/L	1	11/12/2015 11:39:54 PM	R30217
Sulfate	1840	16.0	25.0		mg/L	50	11/12/2015 11:52:19 PM	R30217
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	3290	29.0	40.0	*D	mg/L	1	11/18/2015 10:35:00 AM	22359

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R24
Lab ID: 1511512-016 **Matrix:** AQUEOUS

Client Sample ID: SSWWQSP6AR24N2
Collection Date: 11/11/2015 8:47:00 AM
Received Date: 11/12/2015 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Nitrate+Nitrite as N	4.81	0.301	1.00		mg/L	5	11/13/2015 12:04:43 AM	R30217
SM 4500 NORG C: TKN							Analyst: **SRM**	
Nitrogen, Kjeldahl, Total	ND	0.440	1.00		mg/L	1	11/24/2015 10:17:00 AM	22454

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

DATES REPORT

WO#: **1511512**

02-Dec-15

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R24

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1511512-001A	SSWC2811R24N1	11/9/2015 8:57:00 AM	Aqueous	EPA Method 300.0: Anions			11/12/2015 4:25:34 PM
				EPA Method 300.0: Anions			11/12/2015 3:48:21 PM
				SM2540C MOD: Total Dissolved Soli		11/16/2015 11:59:30 A M	11/18/2015 10:35:00 AM
1511512-002A	SSWPZ12R24N1	11/9/2015 10:43:00 AM		EPA Method 300.0: Anions			11/12/2015 6:04:50 PM
				EPA Method 300.0: Anions			11/12/2015 5:52:26 PM
				SM2540C MOD: Total Dissolved Soli		11/16/2015 11:59:30 A M	11/18/2015 10:35:00 AM
1511512-003A	SSWPZ10R24N1	11/9/2015 12:12:00 PM		EPA Method 300.0: Anions			11/12/2015 4:37:59 PM
				EPA Method 300.0: Anions			11/12/2015 5:15:12 PM
				SM2540C MOD: Total Dissolved Soli		11/16/2015 11:59:30 A M	11/18/2015 10:35:00 AM
1511512-004A	SSWPZ9R24N1	11/10/2015 8:53:00 AM		EPA Method 300.0: Anions			11/12/2015 6:29:39 PM
				EPA Method 300.0: Anions			11/12/2015 6:17:15 PM
				SM2540C MOD: Total Dissolved Soli		11/16/2015 11:59:30 A M	11/18/2015 10:35:00 AM
1511512-005A	SSWPZ7R24N1	11/9/2015 1:33:00 PM		EPA Method 300.0: Anions			11/12/2015 6:54:29 PM
				EPA Method 300.0: Anions			11/12/2015 6:42:04 PM
				SM2540C MOD: Total Dissolved Soli		11/16/2015 11:59:30 A M	11/18/2015 10:35:00 AM
1511512-006A	SSWPZ13R24N1	11/10/2015 7:40:00 AM		EPA Method 300.0: Anions			11/12/2015 7:06:54 PM
				EPA Method 300.0: Anions			11/12/2015 7:19:18 PM
				SM2540C MOD: Total Dissolved Soli		11/16/2015 11:59:30 A M	11/18/2015 10:35:00 AM
1511512-007A	SSWPZ11R24N1	11/9/2015 3:03:00 PM		EPA Method 300.0: Anions			11/12/2015 7:31:43 PM
				EPA Method 300.0: Anions			11/12/2015 7:44:07 PM
				SM2540C MOD: Total Dissolved Soli		11/16/2015 11:59:30 A M	11/18/2015 10:35:00 AM
1511512-008A	SSWPZ11R24N1EB	11/9/2015 3:11:00 PM		EPA Method 300.0: Anions			11/17/2015 2:18:18 AM
				EPA Method 300.0: Anions			11/12/2015 8:21:21 PM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

DATES REPORT

WO#: **1511512**

02-Dec-15

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R24

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1511512-008A	SSWPZ11R24N1EB	11/9/2015 3:11:00 PM	Aqueous	EPA Method 300.0: Anions			11/12/2015 8:33:45 PM
				SM2540C MOD: Total Dissolved Soli		11/16/2015 11:59:30 A M	11/18/2015 10:35:00 AM
1511512-009A	SSWC2507R24N1	11/10/2015 10:27:00 AM		EPA Method 300.0: Anions			11/12/2015 8:46:10 PM
				EPA Method 300.0: Anions			11/12/2015 8:58:35 PM
				SM2540C MOD: Total Dissolved Soli		11/16/2015 11:59:30 A M	11/18/2015 10:35:00 AM
1511512-010A	SSWPZ1R24N1	11/10/2015 11:53:00 AM		EPA Method 300.0: Anions			11/12/2015 9:23:23 PM
				EPA Method 300.0: Anions			11/12/2015 9:10:59 PM
				SM2540C MOD: Total Dissolved Soli		11/16/2015 11:59:30 A M	11/18/2015 10:35:00 AM
1511512-011A	SSWPZ5R24N1	11/10/2015 3:32:00 PM		EPA Method 300.0: Anions			11/12/2015 9:48:13 PM
				EPA Method 300.0: Anions			11/12/2015 9:35:48 PM
				SM2540C MOD: Total Dissolved Soli		11/16/2015 11:59:30 A M	11/18/2015 10:35:00 AM
1511512-012A	SSWPZ5R24N1D	11/10/2015 3:34:00 PM		EPA Method 300.0: Anions			11/12/2015 10:13:02 PM
				EPA Method 300.0: Anions			11/12/2015 10:00:37 PM
				SM2540C MOD: Total Dissolved Soli		11/16/2015 11:59:30 A M	11/18/2015 10:35:00 AM
1511512-013A	SSWPZ5R24N1EB	11/10/2015 3:41:00 PM		EPA Method 300.0: Anions			11/12/2015 11:02:40 PM
				EPA Method 300.0: Anions			11/17/2015 2:30:43 AM
				EPA Method 300.0: Anions			11/12/2015 10:50:16 PM
				SM2540C MOD: Total Dissolved Soli		11/16/2015 11:59:30 A M	11/18/2015 10:35:00 AM
1511512-014A	SSWPZ6R24N1	11/10/2015 1:52:00 PM		EPA Method 300.0: Anions			11/12/2015 11:15:05 PM
				EPA Method 300.0: Anions			11/12/2015 11:27:30 PM
				SM2540C MOD: Total Dissolved Soli		11/16/2015 11:59:30 A M	11/18/2015 10:35:00 AM
1511512-015A	SSWWQSP6AR24N1	11/11/2015 8:43:00 AM		EPA Method 300.0: Anions			11/12/2015 11:39:54 PM
				EPA Method 300.0: Anions			11/12/2015 11:52:19 PM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

DATES REPORT

WO#: **1511512**

02-Dec-15

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R24

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1511512-015A	SSWWQSP6AR24N1	11/11/2015 8:43:00 AM	Aqueous	SM2540C MOD: Total Dissolved Soli		11/16/2015 11:59:30 A M	11/18/2015 10:35:00 AM
1511512-016A	SSWWQSP6AR24N2	11/11/2015 8:47:00 AM		EPA Method 300.0: Anions			11/13/2015 12:04:43 AM
				SM 4500 Norg C: TKN		11/21/2015 8:34:02 A M	11/24/2015 10:17:00 AM

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511512**

02-Dec-15

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R24

Sample ID **A6**	SampType: **CCV_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R30217**	RunNo: **30217**
Prep Date:	Analysis Date: **11/12/2015**	SeqNo: **920693** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	99.9	90	110			
Nitrogen, Nitrate (As N)	7.5	0.10	7.200	0	104	90	110			
Sulfate	30	0.50	30.00	0	101	90	110			
Nitrate+Nitrite as N	12	0.20	12.00	0	103	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R30217**	RunNo: **30217**
Prep Date:	Analysis Date: **11/12/2015**	SeqNo: **920695** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R30217**	RunNo: **30217**
Prep Date:	Analysis Date: **11/12/2015**	SeqNo: **920696** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	97.4	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			
Sulfate	9.8	0.50	10.00	0	98.5	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	100	90	110			

Sample ID **1511512-003AMS**	SampType: **MS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **SSWPZ10R24N1**	Batch ID: **R30217**	RunNo: **30217**
Prep Date:	Analysis Date: **11/12/2015**	SeqNo: **920702** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	448	5.00	100.0	338.9	109	84.2	113			

Sample ID **1511512-003AMSD**	SampType: **MSD**	TestCode: **EPA Method 300.0: Anions**
Client ID: **SSWPZ10R24N1**	Batch ID: **R30217**	RunNo: **30217**
Prep Date:	Analysis Date: **11/12/2015**	SeqNo: **920703** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	457	5.00	100.0	338.9	118	84.2	113	2.06	20	S

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511512**

02-Dec-15

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R24

Sample ID **A4**	SampType: **CCV_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R30217**	RunNo: **30217**
Prep Date:	Analysis Date: **11/12/2015**	SeqNo: **920705** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.4	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	95.8	90	110			
Sulfate	12	0.50	12.50	0	93.6	90	110			
Nitrate+Nitrite as N	4.8	0.20	5.000	0	96.3	90	110			

Sample ID **A5**	SampType: **CCV_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R30217**	RunNo: **30217**
Prep Date:	Analysis Date: **11/12/2015**	SeqNo: **920720** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	95.8	90	110			
Nitrogen, Nitrate (As N)	4.8	0.10	4.800	0	99.3	90	110			
Sulfate	19	0.50	20.00	0	96.6	90	110			
Nitrate+Nitrite as N	7.9	0.20	8.000	0	99.0	90	110			

Sample ID **A6**	SampType: **CCV_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R30217**	RunNo: **30217**
Prep Date:	Analysis Date: **11/12/2015**	SeqNo: **920750** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	100	90	110			
Nitrogen, Nitrate (As N)	7.6	0.10	7.200	0	105	90	110			
Sulfate	30	0.50	30.00	0	101	90	110			
Nitrate+Nitrite as N	12	0.20	12.00	0	104	90	110			

Sample ID **A4**	SampType: **CCV_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R30217**	RunNo: **30217**
Prep Date:	Analysis Date: **11/13/2015**	SeqNo: **920777** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.1	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	95.4	90	110			
Sulfate	12	0.50	12.50	0	93.8	90	110			
Nitrate+Nitrite as N	4.8	0.20	5.000	0	95.8	90	110			

Sample ID **A5**	SampType: **CCV_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R30217**	RunNo: **30217**
Prep Date:	Analysis Date: **11/13/2015**	SeqNo: **920789** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511512**

02-Dec-15

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R24

Sample ID **A5**	SampType: **CCV_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R30217**	RunNo: **30217**
Prep Date:	Analysis Date: **11/13/2015**	SeqNo: **920789** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.8	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	102	90	110			
Sulfate	20	0.50	20.00	0	100	90	110			
Nitrate+Nitrite as N	8.1	0.20	8.000	0	101	90	110			

Sample ID **A6**	SampType: **CCV_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R30217**	RunNo: **30217**
Prep Date:	Analysis Date: **11/13/2015**	SeqNo: **920801** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	101	90	110			
Nitrogen, Nitrate (As N)	7.6	0.10	7.200	0	106	90	110			
Sulfate	31	0.50	30.00	0	103	90	110			
Nitrate+Nitrite as N	13	0.20	12.00	0	105	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511512**

02-Dec-15

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R24

Sample ID	**MB-22359**	SampType:	**MBLK**		TestCode:	**SM2540C MOD: Total Dissolved Solids**				
Client ID:	**PBW**	Batch ID:	**22359**		RunNo:	**30306**				
Prep Date:	**11/16/2015**	Analysis Date:	**11/18/2015**		SeqNo:	**924572**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	**LCS-22359**	SampType:	**LCS**		TestCode:	**SM2540C MOD: Total Dissolved Solids**				
Client ID:	**LCSW**	Batch ID:	**22359**		RunNo:	**30306**				
Prep Date:	**11/16/2015**	Analysis Date:	**11/18/2015**		SeqNo:	**924573**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Sample ID	**1511512-001AMS**	SampType:	**MS**		TestCode:	**SM2540C MOD: Total Dissolved Solids**				
Client ID:	**SSWC2811R24N1**	Batch ID:	**22359**		RunNo:	**30306**				
Prep Date:	**11/16/2015**	Analysis Date:	**11/18/2015**		SeqNo:	**924575**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	5360	40.0	2000	3298	103	80	120			D

Sample ID	**1511512-001AMSD**	SampType:	**MSD**		TestCode:	**SM2540C MOD: Total Dissolved Solids**				
Client ID:	**SSWC2811R24N1**	Batch ID:	**22359**		RunNo:	**30306**				
Prep Date:	**11/16/2015**	Analysis Date:	**11/18/2015**		SeqNo:	**924576**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	5420	40.0	2000	3298	106	80	120	1.19	5	D

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511512**

02-Dec-15

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R24

Sample ID	**MB-22454**	SampType:	**MBLK**	TestCode:	**SM 4500 Norg C: TKN**					
Client ID:	**PBW**	Batch ID:	**22454**	RunNo:	**30451**					
Prep Date:	**11/21/2015**	Analysis Date:	**11/24/2015**	SeqNo:	**929177**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	1.00								

Sample ID	**LCS-22454**	SampType:	**LCS**	TestCode:	**SM 4500 Norg C: TKN**					
Client ID:	**LCSW**	Batch ID:	**22454**	RunNo:	**30451**					
Prep Date:	**11/21/2015**	Analysis Date:	**11/24/2015**	SeqNo:	**929178**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10.1	1.00	10.00	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: WIPP | Work Order Number: 1511512 | RcptNo: 1

Received by/date: JA 11/12/15

Logged By: Anne Thorne 11/12/2015 8:00:00 AM Anne Thorne

Completed By: Anne Thorne 11/12/2015 Anne Thorne

Reviewed By: 11/12/15

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☑	No ☐	Not Present ☐
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	FedEx		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 1 (<2 or >12 unless noted)

Adjusted? NO

Checked by: JA

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.1	Good	Yes			

04178

CHAIN OF CUSTODY RECORD

№ 1213

Page 1 of 2

Project Number:	Project Name:
T502542-2	SSW Sampling R24

Sampler(s): Brett Seal

Sample Date	Sample Time	Matrix	Sample Number	Total Number of Containers	TDS	Chloride	Sulfate	Comments
11/9/15	0857	SSW	SSWC2811R24N1	1	X	X	X	use for MS/MSD -001
11/9/15	1043		SSWPZ12R24N1	1	X	X	X	-002
11/9/15	1212		SSWPZ10R24N1	1	X	X	X	-003
11/10/15	0853		SSWPZ9R24N1	1	X	X	X	-004
11/9/15	1333		SSWPZ7R24N1	1	X	X	X	-005
11/10/15	0740		SSWPZ13R24N1	1	X	X	X	-006
11/9/15	1503		SSWPZ11R24N1	1	X	X	X	-007
11/9/15	1511		SSWPZ11R24D/EB	1	X	X	X	Equ Blank -008
11/10/15	1027		SSWC2507R24N1	1	X	X	X	-009
11/10/15	1153		SSWPZ1R24N1	1	X	X	X	-010
11/10/15	1532		SSWPZ5R24N1	1	X	X	X	-011
11/10/15	1534		SSWPZ5R24N1D	1	X	X	X	-012
11/10/15	1541		SSWPZ5R24N1EB	1	X	X	X	Equ Blank -013
11/10/15	1352	↓	SSWPZ6R24N1	1	X	X	X	-014

Analytical Laboratory: HEAL, Albuquerque, NM, HEAL # 151512

Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time) 5.1°C
Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received at Laboratory: (Signature, Date/Time) Jac. Archer 11/12/15 0800

Requested Turnaround Time: 30 days

☑ Routine ☐ Rush _____

Sample Disposal:

☐ Return to Client ☒ Disposal by Lab

Carrier / Airbill No.: 8768 1881 2418

Sample Receipt Remarks:

Special Instructions: High TDS: PZ-7, PZ-11, PZ-9, PZ-6, PZ-5, PZ-13, PZ-1. Report all data to three Sig figs.

Results To: Brett Seal
RES
PO Box 2078, MS 452-09
Carlsbad, NM 88221-2078
Phone: 575-234-8866 FAX: 575-234-6003
EDD: Brett.Seal@wipp.ws

WHITE – Analytical Laboratory
DI – Deionized Water
GW – Groundwater
YELLOW – Field Copy
AF – Air Filter(s)
AN – Animal(s)
PINK – Record Copy
SE – Sediment
SO – Soil
SW – Surface Water
VG – Vegetation

Form CofC/PEA, Rev. 0 – NICHOLS PRINTING, INC.

04179

CHAIN OF CUSTODY RECORD

№ 1214

Page 2 of 2

Project Number:	Project Name:
T502542-2	SSW Sampling R24

Sampler(s): Brett Seal

Sample Date	Sample Time	Matrix	Sample Number	Total Number of Containers	TDS	Chloride	Sulfate	Nitrate	TKN
11/11/15	0843	SW	SSWWQSP6AR24N1	1	X	X	X	X	
11/11/15	0847	SW	SSWWQSP6AR24N2	1				X	X

NA BS

Analytical Laboratory: HEAL Albuquerque, NM
HEAL # 1511512

Comments: 1511512 -015 -016

Relinquished By: (Signature, Date/Time)

Received By: (Signature, Date/Time)

Relinquished By: (Signature, Date/Time)

Received By: (Signature, Date/Time) 5.1°C

Relinquished By: (Signature, Date/Time)

Received By: (Signature, Date/Time)

Relinquished By: (Signature, Date/Time)

Received at Laboratory: (Signature, Date/Time) 11/12/15 0800

Requested Turnaround Time: 30 days

☑ Routine ☐ Rush _____

Sample Receipt Remarks:

Special Instructions:

Sample Disposal:

☐ Return to Client ☑ Disposal by Lab

Carrier / Airbill No.: 876818812418

Results To: Brett Seal
RES
PO Box 2078, MS 452-09
Carlsbad, NM 88221-2078
Phone: 5752348866 FAX: 575-234-6003
EDD: Brett.Seal@wipp.ws

WHITE – Analytical Laboratory
DI – Deionized Water
GW – Groundwater

YELLOW – Field Copy
AF – Air Filter(s)
AN – Animal(s)

PINK – Record Copy
SE – Sediment
SO – Soil

SW – Surface Water
VG – Vegetation

Form CofC/RFA, Rev. 0 – NICHOLS PRINTING, INC.

04180

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

October 01, 2015

Greg Jungclaus

Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8615
FAX

RE: T-409304-4 OrderNo.: 1508986

Dear Greg Jungclaus:

Hall Environmental Analysis Laboratory received 8 sample(s) on 8/20/2015 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued September 02, 2015.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Workorder Sample Summary

WO#: **1508986**
01-Oct-15

CLIENT: Waste Isolation Pilot Plant
Project: T-409304-4

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1508986-001	WR-SSP1-20150819-1.1		8/19/2015 10:14:00 AM	8/20/2015 9:00:00 AM	Aqueous
1508986-002	WR-SSP2-20150819-1.1		8/19/2015 9:29:00 AM	8/20/2015 9:00:00 AM	Aqueous
1508986-003	WR-SSP3-20150819-1.1		8/19/2015 9:34:00 AM	8/20/2015 9:00:00 AM	Aqueous
1508986-004	WR-SWP1-20150819-1.1		8/19/2015 9:53:00 AM	8/20/2015 9:00:00 AM	Aqueous
1508986-005	WR-SWP2-20150819-1.1		8/19/2015 10:00:00 AM	8/20/2015 9:00:00 AM	Aqueous
1508986-006	WR-SWP3-20150819-1.2		8/19/2015 9:44:00 AM	8/20/2015 9:00:00 AM	Aqueous
1508986-007	WR-SWP3-20150819-2.2		8/19/2015 9:44:00 AM	8/20/2015 9:00:00 AM	Aqueous
1508986-008	WR-Blk-20150819-1.1		8/19/2015 10:18:00 AM	8/20/2015 9:00:00 AM	Aqueous

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1508986**
Date: **10/1/2015**

CLIENT: Waste Isolation Pilot Plant
Project: T-409304-4

The anion results for the two samples below have been updated due to a laboratory error. This report replaces all other reports.
WR-SWP3-20150819-2.2
WR-Blk-20150819-1.1

All analytes reported are associated with passing CCVs.

METHOD: 300.0

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: none
Analysis: 300.0

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Calibration: All acceptance criteria were met.
2. Blanks: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Spikes: The MS/MSD was low for sulfate due to the sample matirx. All other acceptance criteria were met.
5. Samples: All acceptance criteria were met.

METHOD: SM2540C

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: SM2540C
Analysis: SM2540C

PREPARATION: Sample preparation proceeded normally.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1508986**
Date: **10/1/2015**

CLIENT: Waste Isolation Pilot Plant
Project: T-409304-4

ANALYSIS:
1. Blanks: All acceptance criteria were met.
2. Spikes: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Samples: All acceptance criteria were met.

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: T-409304-4
Lab ID: 1508986-001A

Client Sample ID: WR-SSP1-20150819-1.1
Collection Date: 8/19/2015 10:14:00 AM
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	312000	2670	10000		mg/L	2E+0	8/26/2015 8:55:56 PM	R28485
Sulfate	1830	11.4	50.0		mg/L	100	8/25/2015 4:31:34 PM	R28467
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	334000	1450	2000	*D	mg/L	1	8/26/2015 3:30:00 PM	20956

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: T-409304-4
Lab ID: 1508986-002A

Client Sample ID: WR-SSP2-20150819-1.1
Collection Date: 8/19/2015 9:29:00 AM
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	346000	2670	10000		mg/L	2E+0	8/26/2015 9:08:20 PM	R28485
Sulfate	23700	114	500		mg/L	1000	8/25/2015 5:08:48 PM	R28467
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	331000	1450	2000	*D	mg/L	1	8/26/2015 3:30:00 PM	20956

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: T-409304-4
Lab ID: 1508986-003A

Client Sample ID: WR-SSP3-20150819-1.1
Collection Date: 8/19/2015 9:34:00 AM
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	240000	2670	10000		mg/L	2E+0	8/26/2015 9:45:32 PM	R28485
Sulfate	24500	570	2500		mg/L	5000	8/25/2015 5:33:36 PM	R28467
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	356000	1450	2000	*D	mg/L	1	8/26/2015 3:30:00 PM	20956

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: T-409304-4
Lab ID: 1508986-004A

Client Sample ID: WR-SWP1-20150819-1.1
Collection Date: 8/19/2015 9:53:00 AM
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	450	13.3	50.0		mg/L	100	8/25/2015 5:58:25 PM	R28467
Sulfate	33.3	1.14	5.00		mg/L	10	8/25/2015 5:46:01 PM	R28467
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	980	29.0	40.0	*D	mg/L	1	8/26/2015 3:30:00 PM	20956

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: T-409304-4
Lab ID: 1508986-005A

Client Sample ID: WR-SWP2-20150819-1.1
Collection Date: 8/19/2015 10:00:00 AM
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	320	13.3	50.0		mg/L	100	8/25/2015 7:12:53 PM	R28467
Sulfate	14.1	1.14	5.00		mg/L	10	8/25/2015 7:00:29 PM	R28467
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	608	29.0	40.0	*D	mg/L	1	8/26/2015 3:30:00 PM	20956

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: T-409304-4
Lab ID: 1508986-006A

Client Sample ID: WR-SWP3-20150819-1.2
Collection Date: 8/19/2015 9:44:00 AM
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	141	1.33	5.00		mg/L	10	8/29/2015 1:20:12 AM	R28543
Sulfate	13.3	1.14	5.00		mg/L	10	8/29/2015 1:20:12 AM	R28543
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	356	29.0	40.0	D	mg/L	1	8/26/2015 3:30:00 PM	20956

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: T-409304-4
Lab ID: 1508986-007A

Client Sample ID: WR-SWP3-20150819-2.2
Collection Date: 8/19/2015 9:44:00 AM
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **SRM**	
Chloride	156	1.33	5.00		mg/L	10	9/10/2015 10:18:13 PM	R28773
Sulfate	12.4	1.14	5.00		mg/L	10	9/10/2015 10:18:13 PM	R28773
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	354	29.0	40.0	D	mg/L	1	8/26/2015 3:30:00 PM	20956

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: T-409304-4
Lab ID: 1508986-008A

Client Sample ID: WR-Blk-20150819-1.1
Collection Date: 8/19/2015 10:18:00 AM
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **SRM**	
Chloride	ND	2.67	10.0		mg/L	20	9/10/2015 10:30:37 PM	R28773
Sulfate	ND	2.28	10.0		mg/L	20	9/10/2015 10:30:37 PM	R28773
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	ND	14.5	20.0		mg/L	1	8/26/2015 3:30:00 PM	20956

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

DATES REPORT

WO#: **1508986**

01-Oct-15

Client: Waste Isolation Pilot Plant

Project: T-409304-4

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1508986-001A	WR-SSP1-20150819-1.1	8/19/2015 10:14:00 AM	Aqueous	EPA Method 300.0: Anions			8/25/2015 4:43:58 PM
				EPA Method 300.0: Anions			8/25/2015 4:31:34 PM
				EPA Method 300.0: Anions			8/26/2015 8:55:56 PM
				EPA Method 300.0: Anions			9/10/2015 7:49:18 PM
				EPA Method 300.0: Anions			9/10/2015 7:36:53 PM
				SM2540C MOD: Total Dissolved Soli		8/25/2015 8:47:53 AM	8/26/2015 3:30:00 PM
1508986-002A	WR-SSP2-20150819-1.1	8/19/2015 9:29:00 AM		EPA Method 300.0: Anions			8/26/2015 9:08:20 PM
				EPA Method 300.0: Anions			8/25/2015 5:08:48 PM
				EPA Method 300.0: Anions			9/10/2015 8:14:06 PM
				EPA Method 300.0: Anions			9/10/2015 8:01:42 PM
				EPA Method 300.0: Anions			8/25/2015 4:56:23 PM
				SM2540C MOD: Total Dissolved Soli		8/25/2015 8:47:53 AM	8/26/2015 3:30:00 PM
1508986-003A	WR-SSP3-20150819-1.1	8/19/2015 9:34:00 AM		EPA Method 300.0: Anions			8/25/2015 5:21:12 PM
				EPA Method 300.0: Anions			8/25/2015 5:33:36 PM
				EPA Method 300.0: Anions			8/26/2015 9:45:32 PM
				EPA Method 300.0: Anions			9/10/2015 9:03:45 PM
				EPA Method 300.0: Anions			9/10/2015 8:51:19 PM
				SM2540C MOD: Total Dissolved Soli		8/25/2015 8:47:53 AM	8/26/2015 3:30:00 PM
1508986-004A	WR-SWP1-20150819-1.1	8/19/2015 9:53:00 AM		EPA Method 300.0: Anions			8/25/2015 5:58:25 PM
				EPA Method 300.0: Anions			9/10/2015 9:16:09 PM
				EPA Method 300.0: Anions			9/10/2015 9:28:34 PM
				EPA Method 300.0: Anions			8/25/2015 5:46:01 PM
				SM2540C MOD: Total Dissolved Soli		8/25/2015 8:47:53 AM	8/26/2015 3:30:00 PM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

DATES REPORT

WO#: **1508986**

01-Oct-15

Client: Waste Isolation Pilot Plant

Project: T-409304-4

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1508986-005A	WR-SWP2-20150819-1.1	8/19/2015 10:00:00 AM	Aqueous	EPA Method 300.0: Anions			9/10/2015 9:40:59 PM
				EPA Method 300.0: Anions			9/10/2015 9:53:23 PM
				EPA Method 300.0: Anions			8/25/2015 7:12:53 PM
				EPA Method 300.0: Anions			8/25/2015 7:00:29 PM
				SM2540C MOD: Total Dissolved Soli		8/25/2015 8:47:53 AM	8/26/2015 3:30:00 PM
1508986-006A	WR-SWP3-20150819-1.2	8/19/2015 9:44:00 AM		EPA Method 300.0: Anions			8/29/2015 1:20:12 AM
				EPA Method 300.0: Anions			9/10/2015 10:05:48 PM
				EPA Method 300.0: Anions			8/25/2015 7:37:42 PM
				EPA Method 300.0: Anions			8/25/2015 7:25:17 PM
				SM2540C MOD: Total Dissolved Soli		8/25/2015 8:47:53 AM	8/26/2015 3:30:00 PM
1508986-007A	WR-SWP3-20150819-2.2			EPA Method 300.0: Anions			9/10/2015 10:18:13 PM
				EPA Method 300.0: Anions			8/29/2015 1:32:36 AM
				EPA Method 300.0: Anions			8/25/2015 8:02:32 PM
				EPA Method 300.0: Anions			8/25/2015 7:50:07 PM
				SM2540C MOD: Total Dissolved Soli		8/25/2015 8:47:53 AM	8/26/2015 3:30:00 PM
1508986-008A	WR-Blk-20150819-1.1	8/19/2015 10:18:00 AM		EPA Method 300.0: Anions			8/25/2015 8:14:57 PM
				EPA Method 300.0: Anions			8/25/2015 8:27:22 PM
				EPA Method 300.0: Anions			9/10/2015 10:43:02 PM
				EPA Method 300.0: Anions			8/26/2015 10:22:46 PM
				EPA Method 300.0: Anions			9/9/2015 12:53:09 PM
				EPA Method 300.0: Anions			9/9/2015 1:05:34 PM
				EPA Method 300.0: Anions			9/10/2015 10:30:37 PM
				SM2540C MOD: Total Dissolved Soli		8/25/2015 8:47:53 AM	8/26/2015 3:30:00 PM

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1508986**

01-Oct-15

Client: Waste Isolation Pilot Plant

Project: T-409304-4

Sample ID	**MB**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBW**	Batch ID:	**R28467**	RunNo:	**28467**					
Prep Date:		Analysis Date:	**8/25/2015**	SeqNo:	**860418**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.500								
Sulfate	ND	0.500								

Sample ID	**LCS**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSW**	Batch ID:	**R28467**	RunNo:	**28467**					
Prep Date:		Analysis Date:	**8/25/2015**	SeqNo:	**860419**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.73	0.500	5.000	0	94.6	90	110			
Sulfate	9.46	0.500	10.00	0	94.6	90	110			

Sample ID	**MB**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBW**	Batch ID:	**R28485**	RunNo:	**28485**					
Prep Date:		Analysis Date:	**8/26/2015**	SeqNo:	**861110**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID	**LCS**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSW**	Batch ID:	**R28485**	RunNo:	**28485**					
Prep Date:		Analysis Date:	**8/26/2015**	SeqNo:	**861111**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	98.5	90	110			

Sample ID	**1508986-004AMS**	SampType:	**MS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**WR-SWP1-20150819**	Batch ID:	**R28467**	RunNo:	**28485**					
Prep Date:		Analysis Date:	**8/26/2015**	SeqNo:	**861147**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	135	5.00	100.0	33.34	102	84.2	113			

Sample ID	**1508986-004AMSD**	SampType:	**MSD**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**WR-SWP1-20150819**	Batch ID:	**R28467**	RunNo:	**28485**					
Prep Date:		Analysis Date:	**8/26/2015**	SeqNo:	**861148**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	136	5.00	100.0	33.34	103	84.2	113	0.553	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1508986**

01-Oct-15

Client: Waste Isolation Pilot Plant

Project: T-409304-4

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R28543**	RunNo: **28543**
Prep Date:	Analysis Date: **8/28/2015**	SeqNo: **863412** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R28543**	RunNo: **28543**
Prep Date:	Analysis Date: **8/28/2015**	SeqNo: **863413** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.1	0.50	5.000	0	102	90	110			
Sulfate	10	0.50	10.00	0	104	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R28773**	RunNo: **28773**
Prep Date:	Analysis Date: **9/10/2015**	SeqNo: **872680** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R28773**	RunNo: **28773**
Prep Date:	Analysis Date: **9/10/2015**	SeqNo: **872681** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	97.7	90	110			
Sulfate	9.9	0.50	10.00	0	99.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1508986**

01-Oct-15

Client: Waste Isolation Pilot Plant

Project: T-409304-4

Sample ID	**MB-20956**	SampType:	**MBLK**		TestCode:	**SM2540C MOD: Total Dissolved Solids**				
Client ID:	**PBW**	Batch ID:	**20956**		RunNo:	**28476**				
Prep Date:	**8/25/2015**	Analysis Date:	**8/26/2015**		SeqNo:	**860768**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	**LCS-20956**	SampType:	**LCS**		TestCode:	**SM2540C MOD: Total Dissolved Solids**				
Client ID:	**LCSW**	Batch ID:	**20956**		RunNo:	**28476**				
Prep Date:	**8/25/2015**	Analysis Date:	**8/26/2015**		SeqNo:	**860769**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	80	120			

Sample ID	**1508986-004AMS**	SampType:	**MS**		TestCode:	**SM2540C MOD: Total Dissolved Solids**				
Client ID:	**WR-SWP1-20150819**	Batch ID:	**20956**		RunNo:	**28476**				
Prep Date:	**8/25/2015**	Analysis Date:	**8/26/2015**		SeqNo:	**860774**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	3050	40.0	2000	980.0	104	80	120			D

Sample ID	**1508986-004AMSD**	SampType:	**MSD**		TestCode:	**SM2540C MOD: Total Dissolved Solids**				
Client ID:	**WR-SWP1-20150819**	Batch ID:	**20956**		RunNo:	**28476**				
Prep Date:	**8/25/2015**	Analysis Date:	**8/26/2015**		SeqNo:	**860775**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	3040	40.0	2000	980.0	103	80	120	0.394	5	D

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: WIPP | Work Order Number: 1508986 | RcptNo: 1

Received by/date: MA 08/20/2015

Logged By: Anne Thorne 8/20/2015 9:00:00 AM Anne Thorne

Completed By: Anne Thorne 8/20/2015 Anne Thorne

Reviewed By: 08/20/15

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☑	No ☐	Not Present ☐
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	FedEx		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.9	Good	Yes			

04198

CHAIN-OF-CUSTODY RECORD

C of C Control № 09788

RFA Control № 09788

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

SAMPLING PROGRAM Env-Monit (DP-831)

LAB DESTINATION Hall Enviroment (HEAL)

SAMPLE TEAM MEMBERS J Hernandez AR. Eggleston 08.8-19-15

CARRIER/WAYBILL NO. FedEx # 8739-5711-7374 HEAL # 150881

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
WR-SSP1-20150819-1.1	Salt Storage Pond 1	8-19-15 1014	water Run-off	500mL		-001
SSP2	2	0929				-002
SSP3	3	0934				-003
SWP1	Storm Water Pond 1	0953				-004
SWP2	2	1000				-005
SWP3 1.2	3	0944				-006
SWP3 2.2	3	0944				-007
BIK 1.1	Blank	1018	Blank			-008
		N/A				

Special Instructions: If Need, use SWP1 For ms/MSD QC sample, 7 day maximun Hold time.

Possible Sample Hazards: ☐ Radiological ☐ Bio-Hazard N/A

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: J Hernandez NWP 8-19-15 1300
   Received By: 08/20/15 @0900 3.9°c
2. Relinquished By:
   Received By:
3. Relinquished By:
   Received By:
4. Relinquished By:
   Received By:

04199

REQUEST FOR ANALYSIS

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED 8-19-15
RFA Control № 09788
LAB DESTINATION Hall Environment
LABORATORY CONTACT Andy Freeman
SEND LAB REPORT TO NWP
P.O. Box 2078 M/S 452-09
Carlsbad, N.Mex 88221
C of C Control № 09788
DATE REPORT REQUIRED Per S.O.W
PROJECT CONTACT C/o Greg Jungclaus
PROJECT CONTACT PHONE NO. (575) 234-8615
SAMPLING PROGRAM Env-Monit (DP-831)
PURCHASE ORDER NO. T409304-4
#HEAL #1508986

Sample Number	Sample Type	Sample Quantity	Preservative	Req't. Testing Program	Special Instructions
WR-SSP1-20150819-1.1	Water - Run-off	500 mL	≤ 4°C	Per S.O.W	7day hold time
SSP2					
SSP3					Use for MS/MSD QC sample
SWP1					7 day hold time
SWP2					
SWP3 1.2					
SWP3 2.2					
BLK 1.1	Blank				
		N/A			

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL X RUSH _____ (Subject in rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NONHAZARD X RADIOLOGICAL _____ FLAMMABLE _____ SKIN IRRITANT _____ HIGHLY TOXIC _____ BIOLOGICAL _____ OTHER _____ (Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT _____ DISPOSAL BY LAB _____

FOR LAB USE ONLY

RECEIVED BY [signature] DATE/TIME 08/20/15 0900 3.9°C

04200

Attachment 2 – Infiltration Controls Sample Data Work Sheet

AEAL# 1508986

Attachment 2 – Infiltration Controls Sample Data Work Sheet

INFILTRATION CONTROL PONDS SAMPLE DATA WORK SHEET

Sample Data Work Sheet No. 001

Pond	SSP1	SSP2	SSP3	SWP1	SWP2	SWP3
Depth (ft)	2"	5'0"	9'6"	2'1"	5'3"	3'5"

TO CONTRACT LAB

SAMPLE CODES	LOCATION	SIZE	ANALYSIS	PRESERVATIVE	DATE/TIME
WR-SSP1-20150819-1.1	Salt Storage Pond 1	500mL	Sulfate/Chloride TDS	≤ 4°C	8-19-15 1014 -001
SSP2	2				0929 -002
SSP3	3				0934 -003
SWP1	Storm Water Pond 1				0953 -004
SWP2	2				1000 -005
SWP3	1.2 3				0944 -006
SWP3	2.2 3				0944 -007
BLK	Blank (Do Not use for MS/MSD QC sample)				1018 -008

Personnel: Jerome Hernandez, Ricky Eggleston

Comments: Use storm water Pond 1 For MS/MSD QC sample
Pre-job held: Slips & Falls

Collected by: Jerome Hernandez (Printed Name) ENV-Spec (Title) [signature] (Signature) 8-19-15 (Date)

Reviewed by: Rick Eggleston (Printed Name) Env.-Spec. (Title) [signature] (Signature) 8/19/15 (Date)

04201

	Field and General Chemistry Parameters								Other	Water-Level Monitoring (Ft AMSL)	
Monitoring Site	Sample Date	pH (SU)	Temp. (^{o}C)	Specific Conductivity @25 ^{o}C (µS/cm)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)	9/1/15-9/9/15	12/7/15 & 12/16/15
PZ-1	11/10/2015	6.4	23.76	95,550	NA	**1,740**	**37,100**	**75,800**	NA	3370.33	3370.95
PZ-2	NS	NS	NS	NS	NS	NS	NS	NS	NS	3369.75	3370.43
PZ-3	NS	NS	NS	NS	NS	NS	NS	NS	NS	3370.34	3370.81
PZ-4	NS	NS	NS	NS	NS	NS	NS	NS	NS	3364.47	3365.25
PZ-5	11/10/2015	7.08	21.55	85,790	NA	**917**	**7,470**	**15,200**	NA	3370.79	3371.33
PZ-6	11/10/2015	6.61	22.09	98,910	NA	**1,900**	**37,500**	**69,200**	NA	3368.49	3369.10
PZ-7	11/9/2015	6.22	23.05	92,120	NA	**2,960**	**44,900**	**114,000**	NA	3374.99	3375.45
PZ-8	NS	NS	NS	NS	NS	NS	NS	NS	NS	3351.66	3355.49
PZ-9	11/10/2015	6.22	21.27	100,700	NA	**4,390**	**84,300**	**176,000**	NA	3361.94	3361.93
PZ-10	11/9/2015	7.25	21.67	7,004	NA	339	**255**	**1,310**	NA	3366.77	3367.88
PZ-11	11/9/2015	6.3	22.47	93,270	NA	**2,770**	**59,900**	**96,400**	NA	3371.34	3371.55
PZ-12	11/9/2015	6.91	21.49	44,830	NA	**627**	**3,450**	**8,280**	NA	3354.70	3355.49
PZ-13	11/10/2015	Bailed			NA	**2,980**	**118,000**	**233,000**	NA	3354.91	3355.40
PZ-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	3352.34	3352.51
PZ-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	3382.12	3382.94
C-2811	11/9/2015	7.1	19.91	16,610	NA	451	**1260**	**3,300**	NA	3346.35	3347.04
C-2505	NS	NS	NS	NS	NS	NS	NS	NS	NS	3366.64	3364.34
C-2506	NS	NS	NS	NS	NS	NS	NS	NS	NS	3367.33	NR
C-2507	11/10/2015	7.02	20.69	38,660	NA	**605**	**2,800**	**6,850**	NA	3363.85	NR
WQSP-6A	11/11/2015	7.13	20.96	13,410	5.45	**1,840**	**296**	**3,290**	<1.0	3195.88	3196.20

Explanation:

NA: Not Analyzed, parameter not required, per permit conditions.

NS: Not Sampled, not required per permit conditions

NR: Not recurded due to the well being inaccessable

PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty using Low-Flow pumps

"**Bold**" concentrations exceed those listed in 20.6.2.3103 NMAC standards for ground water of less than 10,000 mg/L TDS concentration or less

	AMSL: Above Mean Sea Level

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

JUL 3 0 2015

GROUND WATER
JUL 31 2015
BUREAU

Ms. Michelle Hunter, Acting Bureau Chief
New Mexico Environment Department
Ground Water Quality Bureau
P.O. Box 5469
Santa Fe, NM 87502-5469

Subject: Semiannual Discharge Monitoring Report for January 1, 2015, through June 30, 2015, Discharge Permit 831

Dear Ms. Hunter:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Discharge Monitoring Report, including the required attachments on compact disk, for the period of January 1, 2015, through June 30, 2015. This report is required by Discharge Permit 831.

If you have any questions about this report or require any additional information, please contact me at (575) 234-7488.

Sincerely,

George T. Basabilvazo

George T. Basabilvazo, Director
Environmental Protection Division

Enclosures 2

cc: w/o enclosures
J. Kieling, NMED *ED
T. Kliphuis, NMED ED
R. Maestas, NMED ED
CBFO M&RC
*ED denotes electronic distribution

CBFO:EPD:GTB:MN:15-2215:UFC 5487.00

04204

U.S. DEPARTMENT OF ENERGY
CARLSBAD FIELD OFFICE

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT
FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JANUARY 1, 2015 THROUGH JUNE 30, 2015

July 2015

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR
DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JANUARY 1, 2015 THROUGH JUNE 30, 2015

REQUIREMENTS OF DP-831 OPERATIONAL PLAN

Part B. Applicable to the Facultative Lagoon System

Condition 8. – The permittee shall measure the thickness of the sludge blanket in each pond of the Facultative Lagoon System once within the effective term of this Discharge Permit, But before the end of 2018. When sludge accumulation exceeds 1/3 of the total depth of any pond, the permittee shall remove the sludge in a manner, which is protective of the pond liner. Removed solids shall be contained, transported, and disposed of in accordance with all local, state, and federal regulations. The permittee shall maintain solids blanket measurements and solids disposal manifests for solids transported from the facility for off-site disposal. The permittee shall submit all measurements and manifests to NMED in the semi-annual monitoring report immediately following the solids thickness measurement.

No sludge measurements occurred during this reporting period.

Part D. Applicable to the Storm Water Runoff Impoundments in Contact with Salt Stockpiles (Salt Storage Ponds 1, 2, and 3) and Salt Stockpiles (Salt Cells 1, 2, and 3).

Condition 9. – The permittee shall measure the thickness of the solids blanket in each impoundment once within the effective term of this Discharge Permit, but before the end of 2018. Removed solids shall be contained, transported, and disposed of in accordance with all local, state, and federal regulations. The permittee shall maintain solids blanket measurements and solids disposal manifests for solids transported from the facility for off-site disposal. The permittee shall submit all measurements and manifests to NMED in the semi-annual monitoring report immediately following the solids thickness measurement.

No sludge measurements occurred during this reporting period.

Condition 10. – The permittee shall inspect the leak detection systems for Salt Storage Ponds 2 and 3 on a monthly basis for the presence of liquid. The permittee shall keep a log of the inspection findings and repairs made. The inspection log, including a statement whether or not liquids were observed in the leak detection systems, shall be submitted to NMED in the semi-annual monitoring reports.

Inspections of the Salt Storage Pond 2 and 3 leak detection systems occurred during this reporting period for January through June. The sump associated with the leak detection system cannot be fully pumped dry during water removal. The sump is only "blind" accessible via a slanted ten inch diameter, 30 foot long access pipe in Salt Storage Pond 2, and a 70 foot long, slanted pipe in Salt Storage Pond 3. Therefore, the presence of some water will remain in the sump at all times. Trending of water accumulation in the

sump leak detection system is ongoing to establish a removal frequency. There were no significant changes in water level in the sump for January through March. In April, water was pumped from the sump where a six inch drop in water level in the sump occurred. There were no repairs required to the leak detection system during this reporting period. A pdf file of the inspection log can be found on attached CD "Salt Pond Sump Inspection 1st half 2015.pdf." Inspection logs measure distance from the top of the pipe to the water.

Condition 11. – The permittee shall conduct regular maintenance of the earthen cover on the Salt Cell 1, and SPDV material pile. Inspections shall be conducted monthly and after storm events of 2 inches or greater in a 24-hour period to evaluate potential erosion and vegetation success of the cover. In the event of significant erosion or failure of vegetative success, the permittee shall provide a plan and schedule for repair within 90 days of discovery. General observations and cover repair shall be reported to NMED.

The earthen cover of the Salt Cell 1 and the SPDV material pile were inspected monthly for January through June. Both pile's synthetic covering were noted as needing repair. A maintenance work order was written to initiate liner repair activities. Subsequently, a purchase order was issued to a liner repair contractor. Liner repairs are scheduled for August 2015. The WIPP experienced 4.35 inches of precipitation during this reporting period. No storm event resulted greater than 2 inches in 24 hours. These rain events resulted in good vegetative growth on the Salt Cell 1 and SPDV material pile cover.

REQUIREMENTS OF DP-831 MONITORING AND REPORTING SECTION

Part B. Applicable to the Facultative Sewage Lagoon System

Condition 15. – The volume of domestic influent discharged to the Facultative lagoon System shall be measured monthly using a totalizing flow meter on the influent line to the system or the totalizing meter that measures total domestic water usage. Volumes of other authorized discharges to the Facultative Lagoon System shall be calculated by a time/volume method or volumetric measurement of the transport container(s). NMED may require comprehensive laboratory analyses of such wastewater prior to discharge when NMED determines that additional information is needed. Monthly meter readings, the units of measurement, monthly discharge volumes and other volumetric calculations for the previous 6-month period shall be submitted to NMED semi-annually in the monitoring reports.

Facultative Lagoon System

Table 1 shows the volume of water discharged to the Facultative Lagoon System for this reporting period. Discharge water volume is based on total domestic water use. No miscellaneous non-hazardous water was discharged to Evaporation Lagoons B or C.

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR
DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JANUARY 1, 2015 THROUGH JUNE 30, 2015

Table 1 – Discharge to Facultative Lagoon System

Month	Volume (gallons)
January	297,962
February	299,789
March	301,733
April	425,435
May	312,790
June	345,222
Total	**1,982,931**

Weekly meter readings of the domestic water meter are found on the attached CD as a pdf file named "Domestic Water Usage 1st Half of 2015.pdf."

No water other than non-hazardous sewage water with some non-hazardous condensate from compressors was discharged into the Facultative Lagoon System.

Condition 16. – The permittee shall collect a wastewater sample on a semi-annual basis (once every six months) from the influent to the Facultative Lagoon System. The grab sample shall be analyzed for TKN, NO_3-N, SO_4, TDS, and Cl. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.

Table 2 – Facultative Lagoon System Analytical Data

Facultative Lagoon System		
Analyte	**Sample Date**	**Settling Lagoon 2A**
TKN (mg/L)	04/22/15	147
NO_3-N (mg/L)	04/22/15	ND
SO_4 (mg/L)	04/22/15	53.5
TDS (mg/L)	04/22/15	665
Cl (mg/L)	04/22/15	155

TKN: Total Kjeldahl nitrogen
TDS: total dissolved solids
ND: Not detected, analyte below the method detection limit

Laboratory analytical results and QA/QC Summary Report for the Sewage Lagoon System are found as a pdf file on the attached CD named "Sewage Lagoon and H-19 Analytical and QA-QC.pdf."

Part C. Applicable t **lments Not in Contact with Salt St**

Condition 17. – The v *ration Pond H-19 that is derived fron* *nonthly and reported to NMED. L* *lculated by a time/volume method o* *MED may require comprehensiv* *; when NMED determines that additi* *d other volumetric calculatio* *ED semi-annually in the monit*

Table 3 shows ed to Evaporation P idwater well pumping, con aste Shaft sump water.

Table 3 – Discharge to H-19 Evaporation Pond

Month	Volume (gallons)
January	1,560
February	1,340
March	4,630
April	3,500
May	1,125
June	1874
Total	**14,029**

Condition 18. – A sample shall be collected semi-annually from the Evaporation Pond H-19 and analyzed for SO_4, Cl, and TDS. Samples shall be collected annually after a significant storm event from each of the storm water ponds, Storm Water Ponds 1, 2, and 3 and analyzed for SO_4, Cl, and TDS. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring report.

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

Table 4 shows results for analytical parameters associated with Evaporation Pond H-19. Storm Water Ponds 1, 2, and 3 were not sampled since no significant rain event occurred during this reporting period. Evaporation Pond H-19 was sampled on April 22, 2015.

04209

Table 4 – Storm Water Ponds and EP H-19 Analytical Data

Analyte	Sample Date	Evaporation Pond H-19	Storm Water Pond 1	Storm Water Pond 2	Storm Water Pond 3
SO_4 (mg/L)	04/22/15 for EPH-19	**1,270**	NS	NS	NS
Cl (mg/L)	04/22/15 for EPH-19	**276,000**	NS	NS	NS
TDS (mg/L)	04/22/15 for EPH-19	**382,000**	NS	NS	NS

Bold: Concentration exceeds the human health standards listed in 20.6.2.3103 NMAC for domestic water supply.
NS: Not Sampled – No significant storm event occurred this reporting period

Laboratory analytical results and QA/QC Summary Report for Evaporative Pond H-19 are found as a pdf file on the attached CD named "Sewage Lagoon and H-19 Analytical and QA-QC.pdf."

Condition 19. – The water depth shall be measured monthly to the nearest tenth of a foot (0.1 ft) in the Storm Water ponds 1, 2, and 3. The approximate volume of storm water shall be calculated and submitted to NMED in the semi-annual monitoring reports.

Table 5 – Storm Water Ponds Depths and Volumes

	January 01/12/15	February 02/15/15	March 03/05/15	April 04/14/15	May 05/06/15	June 06/22/15
Storm Water Pond 1						
Water Depth (ft)	3.6	3.5	3.4	3.0	3.0	3.0
Water Volume (gl)	500,861	486,948	473,035	417,384	417,384	417,384
Storm Water Pond 2						
Water Depth (ft)	5.9	5.9	5.7	5.4	5.7	5.9
Water Volume (gl)	2,027,749	2,027,749	1,959,012	1,855,906	1,959,012	2,027,749
Storm Water Pond 3						
Water Depth (ft)	4.6	4.5	4.3	3.9	4.0	4.2
Water Volume (gl)	6,635,009	6,490,770	6,202,291	5,625,334	5,769,573	6,058,052

Part D. Applicable to the Storm Water Runoff Impoundments in Contact with Salt Stockpiles (Salt Storage Ponds 1, 2, and 3) and Salt Stockpiles (Salt Cells 1, 2, and 3)

Condition 20. – A sample shall be collected annually after a significant storm event from each of the Salt Storage Cells 1, 2, and 3 and analyzed for SO_4, Cl, and TDS. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

No Significant rainfall event occurred during this reporting period. Therefore, Salt Storage Ponds 1, 2, and 3 were not sampled.

Condition 21. The water depth shall be measured monthly to the nearest tenth of a foot (0.1 ft) in the Salt Storage Ponds 1, 2, and 3. The approximate volume of storm water shall be calculated and submitted to NMED in the semi-annual monitoring reports.

Table 6 – Salt Storage Ponds Depths and Volumes

	January 01/12/15	February 02/15/15	March 03/05/15	April 04/14/15	May 05/06/15	June 06/22/15
Salt Storage Pond 1						
Water Depth (ft)	2.7	2.6	2.5	2.1	1.8	1.2
Water Volume (gl)	3,073,935	2,960,085	2,846,236	2,390,838	2,049,290	1,366,193
Salt Storage Pond 2						
Water Depth (ft)	4.0	4.0	3.9	3.7	3.6	3.6
Water Volume (gl)	1,432,741	1,432,741	1,396,922	1,325,285	1,289,467	1,289,467
Salt Storage Pond 3						
Water Depth (ft)	11.0	11.0	11.0	10.7	10.5	10.4
Water Volume (gl)	12,584,726	12,584,726	12,584,726	12,241,506	12,012,693	11,898,286

Ground Water Monitoring and Reports

Condition 22. – Depth to the water table shall be measured to the nearest hundredth of a foot (0.01 ft) quarterly in the piezometers/monitoring wells:

- *PZ-1. PZ-2, PZ-3, PZ-4, PZ5, PZ-6, PZ-7, PZ-8, PZ-9, PZ-10, PZ-11, PZ-12, PZ-13, PZ-14 and PZ-15*
- *C-2505, C-2506, C-2507, C-2811, and WQSP-6A*

For Depth to the water tables of the piezometer and monitoring wells, see Table 7 – Subsurface Water Well Water Levels and Chemical Analyses.

Condition 23. – The permittee shall perform semi-annual ground water sampling in the following piezometers/monitoring wells and analyze the samples for temperature, pH, specific conductance, SO4, TDS, and Cl:

- *Piezometers: PZ-1, PZ-5, PZ-6, PZ-7, PZ-9, PZ-10, PZ-11, PZ-12, and PZ-13*
- *Monitoring Wells: C-2507, C-2811, and WQSP-6A*

Ground water sample collection, preservation, transport and analysis shall be performed according to the following procedure:

a) Measure the depth-to-most-shallow ground water from the top of the well casing to the nearest hundredth of a foot.
b) Purge three well volumes of water from the well prior to sample collection.
c) Obtain samples from the well for analysis.
d) Properly prepare, preserve and transport samples.
e) Analyze samples in accordance with the methods authorized in this Discharge Permit.

Depth-to-most-shallow ground water measurements, analytical results, including the laboratory QA/QC summary report, and a facility layout map showing the location and number of each well shall be submitted to NMED in the semi-annual monitoring reports.

Water levels in the shallow wells (PZ-1 through PZ-15, C-2811, C-2505, C-2506, and C-2507) were obtained March 2-6, 2015, and June 1-4, 2015, and are included in Table 7 Subsurface Water Well Water Levels and Chemical Analyses. These were taken in accordance with quarterly milestones outlined in the Ground Water Monitoring Schedule, in the July 29, 2014, DP-831 Modification. During the reporting period, the general water level trend for the shallow subsurface water (SSW) monitoring points was an average increase in elevation of 0.11feet. Overall, water level elevation trends indicate that the liners are reducing infiltration enough to see an effect. The slight rise in water elevation over this reporting period is due to higher than average precipitation.

The SSW piezometers were sampled for field and general chemistry parameters in May 2015. Five piezometers were sampled on May 12, 2015, and six piezometers were sampled on May 13, 2015. Results for the field sampling parameters and laboratory analyses are presented in Table 7.

Laboratory analytical results and QA/QC Summary Report are found as a pdf file on the attached CD named "Shallow Surface Water Analytical and QA-QC.pdf".

Condition 24. – The permittee shall perform semi-annual ground water sampling from monitoring well WQSP-6A and analyzed for TKN and NO3. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

WQSP-6A was sampled on May 14, 2015. Sulfate, chloride, and total dissolved solids were detected in WQSP-6A samples at concentrations above standards of 20.6.2.3103 NMAC, Standards for Ground Water of 1,000 mg/L TDS Concentration or Less for Human Health and Domestic Water Supply. Nitrate was also detected but did not exceed the standards. Total Kjeldahl nitrogen was below the detection limit of 1 mg/L. The shallow subsurface water (SSW) identified at the WIPP site has not impacted the Dewey Lake groundwater in WQSP-6A based on the consistency of analyzed parameters in WQSP-6A.

For WQSP-6A analytical results, see Table 7 – Subsurface Water Well Water Levels and Chemical Analyses.

Laboratory analytical results and QA/QC Summary Report for WQSP-6A samples are found as a pdf file on the attached CD named "Shallow Surface Water Analytical and QA-QC.pdf".

Condition 25. – Hydrographs shall be submitted annually for all monitoring wells and piezometers covered under Condition 22 of this Discharge Permit. At a minimum, graphs shall include the previous five years of water level data, or for recently installed wells, all data since the well was installed. Data for several wells may be included on one graph.

The hydrographs of all monitoring wells and piezometers will be included in the second 2015 semi-annual report which is due in February 1, 2016.

Condition 26. – A potentiometric map for facility area shall be submitted annually. The map shall incorporate the most recent water level data for all monitoring wells and piezometers installed in the shallow subsurface water (SSW).

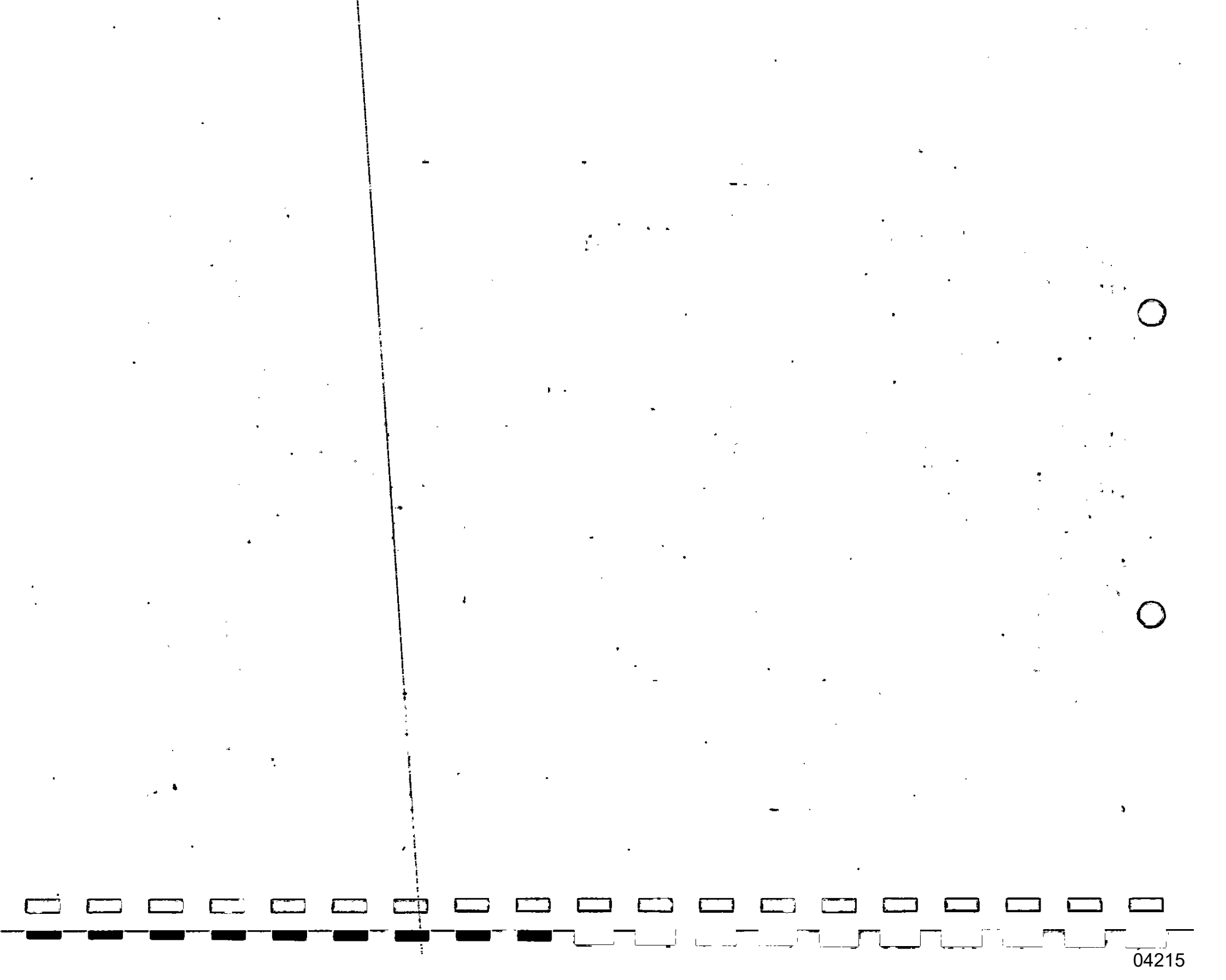
The potentiometric map that incorporates the most recent water level data for all monitoring wells and piezometers installed in the shallow subsurface water will be included in the second 2015 semi-annual report which is due in February 1, 2016.

Condition 27. – A single table in a paper and electronic format (EXCEL spreadsheet) of water level measurements and water quality data with only those constituents analyzed and water levels measured during a single event shown in columns. Tabulated field measurements to include temperature, pH, and electrical conductivity corrected to 25 degrees Celsius. Monitoring sites shall be shown in rows. The second column shall contain the date of the sampling event. Values exceeding standards shall be bolded. Any constituent not analyzed for a particular site shall be shown as "NA", any site not sampled shall be shown as "NS" with an associated reason, and any site not measured for water levels shall be shown as "NM" with an associated reason.

Table 7 – Subsurface Water Well Water Levels and Chemical Analyses is attached in paper form to this report and in electronic Excel format on the attached CD. The file name on the CD is "Table 7 Jan-June 2015 WIPP DMR for DP-831."

Condition 28. – A single table that includes all available ground water data to date shall be submitted annually. For each monitoring well, the name of the well shall be entered in the far left column in a row by itself. Sampling events, beginning with the earliest event first, shall be entered in subsequent rows with the sampling date in the second column and the corresponding analytical data in columns further to the right. Each new sampling event shall be added as an additional row to the existing spreadsheet with the corresponding date of the sampling event noted in the second column next to the monitoring well name.

The table that includes all available ground water data to date will be included in the second 2015 semi-annual report which is due in February 1, 2016.



WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JANUARY 1, 2015 THROUGH JUNE 30, 2015

Table 7 – Subsurface Water Well Water Levels and Chemical Analyses

	Field and General Chemistry Parameters								Other	Water Level Monitoring (Ft AMSL)	
Monitoring Site	Sample Date	pH (SU)	Temp. (°C)	Specific Conductivity @25 °C (µS/cm)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)	3/2/15-3/6/15	6/1/15-6/4/15
PZ-1	5/13/2015	6.38	24.28	95,690	NA	1,830	40,800	73,400	NA	3370.61	3370.29
PZ-2	NS	NS	NS	NS	NS	NS	NS	NS	NS	3369.21	3369.82
PZ-3	NS	NS	NS	NS	NS	NS	NS	NS	NS	3369.85	3370.36
PZ-4	NS	NS	NS	NS	NS	NS	NS	NS	NS	3370.97	3364.43
PZ-5	5/13/2015	7.01	21.95	80,780	NA	1,100	7,380	14,800	NA	3368.15	3370.83
PZ-6	5/13/2015	6.53	22.31	99,650	NA	2,180	49,200	77,000	NA	3374.16	3368.36
PZ-7	5/12/2015	6.24	20.74	97390	NA	3,240	68,200	118,000	NA	3349.39	3374.85
PZ-8	NS	NS	NS	NS	NS	NS	NS	NS	NS	3361.45	3349.38
PZ-9	5/13/2015	6.18	20.41	103,900	NA	7,090	112,000	175,000	NA	3366.12	3361.95
PZ-10	5/12/2015	7.16	20.2	8,814	NA	435	370	1,620	NA	3371.10	3366.28
PZ-11	5/12/2015	6.37	21.38	95,900	NA	2,590	57,000	105,000	NA	3353.83	3371.56
PZ-12	5/12/2015	6.94	20.82	47,350	NA	665	4,470	8,720	NA	3355.11	3354.41
PZ-13	5/13/2015	Bailed			NA	3,550	197,000	267,000	NA	3355.16	3354.71
PZ-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	3382.70	3352.32
PZ-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	3370.61	3382.37
C-2811	5/12/2015	7.06	20.1	17,770	NA	586	1,430	3,460	NA	3345.68	3346.63
C-2505	NS	NS	NS	NS	NS	NS	NS	NS	NS	3363.75	NR
C-2506	NS	NS	NS	NS	NS	NS	NS	NS	NS	3367.28	NR
C-2507	5/13/2015	6.96	20.89	42,130	NA	683	3,430	7,590	NA	3363.75	3363.91
WQSP-6A	5/14/2015	6.92	21.92	13,760	5.11	1,940	294	3,520	<1.0	3195.66	3196.07
Explanation:	NA: Not Analyzed, parameter not required, per permit conditions.										
	NS: Not Sampled, not required per permit conditions										
	PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty using Low-Flow pumps										
	"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply										
	NR: Water levels were not recorded for this period, as wells were not accessible										

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

JAN 2 9 2015

GROUND WATER

FEB 0 3 2015

BUREAU

Mr. Jerry Schoeppner, Bureau Chief
New Mexico Environment Department
Ground Water Quality Bureau
P.O. Box 5469
Santa Fe, NM 87502

Subject: Semi-Annual Discharge Monitoring Report for July 1 through December 31, 2014, Discharge Permit 831

Dear Mr. Schoeppner:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Discharge Monitoring Report, including Table 6 in Excel® format on compact disk, for the period of July 1 through December 31, 2014. This report is required by Discharge Permit 831.

If you have any questions about this report or require any additional information, please contact me at (575) 234-7488.

Sincerely,

Susan McCauley for

George T. Basabilvazo, Director
Environmental Protection Division

Enclosure

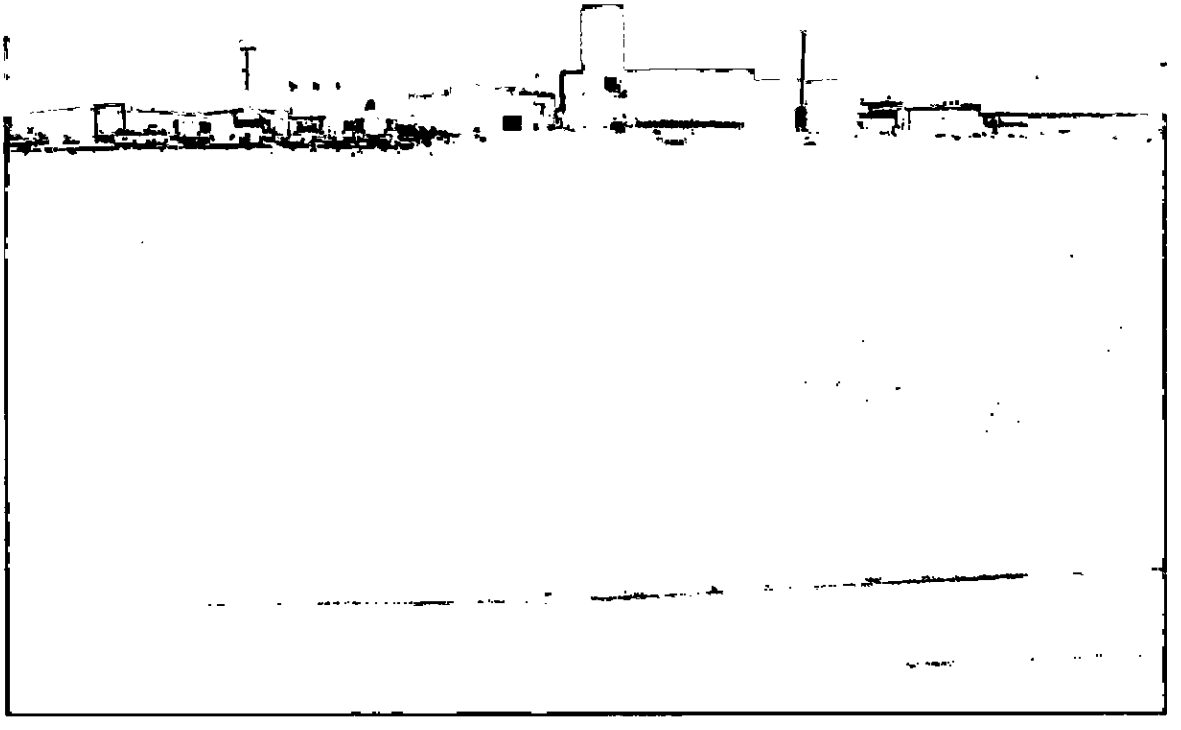
cc: w/o enclosures
T. Kliphuis, NMED *ED
CBFO M&RC
*ED denotes electronic distribution

Brian
Formerly Missy

CBFO:EPD:GTB:MN:15-1404: UFC 5486.00

04218

Waste Isolation Pilot Plant
Discharge Permit 831 Semi-annual Report
Due February 1, 2015



GROUND WATER
FEB 0 3 2015
BUREAU

Reporting Period of July1 through December 31, 2014

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831 FOR REPORTING PERIOD JULY 1, 2014 THROUGH DECEMBER 30, 2014

REQUIREMENTS OF DP-831 OPERATIONAL PLAN

Part B. Applicable to the Facultative Lagoon System

Condition 8. – The permittee shall measure the thickness of the sludge blanket in each pond of the Facultative Lagoon System once within the effective term of this Discharge Permit, But before the end of 2018. When sludge accumulation exceeds 1/3 of the total depth of any pond, the permittee shall remove the sludge in a manner, which is protective of the pond liner. Removed solids shall be contained, transported, and disposed of in accordance with all local, state, and federal regulations. The permittee shall maintain solids blanket measurements and solids disposal manifests for solids transported from the facility for off-site disposal. The permittee shall submit all measurements and manifests to NMED in the semi-annual monitoring report immediately following the solids thickness measurement.

No sludge measurements occurred during this reporting period.

Part D. Applicable to the Storm Water Runoff Impoundments in Contact with Salt Stockpiles (Salt Storage Ponds 1, 2, and 3) and Salt Stockpiles (Salt Cells 1, 2, and 3).

Condition 9. – The permittee shall measure the thickness of the solids blanket in each impoundment once within the effective term of this Discharge Permit, but before the end of 2018. Removed solids shall be contained, transported, and disposed of in accordance with all local, state, and federal regulations. The permittee shall maintain solids blanket measurements and solids disposal manifests for solids transported from the facility for off-site disposal. The permittee shall submit all measurements and manifests to NMED in the semi-annual monitoring report immediately following the solids thickness measurement.

No sludge measurements occurred during this reporting period.

Condition 10. – The permittee shall inspect the leak detection systems for Salt Storage Ponds 2 and 3 on a monthly basis for the presence of liquid. The permittee shall keep a log of the inspection findings and repairs made. The inspection log, including a statement whether or not liquids were observed in the leak detection systems, shall be submitted to NMED in the semi-annual monitoring reports.

Inspections of the Salt Storage Pond 2 and 3 leak detection systems occurred during this reporting period for October, November, and December. This new condition occurred in the updated permit received on August 1, 2014. A procedure revision was required to include these inspections on a monthly basis. It is known that the sump associated with the leak detection system cannot be fully pumped dry during water removal via pump. The sump is only "blind" assessable via an approximate ten inch diameter, 30 foot long

access pipe. Therefore, the presence of some water will remain in the sump at all times. Trending of water accumulation in the sump leak detection system is ongoing to determine a removal frequency. There were no repairs required to the leak detection system during this reporting period. A pdf file of the inspection logs can be found on attached CD "Salt Pond Sump Inspection 2ndhalf2015.pdf."

Condition 11. – The permittee shall conduct regular maintenance of the earthen cover on the Salt Cell 1, and SPDV material pile. Inspections shall be conducted monthly and after storm events of 2 inches or greater in a 24-hour period to evaluate potential erosion and vegetation success of the cover. In the event of significant erosion or failure of vegetative success, the permittee shall provide a plan and schedule for repair within 90 days of discovery. General observations and cover repair shall be reported to NMED.

The earthen cover of the Salt Cell 1 and the SPDV material pile were inspected monthly. In November, areas of both pile's synthetic covering were noted as needing repair. A maintenance work order has been submitted to initiate liner maintenance activities. There was no evidence of failure of vegetative success during this reporting period. The WIPP experienced non-typical precipitation events during this reporting period. On September 7 and 13, precipitation accumulation rates were greater than 2 inches in 24 hours. Applicable inspections occurred after the greater than 2 inch precipitation events which found no failure of vegetative success or excessive erosion.

REQUIREMENTS OF DP-831 MONITORING AND REPORTING SECTION

Part B. Applicable to the Facultative Sewage Lagoon System

Condition 15. – The volume of domestic influent discharged to the Facultative lagoon System shall be measured monthly using a totalizing flow meter on the influent line to the system or the totalizing meter that measures total domestic water usage. Volumes of other authorized discharges to the Facultative Lagoon System shall be calculated by a time/volume method or volumetric measurement of the transport container(s). NMED may require comprehensive laboratory analyses of such wastewater prior to discharge when NMED determines that additional information is needed. Monthly meter readings, the units of measurement, monthly discharge volumes and other volumetric calculations for the previous 6-month period shall be submitted to NMED semi-annually in the monitoring reports.

Facultative Lagoon System

Table 1 shows the volume of water discharged to the Facultative Lagoon System for this reporting period. Discharge water volume is based on total domestic water use. No miscellaneous non-hazardous water was discharged to Evaporation Lagoons B or C.

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831 FOR REPORTING PERIOD JULY 1, 2014 THROUGH DECEMBER 30, 2014

Table 1 – Discharge to Facultative Lagoon System

Month	Volume (gallons)
July	371,471
August	377,317
September	296,604
October	422,736
November	299,610
December	333,995
Total	**2,101,773**

Weekly meter readings of the domestic water meter are found on the attached CD as a pdf file named "Domestic Water Usage 2nd Half of 2014.pdf."

The freeboard was maintained at greater than one foot for the Facultative Lagoon System. Inspections indicated that the liners and the berms are in good condition with no erosion. No new construction or repairs have been performed. No water other than non-hazardous sewage water with some non-hazardous condensate from compressors was discharged into the Facultative Lagoon System.

Condition 16. – The permittee shall collect a wastewater sample on a semi-annual basis (once every six months) from the influent to the Facultative Lagoon System. The grab sample shall be analyzed for TKN, NO_3-N, SO_4, TDS, and Cl. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.

Table 2 – Facultative Lagoon System Analytical Data

		Facultative Lagoon System		
Analyte	**Sample Date**	**Settling Lagoon 2A**	**Evaporative Lagoon B**	**Evaporative Lagoon C**
NO_3-N (mg/L)	10/27/14	ND		
TKN (mg/L)	10/27/14	48.2		
TDS (mg/L)	10/27/14	670	**50,600**	272
SO_4 (mg/L)	10/27/14	53.6	**883**	4.01
Cl (mg/L)	10/27/14	104	**33,500**	121

TKN: Total Kjeldahl nitrogen
TDS: total dissolved solids
ND: Not detected, analyte below the method detection limit
Shaded areas indicate no permit requirement.
Bold: Concentration exceeds the human health standards listed in 20.6.2.3103 NMAC for domestic water supply (not applicable to data in this table). No standard listed for TKN.

Part C. Applicable to the Evaporation Pond H-19 and Storm Water Impoundments Not in Contact with Salt Stockpiles (Storm Water Ponds 1, 2, and 3)

Condition 17. – The volume and origin of all wastewater discharged to the Evaporation Pond H-19 that is derived from miscellaneous non-hazardous sources shall be measured monthly and reported to NMED. Discharge volumes to the Evaporation Pond H-19 shall be calculated by a time/volume method or volumetric measurement of the transport container(s). NMED may require comprehensive laboratory analyses of such wastewater prior to discharge when NMED determines that additional information is needed. Monthly discharge volumes and other volumetric calculations for the previous 6-month period shall be submitted to NMED semi-annually in the monitoring reports.

H-19 Evaporation Pond

Table 3 shows the volume of miscellaneous non-hazardous water discharged to Evaporation Pond H-19 for this reporting period. This water is from groundwater well pumping, condensate from the Exhaust Shaft ductwork, and removal of Waste Shaft sump water.

Table 3 – Discharge to H-19 Evaporation Pond

Month	Volume (gallons)
July	2,000
August	1,750
September	0
October	13,210
November	0
December	40,375
Total	**57,335**

No new construction or demolition of structures related to discharge control occurred during the reporting period. The freeboard was maintained at greater than one foot. Monthly inspections found the liner in good condition, and the berms have no erosion and are in good condition. There were no maintenance/repairs needed.

Condition 18. – A sample shall be collected semi-annually from the Evaporation Pond H-19 and analyzed for SO_4, Cl, and TDS. Samples shall be collected annually after a significant storm event from each of the storm water ponds, Storm Water Ponds 1, 2, and 3 and analyzed for SO_4, Cl, and TDS. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring report.

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

Infiltration Controls Analytical Data

Table 4 shows results for all analytical parameters associated with Evaporation Pond H-19 and the three Storm Water Ponds. Storm Water Ponds 1, 2, and 3 were sampled on October 16, 2014 after the large rain event in September. Evaporation Pond H-19 was sampled on October 27, 2014.

Table 4 – Storm Water Ponds and EP H-19 Analytical Data

Analyte	Sample Date	Evaporation Pond H-19	Storm Water Pond 1	Storm Water Pond 2	Storm Water Pond 3
TDS (mg/L)	10/16/14 (H-19) & 10/27/14 (SWPs)	**64,200**	421	480	172
SO_4 (mg/L)	10/16/14 (H-19) & 10/27/14 (SWPs)	49.5	19.5	13.6	7.67
Cl (mg/L)	10/16/14 (H-19) & 10/27/14 (SWPs)	**33,800**	186	230	71.6

Bold: Concentration exceeds the human health standards listed in 20.6.2.3103 NMAC for domestic water supply.

Laboratory analytical results and QA/QC Summary Report are found as a pdf file on the attached CD named "Sewage Lagoon and H-19 Analytical and QA-QC.pdf" for Evaporative Pond H-19 results and "Storm Water and Salt Storage Pond Analytical and QA-QC.pdf" for Storm Water Pond results.

Monthly inspections were performed on the berms and visible portions of the liners above the waterline of the Storm Water Ponds. These inspections included erosion, floating plants and debris, deep-rooted plants, damage from burrowing animals, liner integrity, and storm water escaping from containment.

Inspections for Storm Water Ponds 1, 2, and 3 indicated liners were in good condition, no signs of burrowing animals, or storm water escaping. There were no maintenance/repairs needed and no new construction or demolition performed. Only storm water from the WIPP facility was collected in the SWIC ponds.

All Storm Water Ponds were maintained at greater than one foot of freeboard for most of this period. After the large storm event in September, the Storm Water Ponds were pumped to Salt Storage Pond 3 to return the Storm Water Ponds to the one foot freeboard.

Condition 19. – The water depth shall be measured monthly to the nearest tenth of a foot (0.1 ft) in the Storm Water ponds 1, 2, and 3. The approximate volume of storm water shall be calculated and submitted to NMED in the semi-annual monitoring reports.

Table 5 – Storm Water Ponds Depths, Volumes and Discharge Volumes

	July 7/14/2014	August 8/7/2014	September 9/15/2014	October 10/17/2014	November 11/20/2014	December 12/8/2014
Storm Water Pond 1						
Water Depth (ft)	1.1	0.9	4.8	3.9	3.7	3.6
Water Volume (gl)	153,041	125,215	667,814	542,599	514,774	500,861
Water Discharged (gl)	27,826	-27,826	542,599	-125,215	-27,825	-13,913
Storm Water Pond 2						
Water Depth (ft)	3.2	3.0	7.6	6.5	6.1	6.0
Water Volume (gl)	1,099,796	1,031,059	2,612,016	2,233,961	2,086,487	2,062,118
Water Discharged (gl)	710,238	-68,737	1,580,957	-378,055	-147,474	-24,369
Storm Water Pond 3						
Water Depth (ft)	2.2	2.2	5.5	5.9	4.9	4.7
Water Volume (gl)	3,173,265	3,173,265	7,933,163	8,510,121	7,067,727	6,779,249
Water Discharged (gl)	2,922,835	0	4,759,898	576,958	-1,442,394	-288,478

Negative numbers in Table 5 indicate that water was pumped from the pond to maintain one foot freeboard. The rain event in September caused an exceedance of the freeboard. A plan was submitted to NMED Groundwater Quality Bureau to pump the excess storm water into Salt Storage Pond 3. The plan was approved and pumping commenced to transfer water to acquire one foot freeboard was successful.

Part D. Applicable to the Storm Water Runoff Impoundments in Contact with Salt Stockpiles (Salt Storage Ponds 1, 2, and 3) and Salt Stockpiles (Salt Cells 1, 2, and 3)

Condition 20. – A sample shall be collected annually after a significant storm event from each of the Salt Storage Cells 1, 2, and 3 and analyzed for SO_4, Cl, and TDS. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

Table 6 shows results for analytical parameters associated with Salt Storage Ponds 1, 2, and 3. These ponds were sampled on October 16, 2014 after the large rain event in September.

Table 6 – Salt Storage Ponds Analytical Data

Analyte	Sample Date	Salt Storage Pond 1	Salt Storage Pond 2	Salt Storage Pond 3
TDS (mg/L)	10/16/14	**6,470**	**271,000**	**122,000**
Sulfate (mg/L)	10/16/14	**51.7**	**12,900**	**6,360**
Chloride (mg/L)	10/16/14	**3,720**	**170,000**	**81,200**

Bold: Concentration exceeds the human health standards listed in 20.6.2.3103 NMAC for domestic water supply (not applicable to data in this table).

Laboratory analytical results and QA/QC Summary Report are found as a pdf file on the attached CD named "Storm Water and Salt Storage Pond Analytical and QA-QC.pdf."

Monthly inspections of the Salt Storage Pond 1 found a hole in the north side of the liner. A maintenance work package was prepared for repairs to the liner. The berms were in good condition with no erosion. No construction/demolition or maintenance was performed during this reporting period. Only storm water from the capped Salt Cell 1 is discharged into this pond. Water depth is presented in Table 7 to the nearest tenth of a foot.

The Salt Storage Pond 2 is used to impound storm water from Salt Cells 2 and 3. Monthly inspections of the Salt Storage Pond 2 found the liner to be separating at a seam at the top of the south side of the pond. A maintenance work package was prepared for repairs to the liner. There was no maintenance or repairs needed and no new construction or demolition performed. Sump water removal was performed as needed during the reporting period. Water depth is presented in Table 7 to the nearest tenth of a foot.

The Salt Storage Pond 3 is used to impound outflow from the Salt Storage Pond 2. The liner was found to be in good condition. The berms have no erosion as was noted in the monthly inspections. No construction/demolition was performed on this basin during this reporting period. Sump water removal was performed as needed during the reporting period. Water depth is presented in Table 7 to the nearest tenth of a foot.

All Salt Storage Ponds were maintained at greater than one foot of freeboard.

Condition 21. The water depth shall be measured monthly to the nearest tenth of a foot (0.1 ft) in the Salt Storage Ponds 1, 2, and 3. The approximate volume of storm water shall be calculated and submitted to NMED in the semi-annual monitoring reports.

Table 7 – Salt Storage Ponds Depths, Volumes and Discharge Volumes

	July 7/14/2014	August 8/7/2014	September 9/15/2014	October 10/16/2014	November 11/20/2014	December 12/8/2014
Salt Storage Pond 1						
Water Depth (ft)	0.1	0.0	1.7	3.5	2.9	2.8
Water Volume (gl)	113,849	0	1,935,440	3,984,730	3,301,634	3,187,784
Water Discharged (gl)	-227,699	-113,849	1,935,440	2,049,290	-683,096	-113,850
Salt Storage Pond 2						
Water Depth (ft)	1.4	1.4	1.5	3.1	3.8	3.9
Water Volume (gl)	501,459	501,459	537,278	1,110,374	1,361,104	1,396,922
Water Discharged (gl)	0	0	35,819	573,096	250,730	35,818
Storm Water Pond 3						
Water Depth (ft)	4.4	4.6	6.4	10.1	10.9	10.9
Water Volume (gl)	5,033,890	5,262,704	7,322,022	11,555,067	12,470,319	12,470,319
Water Discharged (gl)	114,406	228,814	2,059,318	4,233,045	915,252	0

Negative values indicate water was removed to restore freeboard.

Ground Water Monitoring and Reports

Condition 22. – Depth to the water table shall be measured to the nearest hundredth of a foot (0.01 ft) quarterly in the piezometers/monitoring wells:

- *PZ-1. PZ-2, PZ-3, PZ-4, PZ5, PZ-6, PZ-7, PZ-8, PZ-9, PZ-10, PZ-11, PZ-12, PZ-13, PZ-14 and PZ-15*
- *C-2505, C-2506, C-2507, C-2811, and WQSP-6A*

See Table 8 – Subsurface Water Well Water Levels and Chemical Analyses

Condition 23. – The permittee shall perform semi-annual ground water sampling in the following piezometers/monitoring wells and analyze the samples for temperature, pH, specific conductance, SO4, TDS, and Cl:

- *Piezometers: PZ-1, PZ-5, PZ-6, PZ-7, PZ-9, PZ-10, PZ-11, PZ-12, and PZ-13*
- *Monitoring Wells: C-2507, C-2811, and WQSP-6A*

Ground water sample collection, preservation, transport and analysis shall be performed according to the following procedure:

a) Measure the depth-to-most-shallow ground water from the top of the well casing to the nearest hundredth of a foot.
b) Purge three well volumes of water from the well prior to sample collection.
c) Obtain samples from the well for analysis.
d) Properly prepare, preserve and transport samples.
e) Analyze samples in accordance with the methods authorized in this Discharge Permit.

Depth-to-most-shallow ground water measurements, analytical results, including the laboratory QA/QC summary report, and a facility layout map showing the location and number of each well shall be submitted to NMED in the semi-annual monitoring reports.

See Table 8 – Subsurface Water Well Water Levels and Chemical Analyses

Laboratory analytical results and QA/QC Summary Report are found as a pdf file on the attached CD named "Storm Water and Salt Storage Pond Analytical and QA-QC.pdf".

Condition 24. – The permittee shall perform semi-annual ground water sampling from monitoring well WQSP-6A and analyzed for TKN and NO3. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

See Table 8 – Subsurface Water Well Water Levels and Chemical Analyses

Laboratory analytical results and QA/QC Summary Report are found as a pdf file on the attached CD named "Shallow Surface Water Analytical and QA-QC.pdf".

Condition 25. – Hydrographs shall be submitted annually for all monitoring wells and piezometers covered under Condition 22 of this Discharge Permit. At a minimum, graphs shall include the previous five years of water level data, or for recently installed wells, all data since the well was installed. Data for several wells may be included on one graph.

See Attachment 2

Condition 26. – A potentiometric map for facility area shall be submitted annually. The map shall incorporate the most recent water level data for all monitoring wells and piezometers installed in the shallow subsurface water (SSW).

See Figure 1

Condition 27. – A single table in a paper and electronic format (EXCEL spreadsheet) of water level measurements and water quality data with only those constituents analyzed and water levels measured during a single event shown in columns. Tabulated field measurements to include temperature, pH, and electrical conductivity corrected to 25 degrees Celsius. Monitoring sites shall be shown in rows. The second column shall contain the date of the sampling event. Values exceeding standards shall be bolded. Any constituent not analyzed for a particular site shall be shown as "NA", any site not sampled shall be shown as "NS" with an associated reason, and any site not measured for water levels shall be shown as "NM" with an associated reason.

Table 8 is attached in paper form and in electronic Excel format (attached CD).

Condition 28. – A single table that includes all available ground water data to date shall be submitted annually. For each monitoring well, the name of the well shall be entered in the far left column in a row by itself. Sampling events, beginning with the earliest event first, shall be entered in subsequent rows with the sampling date in the second column and the corresponding analytical data in columns further to the right. Each new sampling event shall be added as an additional row to the existing spreadsheet with the corresponding date of the sampling event noted in the second column next to the monitoring well name.

See Attachment 1

Precipitation Patterns

Total rainfall in the area of WIPP for this reporting period was 16.75 inches compared to 1.63 inches for the same time period in 2013, a difference of 15.12 inches more in 2014. The large September rain of 11.48 inches did not result in any well fluctuations until December. There were no significant storm events in the first half of the year, thus sampling and calculation of storm water volume was not required for the surface impoundments.

Shallow Subsurface Water Monitoring Program

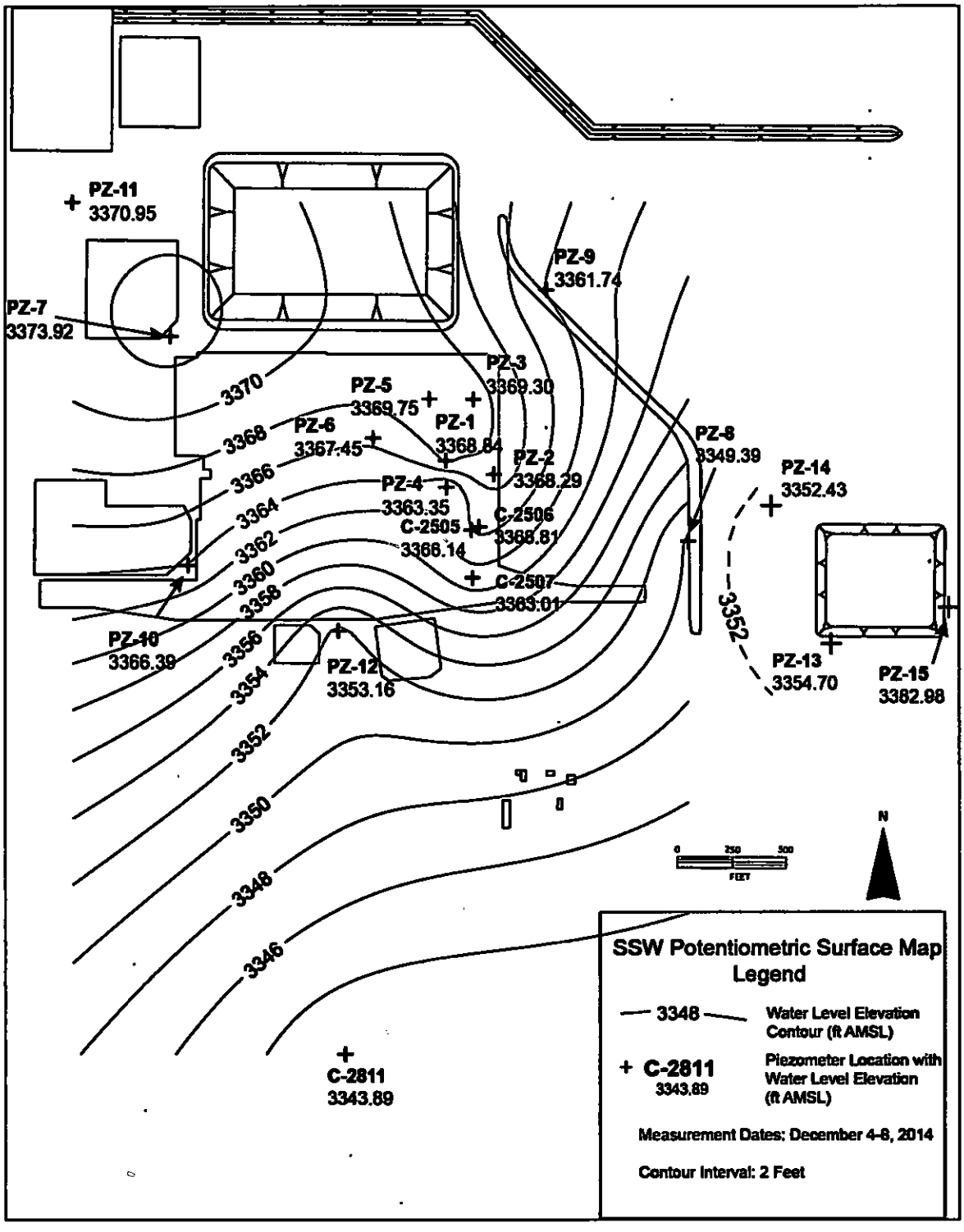
Water levels in the shallow subsurface water (SSW) wells were obtained September 2-4, 2014, and December 4-8, 2014, and are included in Table 8. These were taken on the quarterly milestones outlined in the Ground Water Monitoring Schedule.

During the reporting period, the general water level trend for the SSW monitoring points was an average rise in elevation of 1.09 feet. The increase in water level elevations for this period is due to the large storm event in September which resulted in 11.48 inches of precipitation. The water level elevations remain lower than the 2010 levels indicating that the liners are reducing infiltration.

WQSP-6A was sampled on October 15, 2014. WQSP-6A sampling results are provided in Table 8. Sulfate, chloride, and total dissolved solids were detected in WQSP-6A samples at concentrations exceeding human health standards of 20.6.2.3103 NMAC for domestic water supply. Although the concentrations were higher than the standards, they are less than background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285). Nitrate was also detected but did not exceed the standards. Total Kjeldahl nitrogen was below the method detection limit of 1.0 mg/L. These results lead to the conclusion that the SSW identified at the WIPP site has not impacted the Dewey Lake groundwater in WQSP-6A.

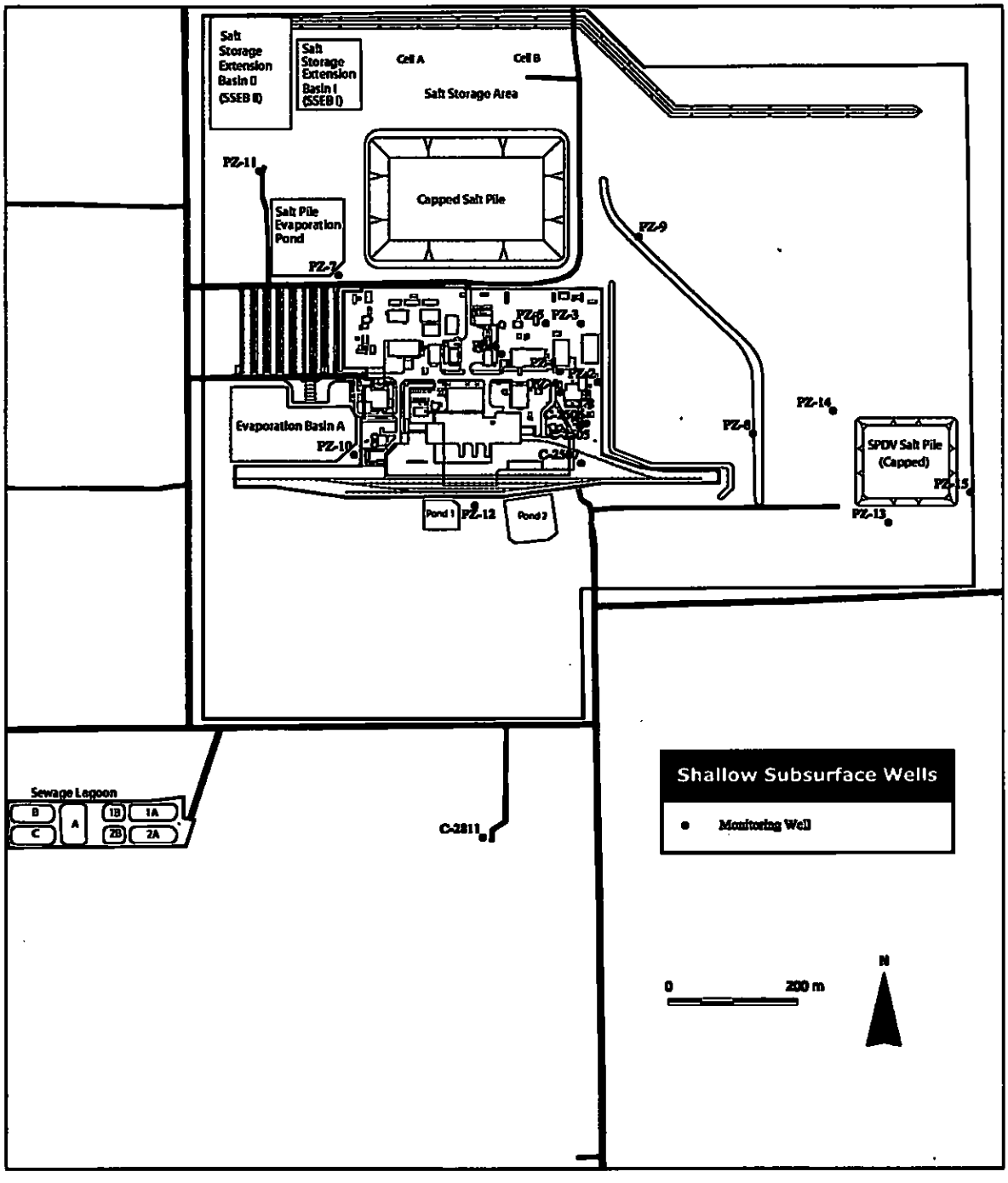
Specific SSW piezometers were sampled for field and general chemistry parameters in October 2014. Results for the field sampling parameters and laboratory analyses are presented in Table 8. Chloride concentrations exceeded values listed in 20.6.2.3103 NMAC Drinking Water Standards in 10 of 11 piezometers sampled. The maximum chloride concentration was 179,000 mg/L in PZ-13, while the minimum concentration was 167 mg/L in PZ-10. Total dissolved solids concentrations exceeded 20.6.2.3103 NMAC Drinking Water Standards values in all piezometers except one, with the maximum concentration of 274,000 mg/L in PZ-13 and a minimum concentration of 910 mg/L in PZ-10. Sulfate concentrations exceeded 20.6.2.3103 NMAC values in 8 of 11 piezometers sampled with a maximum concentration of 5,150 mg/L in PZ-9 and a minimum concentration of 178 mg/L in PZ-10.

Figure 1


PZ-11
3370.95
PZ-7
3373.92
PZ-9
3361.74
PZ-3
3369.30
PZ-5
3369.75
PZ-6
3367.45
PZ-1
3368.84
PZ-2
3368.29
PZ-4
3363.35
C-2505
3366.14
C-2506
3368.81
C-2507
3363.01
PZ-8
3349.39
PZ-14
3352.43
PZ-10
3366.39
PZ-12
3353.16
PZ-13
3354.70
PZ-15
3382.98
C-2811
3343.89
3370
3368
3366
3364
3362
3360
3358
3356
3354
3352
3350
3348
3346
N
0 250 500
FEET
SSW Potentiometric Surface Map
Legend
3348 Water Level Elevation Contour (ft AMSL)
C-2811 3343.89 Piezometer Location with Water Level Elevation (ft AMSL)
Measurement Dates: December 4-8, 2014
Contour Interval: 2 Feet

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR
DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2014 THROUGH DECEMBER 30, 2014

Figure 2



WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2014 THROUGH DECEMBER 30, 2014

Table 8 – Subsurface Water Well Water Levels and Chemical Analyses

	Field and General Chemistry Parameters								Other	Water Level Monitoring (Ft AMSL)	
Monitoring Site	Sample Date	pH (SU)	Temp. (°C)	Sp. Cond. @25 °C (µS/cm)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)	9/2/14-9/4/14	12/4/14 & 12/8/14
PZ-1	10/14/2014	6.36	23.99	90,200	NA	2,090	46,700	84,800	NA	3368.19	3368.84
PZ-2	NS	NS	NS	NS	NS	NS	NS	NS	NS	3367.34	3368.29
PZ-3	NS	NS	NS	NS	NS	NS	NS	NS	NS	3368.80	3369.30
PZ-4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	3363.35
PZ-5	10/14/2014	6.88	22.81	92,000	NA	1,250	13,300	26,500	NA	3369.09	3369.75
PZ-6	10/14/2014	6.51	24.9	88,290	NA	2,160	49,800	80,400	NA	3366.05	3367.45
PZ-7	10/13/2014	6.21	21.6	96,635	NA	3,530	74,500	136,000	NA	3372.92	3373.92
PZ-8	NS	NS	NS	NS	NS	NS	NS	NS	NS	3349.36	3349.39
PZ-9	10/14/2014	6.19	21.44	94,924	NA	5,150	98,600	172,000	NA	3361.82	3361.74
PZ-10	10/13/2014	7.23	21.28	5,126	NA	178	167	910	NA	3363.23	3366.39
PZ-11	10/13/2014	6.32	22.81	93,845	NA	2,740	68,800	123,000	NA	3370.45	3370.95
PZ-12	10/13/2014	7.02	21.91	30,736	NA	409	2,440	6,100	NA	3350.86	3353.16
PZ-13	10/14/2014	Bailed			NA	3,100	179,000	274,000	NA	3354.79	3354.70
PZ-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	3352.49	3352.43
PZ-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	3381.27	3382.98
C-2811	10/14/2014	7.17	19.71	13,148	NA	277	827	2,580	NA	3342.26	3343.89
C-2505	NS	NS	NS	NS	NS	NS	NS	NS	NS	3364.68	3366.14
C-2506	NS	NS	NS	NS	NS	NS	NS	NS	NS	3363.82	3366.81
C-2507	10/14/2014	6.91	21.05	45,970	NA	693	3,830	9,180	NA	3360.90	3363.01
WQSP-6A	10/15/2014	6.73	22.72	13,310	5.38	2,000	285	3,360	<1.0	3196.10	3196.05
Explanation:	NA: Not Analyzed, parameter not required, per permit conditions.										
	NS: Not Sampled, not required per permit conditions										
	PZ-4 Water level was not measured in September because this area was considered a radiation area from the radiation event at the Site in February.										
	PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty using Low-Flow pumps										
	"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply										
	AMSL: Above Mean Sea Level										

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831 FOR REPORTING PERIOD JULY 1, 2014 THROUGH DECEMBER 30, 2014

Attachment 1

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-1	6/21/2004	<10	1,530	36,300	79,600	0.044	<0.00500
PZ-1	11/9/2004	1.3	6,530	45,700	85,800	0.106	<0.0100
PZ-1	5/17/2005	1.47	2,640	62,300	100,500	0.06	0.077
PZ-1	10/11/2005	2.59	1,950	54,900	74,800	0.043	<0.0100
PZ-1	5/16/2006	<2.5	2,490	62,400	113,000	0.051	<0.0100
PZ-1	10/10/2006	<1.00	1,390	55,300	70,200	<0.0500	<0.0250
PZ-1	5/9/2007	2.7	2,220	63,000	107,000	<0.0500	<0.0250
PZ-1	10/9/2007	<1.00	2,820	83,200	99,500	<0.1000	<0.0250
PZ-1	6/5/2008	<2.0	2,100	57,000	98,000	0.667	0.00218
PZ-1	10/14/2008	NA	2,200	59,000	94,000	NA	NA
PZ-1	5/19/2009	NA	2,200	54,000	96,000	NA	NA
PZ-1	10/19/2009	NA	2,300	66,000	101,000	NA	NA
PZ-1	5/25/2010	NA	2,200	53,000	92,800	NA	NA
PZ-1	10/26/2010	NA	1,800	62,000	96,100	NA	NA
PZ-1	5/24/2011	NA	2,000	51,000	85,200	NA	NA
PZ-1	10/5/2011	NA	2,000	50,000	84,600	NA	NA
PZ-1	5/16/2012	NA	2,100	54,000	82,100	NA	NA
PZ-1	10/2/2012	NA	2,110	48,100	84,200	NA	NA
PZ-1	5/14/2013	NA	1,840	35,800	74,400	NA	NA
PZ-1	10/22/2013	NA	2,050	42,500	100,000	NA	NA
PZ-1	5/13/2014	NA	2,010	44,000	76,000	NA	NA
PZ-1	10/14/2014	NA	2,090	46,700	84,800	NA	NA
PZ-5	6/21/2004	20.7	1,340	28,800	55,200	0.067	<0.00500
PZ-5	11/9/2004	<2.50	1,820	47800	86,000	0.094	<0.0100
PZ-5	5/17/2005	2.96	3,260	46,000	65,400	0.093	0.067
PZ-5	10/11/2005	5.14	769	14,000	32,800	0.062	<0.0100
PZ-5	5/16/2006	2.56	1,520	18,300	32,600	0.071	<0.0100
PZ-5	10/10/2006	5.04	1,330	28,800	47,400	<0.0500	<0.0250
PZ-5	5/9/2007	4.6	1,640	17,300	32,400	<0.0500	<0.0250
PZ-5	10/9/2007	<1.00	1,880	19,400	28,700	0.071	<0.005
PZ-5	6/5/2008	5.7	1,500	19,000	33,000	0.0801	0.00317
PZ-5	10/14/2008	NA	1,400	13,000	25,000	NA	NA
PZ-5	5/19/2009	NA	1,500	13,000	24,000	NA	NA

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831 FOR REPORTING PERIOD JULY 1, 2014 THROUGH DECEMBER 30, 2014

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-5	10/19/2009	NA	1,600	14,000	20,200	NA	NA
PZ 5	5/25/2010	NA	1,400	13,000	21,900	NA	NA
PZ-5	10/26/2010	NA	1,400	13,000	20,800	NA	NA
PZ-5	5/24/2011	NA	1,200	10,000	18,400	NA	NA
PZ-5	10/4/2011	NA	1,300	13,000	19,800	NA	NA
PZ-5	5/16/2012	NA	1,500	12,000	21,400	NA	NA
PZ-5	10/2/2012	NA	1,340	9,870	18,600	NA	NA
PZ-5	5/15/2013	NA	1,200	9,510	19,200	NA	NA
PZ-5	10/23/2013	NA	1,180	11,400	25,200	NA	NA
PZ-5	5/13/2014	NA	1,180	9,080	18,100	NA	NA
PZ-5	10/14/2014	NA	1,250	13,300	26,500	NA	NA
PZ-6	6/21/2004	21.2	2,860	70,500	134,000	0.017	<0.00500
PZ-6	11/9/2004	4.89	13,000	75,400	113,000	0.06	<0.0100
PZ-6	5/17/2005	4.25	3,610	109,000	160,500	0.05	0.054
PZ-6	10/11/2005	<20.0	2,850	83,800	106,000	0.021	<0.0100
PZ-6	5/16/2006	7.69	3,050	68,800	115,000	<0.0100	<0.0100
PZ-6	10/10/2006	252	2,790	79,800	134,000	<0.0500	<0.0250
PZ-6	5/9/2007	6.65	2,840	73,500	122,500	<0.0500	<0.0250
PZ-6	10/9/2007	<1.00	3,080	81,000	105,000	<0.1000	<0.0250
PZ-6	6/5/2008	6.1	2,100	47,000	81,000	0.0412	0.00259
PZ-6	10/14/2008	NA	2,500	58,000	87,000	NA	NA
PZ-6	5/19/2009	NA	2,700	61,000	89,000	NA	NA
PZ-6	10/19/2009	NA	2,300	50,000	83,600	NA	NA
PZ-6	5/25/2010	NA	2,300	47,000	82,100	NA	NA
PZ-6	10/26/2010	NA	1,900	47,000	72,300	NA	NA
PZ-6	5/24/2011	NA	1,700	37,000	67,700	NA	NA
PZ-6	10/5/2011	NA	1,900	41,000	69,800	NA	NA
PZ-6	5/16/2012	NA	1,800	41,000	67,200	NA	NA
PZ-6	10/2/2012	NA	2,130	52,200	78,700	NA	NA
PZ-6	5/15/2013	NA	2,060	47,900	86,900	NA	NA
PZ-6	10/22/2013	NA	2,120	46,000	90,500	NA	NA
PZ-6	5/13/2014	NA	2,040	46,600	80,800	NA	NA
PZ-6	10/14/2014	NA	2,160	49,800	80,400	NA	NA
PZ 7	6/21/2004	20.7	2,620	53,000	109,000	0.041	<0.00500

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR
DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2014 THROUGH DECEMBER 30, 2014

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-7	11/8/2004	2.89	7,460	43,600	80,400	0.088	<0.0100
PZ-7	5/16/2005	4.02	2,530	42,100	65,900	0.082	0.094
PZ-7	10/10/2005	6.37	2,770	61,000	88,000	0.047	<0.0100
PZ-7	5/15/2006	<5.3	3,190	54,100	139,000	0.068	<0.0100
PZ-7	10/9/2006	<1.00	2,890	66,800	81,500	<0.00100	<0.0500
PZ 7	5/7/2007	5.15	3,190	64,800	119,000	<0.0200	0.02
PZ 7	10/8/2007	<1.00	2,660	45,600	65,000	0.064	<0.00500
PZ-7	6/4/2008	5	2,300	49,000	86,000	0.0635	0.00257
PZ-7	10/13/2008	NA	1,700	27,000	42,000	NA	NA
PZ-7	5/18/2009	NA	3,700	76,000	120,000	NA	NA
PZ-7	10/20/2009	NA	4,200	67,000	106,000	NA	NA
PZ-7	5/24/2010	NA	3,000	68,000	103,000	NA	NA
PZ-7	10/25/2010	NA	3,000	75,000	103,000	NA	NA
PZ-7	5/23/2011	NA	2,700	60,000	101,000	NA	NA
PZ-7	10/4/2011	NA	3,100	81,000	116,000	NA	NA
PZ-7	5/15/2012	NA	3,000	64,000	96,600	NA	NA
PZ-7	10/3/2012	NA	4,380	67,500	106,000	NA	NA
PZ-7	5/13/2013	NA	3,050	58,500	112,000	NA	NA
PZ 7	10/22/2013	NA	3,100	61,100	126,000	NA	NA
PZ-7	5/13/2014	NA	2,650	35,400	114,000	NA	NA
PZ-7	10/13/2014	NA	3,530	74,500	136,000	NA	NA
PZ-8	10/15/2007	0.677	500	7,440	15,000	0.039	<0.00500
PZ-8	6/6/2008	1.8	630	11,000	16,000	0.0655	<0.001
PZ-9	6/21/2004	<20.0	3,740	80,200	140,000	<0.0100	<0.00500
PZ-9	11/9/2004	1.4	14,500	92,400	144,000	0.066	<0.0100
PZ 9	5/17/2005	2.82	5,090	182,000	164,000	0.05	0.071
PZ-9	10/11/2005	<20.0	3,930	85,500	107,000	0.022	<0.0100
PZ-9	5/16/2006	3.01	4,350	84,700	153,000	0.023	<0.0100
PZ-9	10/10/2006	<20.0	3,370	102,000	135,000	<0.0500	<0.0250
PZ-9	5/9/2007	3.28	4,320	89,600	164,000	<0.0500	<0.0250
PZ-9	10/9/2007	<200	4,720	116,000	144,000	<0.0200	<0.0050
PZ-9	6/5/2008	2.2	4,400	87,000	150,000	0.0351	0.00492
PZ-9	10/14/2008	NA	4,100	96,000	140,000	NA	NA
PZ-9	5/19/2009	NA	3,600	94,000	130,000	NA	NA

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR
DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2014 THROUGH DECEMBER 30, 2014

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-9	10/19/2009	NA	4,000	77,000	139,000	NA	NA
PZ-9	5/25/2010	NA	4,400	94,000	144,000	NA	NA
PZ-9	10/26/2010	NA	4,300	95,000	149,000	NA	NA
PZ-9	5/24/2011	NA	4300	83,000	147,000	NA	NA
PZ-9	10/4/2011	NA	4600	99,000	153,000	NA	NA
PZ-9	5/16/2012	NA	4,900	98,000	152,000	NA	NA
PZ-9	10/3/2012	NA	4,440	99,700	141,000	NA	NA
PZ-9	5/14/2013	NA	4,580	82,000	152,000	NA	NA
PZ-9	10/22/2013	NA	4,620	88,200	179,000	NA	NA
PZ-9	5/13/2014	NA	4,730	83,600	161,000	NA	NA
PZ-9	10/14/2014	NA	5,150	98,600	172,000	NA	NA
PZ-10	6/14/2004	3.81	469	368	1,714	0.02	<0.00500
PZ-10	11/8/2004	3.69	431	353	1,576	<0.0500	<0.0100
PZ-10	5/16/2005	3.63	572	416	1,756	0.044	0.037
PZ-10	10/10/2005	3.34	515	318	1,720	0.015	<0.0100
PZ-10	5/15/2006	3.42	539	460	1,830	0.014	<0.0100
PZ-10	10/9/2006	5.5	549	350	1,600	<0.00100	<0.0500
PZ-10	5/7/2007	14.8	407	274	1,504	<0.0200	0.02
PZ-10	10/8/2007	<1.00	211	186	968	0.026	<0.0050
PZ-10	6/4/2008	4.5	390	300	1,500	0.0144	0.00119
PZ-10	10/13/2008	NA	380	290	1,400	NA	NA
PZ-10	5/18/2009	NA	530	460	1,800	NA	NA
PZ-10	10/20/2009	NA	500	440	1,730	NA	NA
PZ-10	5/24/2010	NA	500	370	1,680	NA	NA
PZ-10	10/25/2010	NA	410	360	1,530	NA	NA
PZ-10	5/23/2011	NA	400	310	1,620	NA	NA
PZ-10	10/4/2011	NA	440	370	1,640	NA	NA
PZ-10	5/15/2012	NA	450	410	1,650	NA	NA
PZ-10	10/1/2012	NA	480	414	1,700	NA	NA
PZ-10	5/13/2013	NA	426	394	1,580	NA	NA
PZ-10	10/21/2013	NA	434	348	1,710	NA	NA
PZ-10	5/12/2014	NA	471	407	1,840	NA	NA
PZ-10	10/13/2014	NA	178	167	910	NA	NA
PZ-11	6/21/2004	20.8	2,220	58,100	123,000	<0.0100	<0.00500

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR
DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2014 THROUGH DECEMBER 30, 2014

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-11	11/8/2004	3.15	13,000	84,100	119,000	<0.0500	<0.0100
PZ-11	5/16/2005	4.63	2,890	66,000	100,000	<0.0100	<0.0100
PZ-11	10/10/2005	<20.0	2,950	84,300	129,000	0.013	<0.0100
PZ-11	5/15/2006	<5.3	3,090	71,000	133,000	<0.0100	<0.0100
PZ-11	10/9/2006	<1.00	2,550	85,800	123,000	<0.00100	<0.0500
PZ-11	5/7/2007	3.84	2,620	68,700	135,000	<0.0200	<0.0100
PZ-11	10/8/2007	<1.00	2,970	94,400	108,000	<0.0200	<0.0050
PZ-11	6/4/2008	3.9	2,100	65,000	110,000	0.0149	0.00216
PZ-11	10/13/2008	NA	3,000	79,000	110,000	NA	NA
PZ-11	5/18/2009	NA	2,500	72,000	110,000	NA	NA
PZ-11	10/20/2009	NA	3,200	64,000	112,000	NA	NA
PZ-11	5/24/2010	NA	2,500	69,000	107,000	NA	NA
PZ-11	10/25/2010	NA	2,300	77,000	100,000	NA	NA
PZ-11	5/23/2011	NA	2,000	45,000	80,500	NA	NA
PZ-11	10/3/2011	NA	2,300	65,000	92,200	NA	NA
PZ-11	5/15/2012	NA	2,400	59,000	93,200	NA	NA
PZ-11	10/3/2012	NA	2,220	53,000	95,600	NA	NA
PZ-11	5/13/2013	NA	2,270	64,800	105,000	NA	NA
PZ-11	10/21/2013	NA	2,360	59,000	123,000	NA	NA
PZ-11	5/12/2014	NA	2,260	45,000	102,000	NA	NA
PZ-11	10/13/2014	NA	2,740	68,800	123,000	NA	NA
PZ-12	6/14/2004	11.2	773	5,320	9,700	0.077	<0.00500
PZ-12	11/8/2004	19.8	879	7,170	9,540	0.066	<0.0100
PZ-12	5/16/2005	8.85	679	3,730	5,890	0.051	0.054
PZ-12	10/10/2005	426	805	3,790	7,740	0.02	<0.0100
PZ-12	5/15/2006	20.6	866	4,510	8,790	0.019	<0.0100
PZ-12	10/9/2006	13.2	795	5,340	9,150	<0.00100	<0.0500
PZ-12	5/7/2007	10.8	831	3,780	7,010	<0.0200	0.024
PZ-12	10/8/2007	<1.00	958	4,310	6,200	0.026	<0.0050
PZ-12	6/4/2008	11	760	3,300	6,800	0.0291	0.00132
PZ-12	10/13/2008	NA	850	3,300	7,000	NA	NA
PZ-12	5/18/2009	NA	870	4,600	8,300	NA	NA
PZ-12	10/20/2009	NA	980	6,500	10,100	NA	NA
PZ-12	5/24/2010	NA	990	5,500	10,100	NA	NA

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831 FOR REPORTING PERIOD JULY 1, 2014 THROUGH DECEMBER 30, 2014

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-12	10/25/2010	NA	990	5,800	10,300	NA	NA
PZ-12	5/23/2011	NA	900	5,600	10,900	NA	NA
PZ-12	10/3/2011	NA	900	6,800	13,100	NA	NA
PZ-12	5/15/2012	NA	620	6,400	9,400	NA	NA
PZ-12	10/1/2012	NA	503	5,290	9,780	NA	NA
PZ-12	5/13/2013	NA	449	3,990	7,610	NA	NA
PZ-12	10/21/2013	NA	415	3,320	8,110	NA	NA
PZ-12	5/12/2014	NA	374	2,490	5,640	NA	NA
PZ-12	10/13/2014	NA	409	2,440	6,100	NA	NA
PZ-13	10/10/2007	12.4	2,670	150,000	245,500	<0.100	<0.00500
PZ-13	6/6/2008	<200	2,600	170,000	240,000	0.0118	0.00316
PZ-13	10/13/2008	NA	2,900	160,000	230,000	NA	NA
PZ-13	5/18/2009	NA	3,300	180,000	240,000	NA	NA
PZ-13	10/20/2009	NA	3,300	170,000	255,000	NA	NA
PZ-13	5/24/2010	NA	3,000	170,000	240,000	NA	NA
PZ-13	10/26/2010	NA	2,900	190,000	246,000	NA	NA
PZ-13	5/24/2011	NA	2,700	150,000	248,000	NA	NA
PZ-13	10/4/2011	NA	3,000	170,000	259,000	NA	NA
PZ-13	5/15/2012	NA	3,300	160,000	252,000	NA	NA
PZ-13	10/2/2012	NA	3,260	170,000	263,000	NA	NA
PZ-13	5/14/2013	NA	3,130	144,000	260,000	NA	NA
PZ-13	10/22/2013	NA	3,220	139,000	262,000	NA	NA
PZ-13	5/13/2014	NA	2,900	104,000	265,000	NA	NA
PZ-13	10/14/2014	NA	3,100	179,000	274,000	NA	NA
PZ-14	10/15/2007	1.41	2,140	71,500	106,000	<0.0100	<0.00500
PZ-14	6/6/2008	<100	3,300	130,000	180,000	0.0201	0.00168
PZ-15	10/15/2007	2.97	169	764	2,060	0.022	<0.00500
PZ-15	6/6/2008	12	160	460	1,600	0.00372	<0.001
C-2811	6/14/2004	6.06	299	769	2,022	0.047	<0.00500
C-2811	11/8/2004	7.63	305	1,030	1,996	0.054	<0.0100
C-2811	5/16/2005	6.02	524	1,930	3,740	0.058	0.053
C-2811	10/10/2005	7.48	584	2,250	4,410	0.034	<0.0100
C-2811	5/15/2006	6.94	511	1,760	3,740	0.031	<0.0100
C-2811	10/9/2006	6.05	402	1,310	2,100	<0.00100	<0.0500

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831 FOR REPORTING PERIOD JULY 1, 2014 THROUGH DECEMBER 30, 2014

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
C-2811	5/7/2007	5.31	516	1,760	4,205	<0.0200	0.031
C-2811	10/8/2007	<1.00	635	2,980	3,860	0.051	<0.0050
C-2811	6/4/2008	5.7	390	1,300	2,800	0.0017	0.035
C-2811	10/13/2008	NA	320	1,000	2,100	NA	NA
C-2811	5/18/2009	NA	360	1,200	2,300	NA	NA
C-2811	10/20/2009	NA	320	1,000	2,120	NA	NA
C-2811	5/24/2010	NA	340	920	2,090	NA	NA
C-2811	10/25/2010	NA	370	1,100	2,470	NA	NA
C-2811	5/23/2011	NA	350	960	2,370	NA	NA
C-2811	10/3/2011	NA	340	910	2,330	NA	NA
C-2811	5/14/2012	NA	320	810	1,870	NA	NA
C-2811	10/1/2012	NA	337	862	2,100	NA	NA
C-2811	5/13/2013	NA	328	872	2,090	NA	NA
C-2811	10/21/2013	NA	341	838	2,490	NA	NA
C-2811	5/13/2014	NA	297	865	2,250	NA	NA
C-2811	10/14/2014	NA	277	827	2,580	NA	NA
C-2507	6/21/2004	7.55	717	1,300	3,830	0.029	0.028
C-2507	11/9/2004	7.58	824	1,380	3,350	0.08	0.014
C-2507	5/17/2005	7.94	860	1,370	3,340	0.078	0.063
C-2507	10/11/2005	6.13	920	1,630	3,240	0.047	<0.0100
C-2507	5/16/2006	7.37	1,040	1,930	5,300	0.051	<0.0100
C-2507	5/9/2007	6.62	1,110	3,060	5,485	<0.0500	<0.0250
C-2507	10/9/2007	<1.00	1,220	3,500	5,540	0.055	0.007
C-2507	6/5/2008	6.9	990	2,800	5,800	0.0637	0.00493
C-2507	10/14/2008	NA	940	2,200	5,100	NA	NA
C-2507	5/19/2009	NA	950	2,600	5,200	NA	NA
C-2507	10/19/2009	NA	930	3,400	5,710	NA	NA
C-2507	5/25/2010	NA	910	3,500	6,640	NA	NA
C-2507	10/26/2010	NA	980	3,500	7,120	NA	NA
C-2507	5/24/2011	NA	790	3,200	6,190	NA	NA
C-2507	10/5/2011	NA	810	3,400	6,660	NA	NA
C-2507	5/16/2012	NA	800	2,800	5,720	NA	NA
C-2507	10/1/2012	NA	774	2,970	6,790	NA	NA
C-2507	5/14/2013	NA	704	2,820	6,020	NA	NA

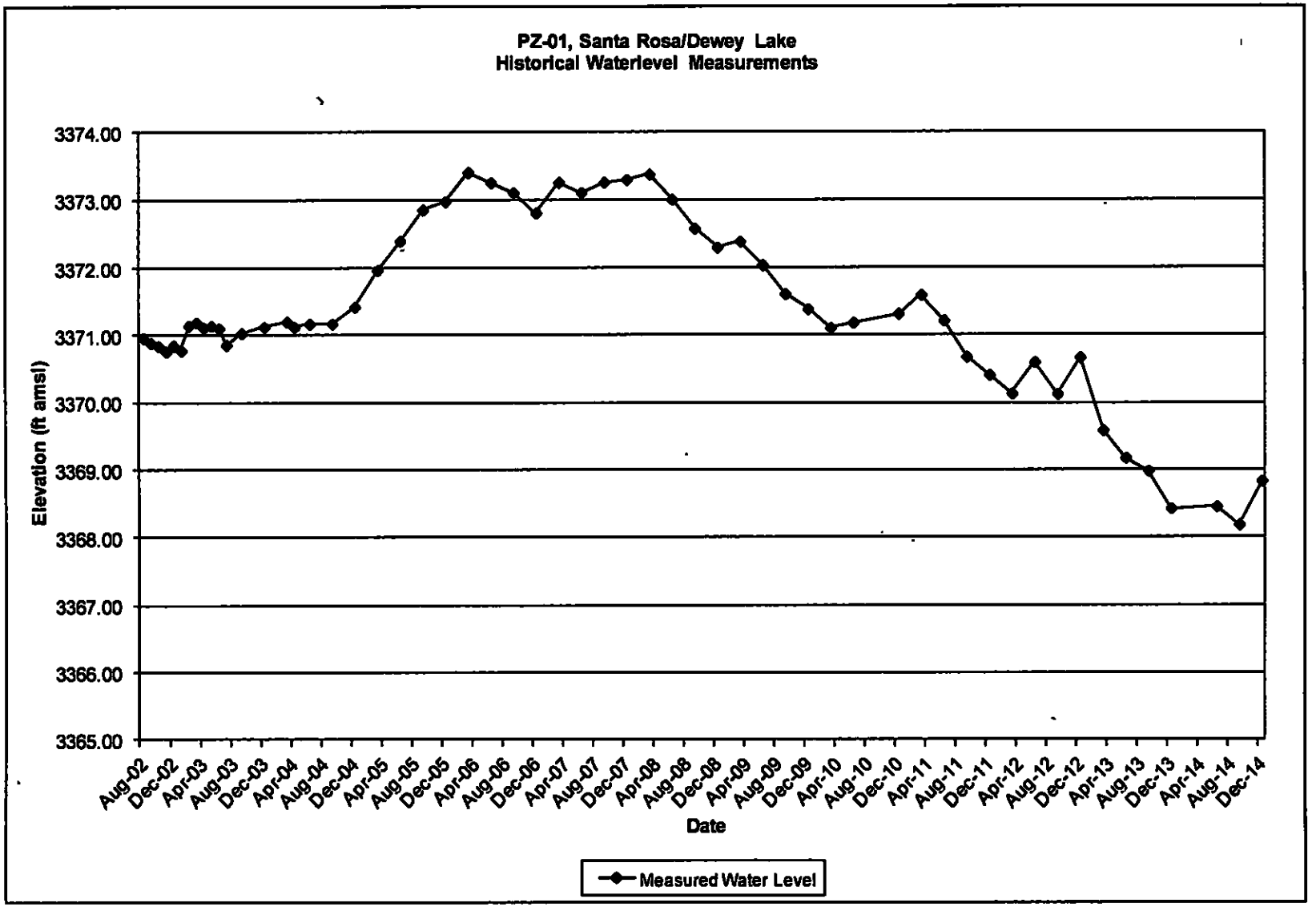
WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831 FOR REPORTING PERIOD JULY 1, 2014 THROUGH DECEMBER 30, 2014

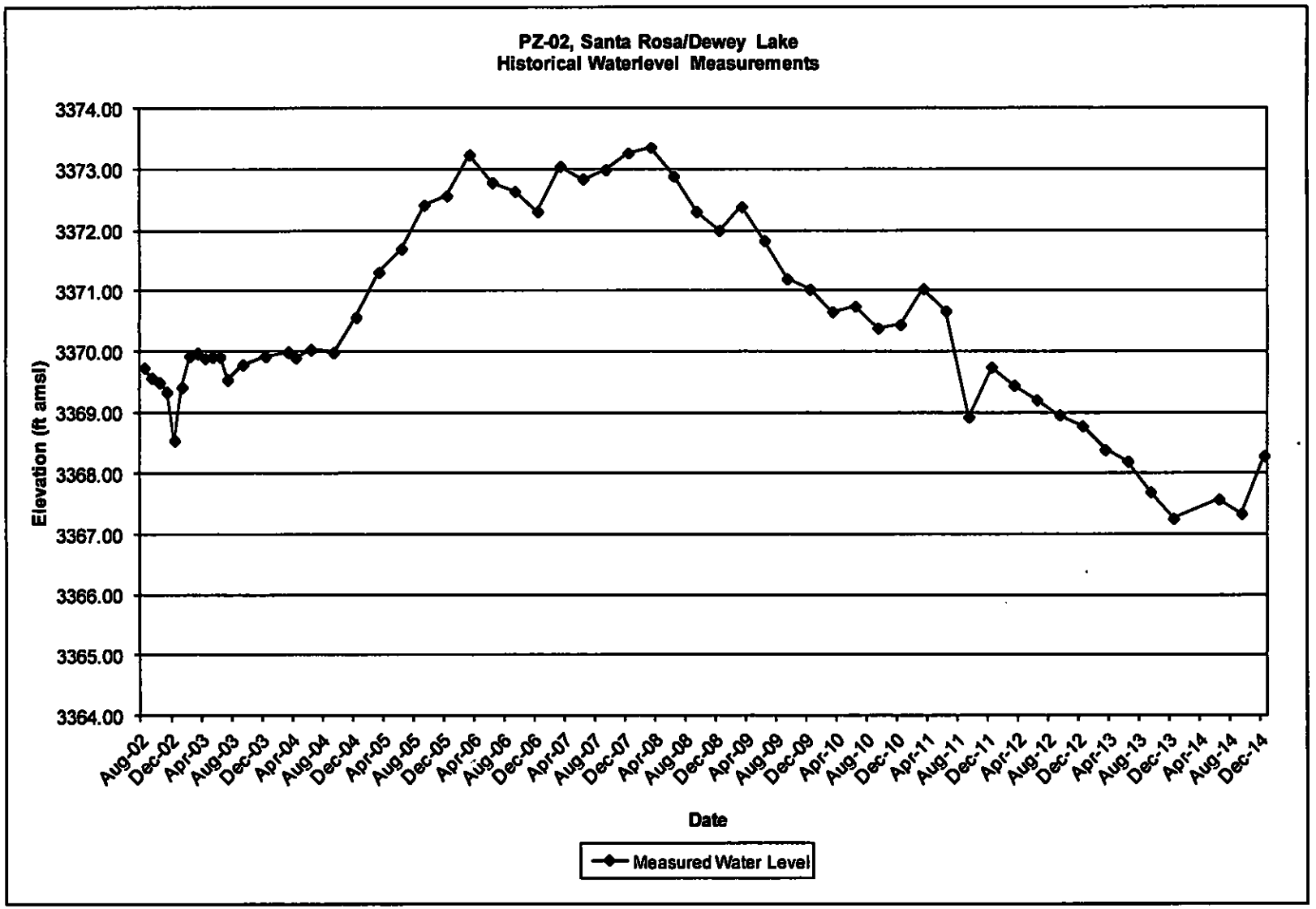
Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
C-2507	10/21/2013	NA	692	3,270	8,350	NA	NA
C-2507	5/13/2014	NA	643	2,770	7,590	NA	NA
C-2507	10/14/2014	NA	693	3,830	9,180	NA	NA
WQSP-6A	7/13/1995	7.62	1,905	1,040	11,000	<0.006	<0.025
WQSP-6A	3/28/1996	3.98	1,810	507	3,920	<0.013	<0.025
WQSP-6A	7/11/1996	2.75	1,971	6,748	4,500	0.02	<0.025
WQSP-6A	4/10/1997	4.64	2,240	675	3,960	0.017	<0.025
WQSP-6A	7/10/1997	4.04	2,560	660	3,840	<0.050	<0.1000
WQSP-6A	6/10/1998	6.19	1,950	644	4,120	0.016	0.0015
WQSP-6A	11/3/1998	11	2,100	770	4,100	0.22	<0.500
WQSP-6A	5/26/1999	7	1,900	540	3,800	<0.100	<0.050
WQSP-6A	11/10/1999	9.4	1,900	540	3,800	<0.050	<0.050
WQSP-6A	5/24/2000	7.5	2,100	530	3,800	0.0129	<0.020
WQSP-6A	11/30/2000	6.7	1,900	480	3,700	<0.0130	<0.025
WQSP-6A	6/6/2001	6.37	1,900	536	3,680	0.0385	<0.025
WQSP-6A	11/14/2001	3.67	1,900	414	4,600	<0.050	<0.010
WQSP-6A	5/22/2002	5.52	1,930	487	3,540	<0.050	<0.010
WQSP-6A	11/20/2002	5.61	2,090	419	3,685	<0.050	<0.010
WQSP-6A	5/21/2003	4.74	1,950	384	3,650	<0.123	<0.050
WQSP-6A	11/19/2003	<0.01	1,950	391	3,955	<0.219	<0.025
WQSP-6A	5/26/2004	9.61	1,970	416	3,646	<0.025	<0.025
WQSP-6A	11/17/2004	6.72	1,960	491	3,655	<0.025	<0.025
WQSP-6A	4/20/2005	5.98	1,920	432	3,700	0.057	<0.025
WQSP-6A	10/19/2005	<0.01	1,940	360	3,430	<0.025	<0.025
WQSP-6A	5/3/2006	2.5	2,210	450	3,200	<0.025	<0.025
WQSP-6A	9/20/2006	6	2,120	360	3,515	<0.025	<0.025
WQSP-6A	3/7/2007	5.78	2,170	484	3,355	<0.025	<0.025
WQSP-6A	9/12/2007	5.47	1,950	350	3,400	<0.025	<0.025
WQSP-6A	3/12/2008	4.67	2,090	378	3,400	<0.025	<0.025
NA: Not Analyzed, parameter not required, per permit conditions.							

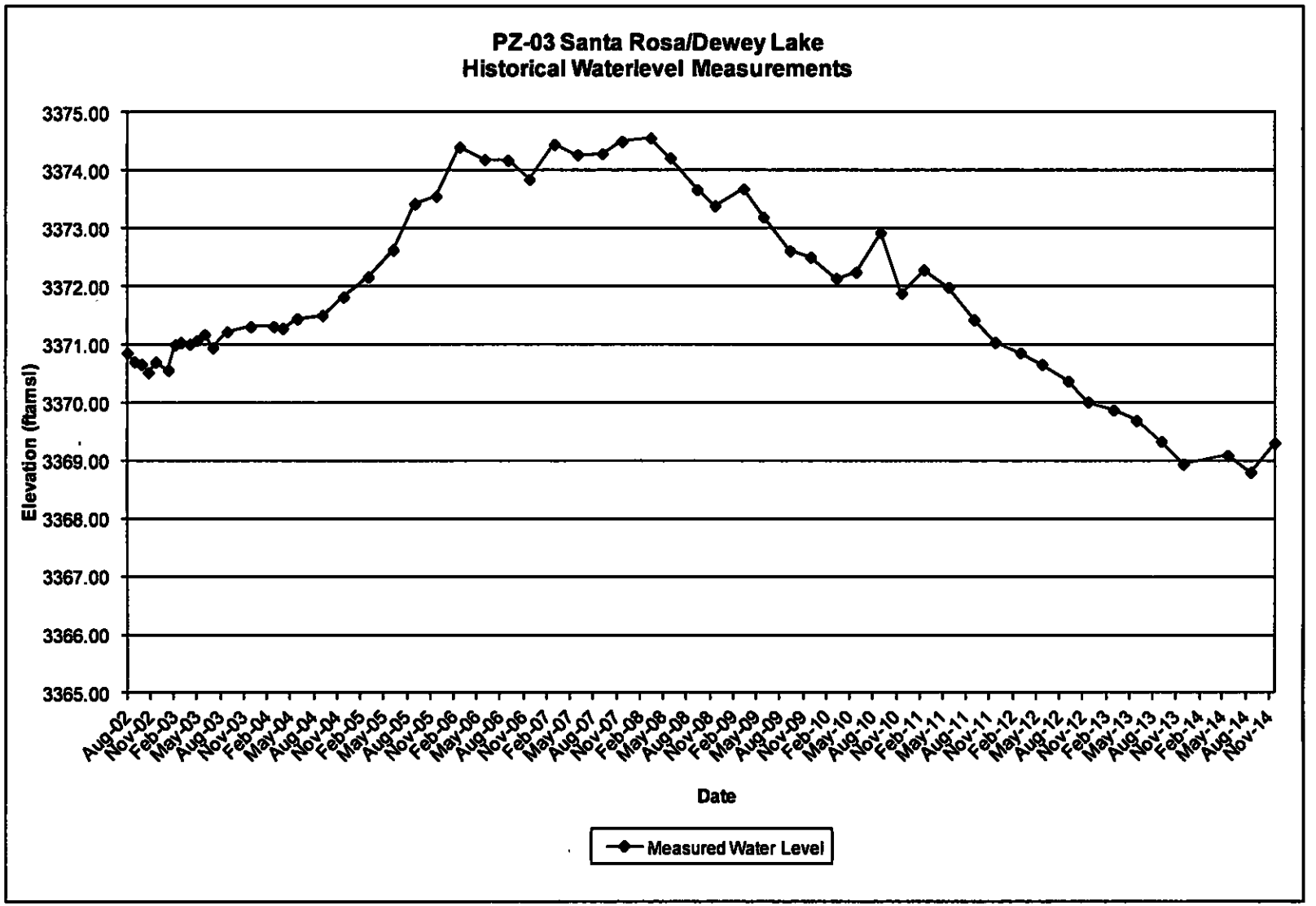
WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR
DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2014 THROUGH DECEMBER 30, 2014

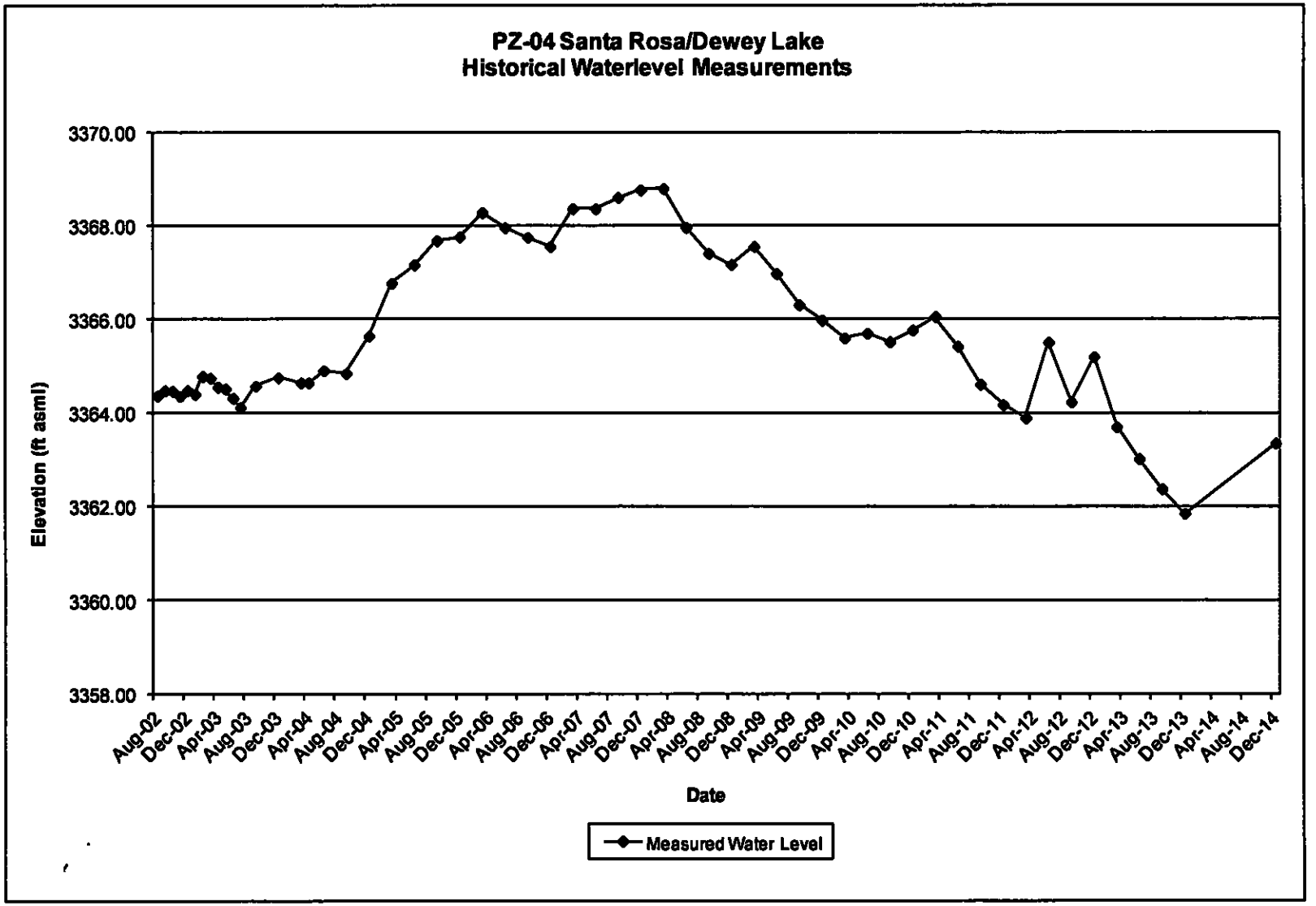
Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters						
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)	
WQSP-6A	9/10/2008	5.69	2,030	348	3,150	< 5	
WQSP-6A	3/4/2009	5.9	2,100	350	3,500	<1.0	
WQSP-6A	9/10/2009	6.3	2,100	350	3,640	<1.0	
WQSP-6A	3/3/2010	6.55	2,145	330	3,545	<1.0	
WQSP-6A	9/23/2010	6.34	2,090	321	3,500	<1.0	
WQSP-6A	5/26/2011	6.5	2,100	270	3,480	<1.0	
WQSP-6A	10/6/2011	5.9	2,100	280	3,450	<1.0	
WQSP-6A	5/16/2012	5.4	2,200	310	3,340	<1.0	
WQSP-6A	10/2/2012	5.1	2,110	301	3,400	<1.0	
WQSP-6A	5/14/2013	5.29	2,260	318	3,420	<1.0	
WQSP-6A	10/23/2013	5.85	1,840	284	3,540	<1.0	
WQSP-6A	5/14/2014	5.4	1,870	342	3,500	<1.0	
WQSP-6A	10/15/2014	5.38	2,000	285	3,360	<1.0	

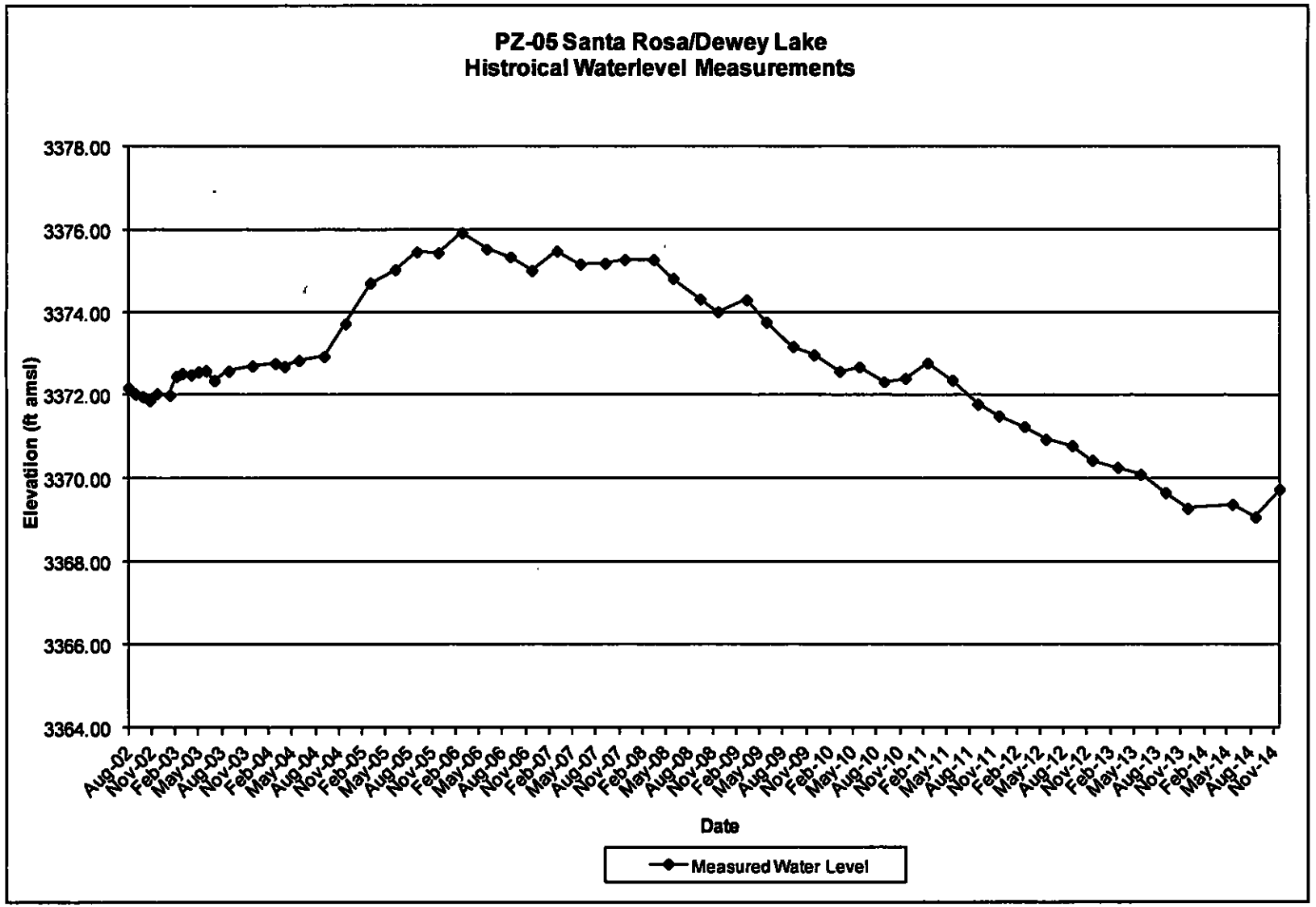
Attachment 2

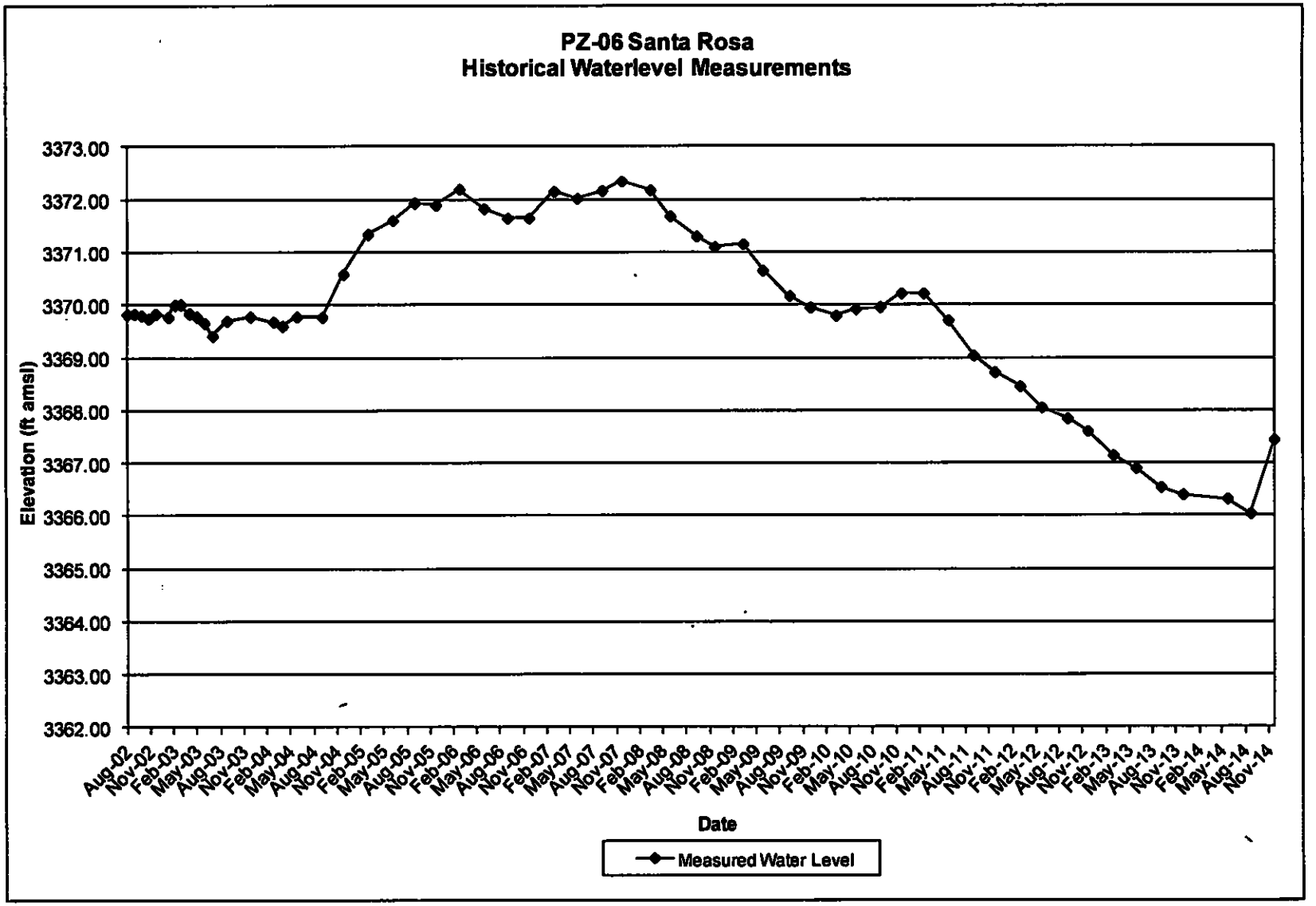


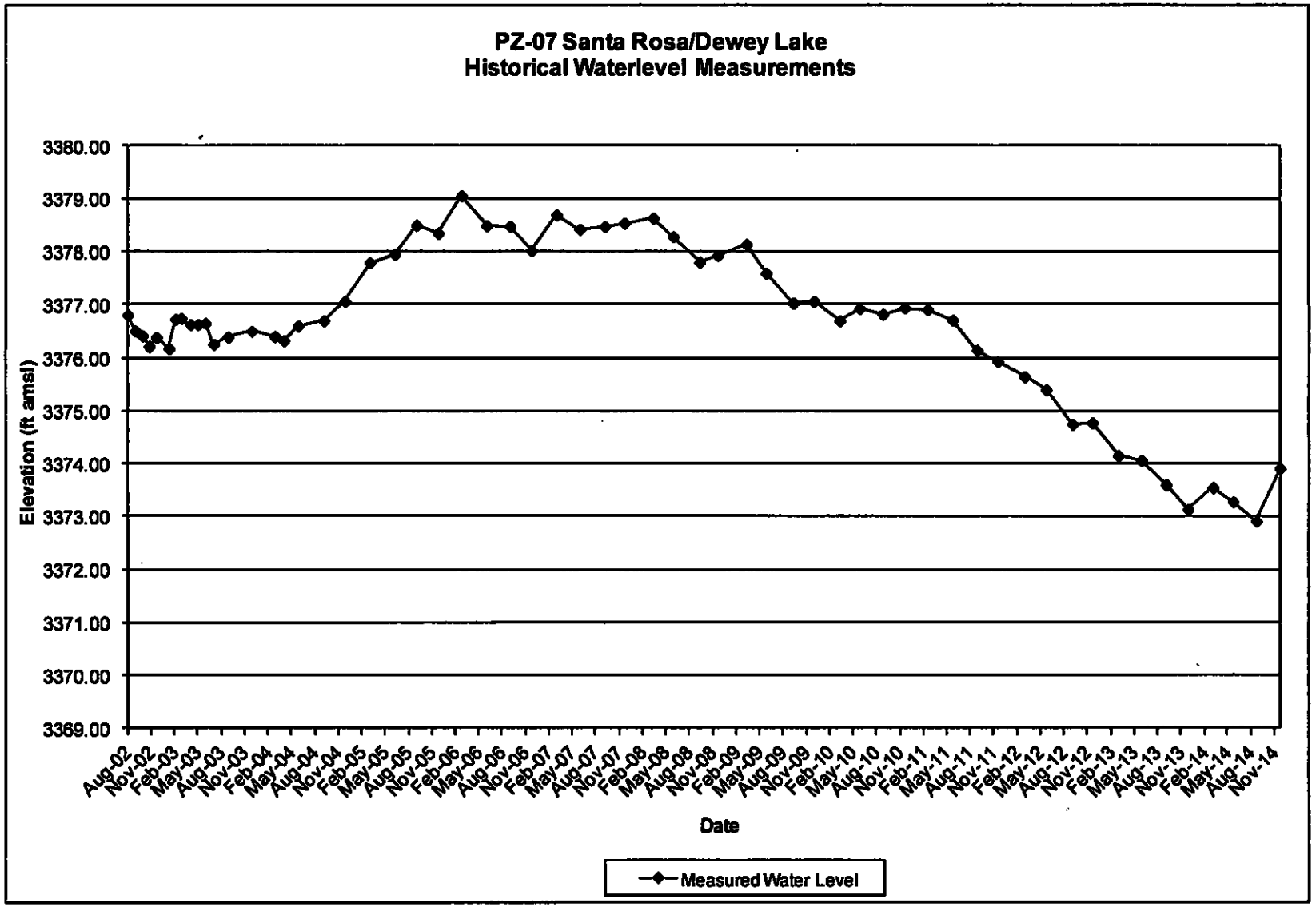

PZ-02, Santa Rosa/Dewey Lake
Historical Waterlevel Measurements
Elevation (ft amsl)
3374.00
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
3365.00
3364.00
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13
Aug-13
Dec-13
Apr-14
Aug-14
Dec-14
Date
Measured Water Level

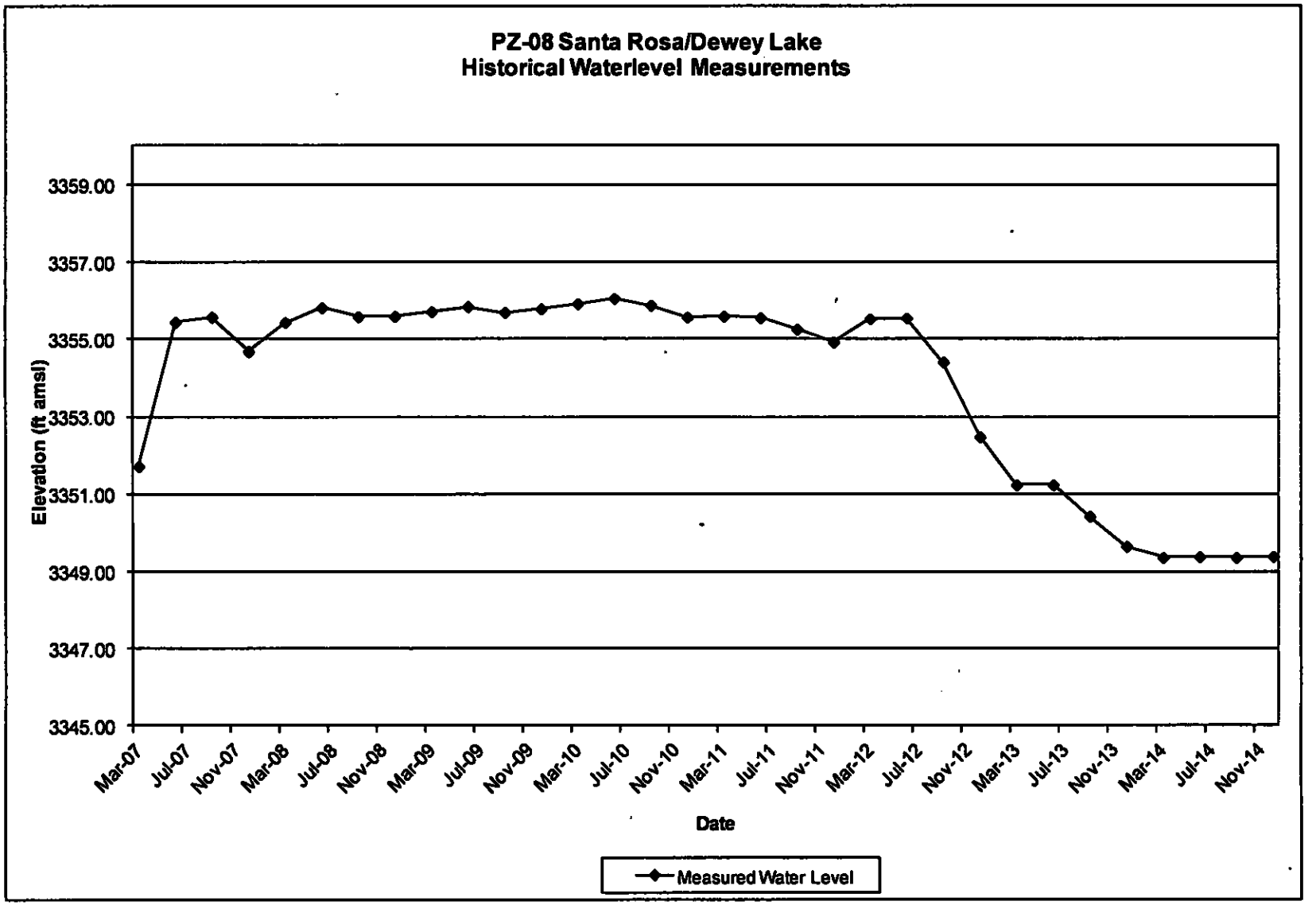

PZ-03 Santa Rosa/Dewey Lake
Historical Waterlevel Measurements
Elevation (ftamsl)
3375.00
3374.00
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
3365.00
Aug-02
Nov-02
Feb-03
May-03
Aug-03
Nov-03
Feb-04
May-04
Aug-04
Nov-04
Feb-05
May-05
Aug-05
Nov-05
Feb-06
May-06
Aug-06
Nov-06
Feb-07
May-07
Aug-07
Nov-07
Feb-08
May-08
Aug-08
Nov-08
Feb-09
May-09
Aug-09
Nov-09
Feb-10
May-10
Aug-10
Nov-10
Feb-11
May-11
Aug-11
Nov-11
Feb-12
May-12
Aug-12
Nov-12
Feb-13
May-13
Aug-13
Nov-13
Feb-14
May-14
Aug-14
Nov-14
Date
Measured Water Level

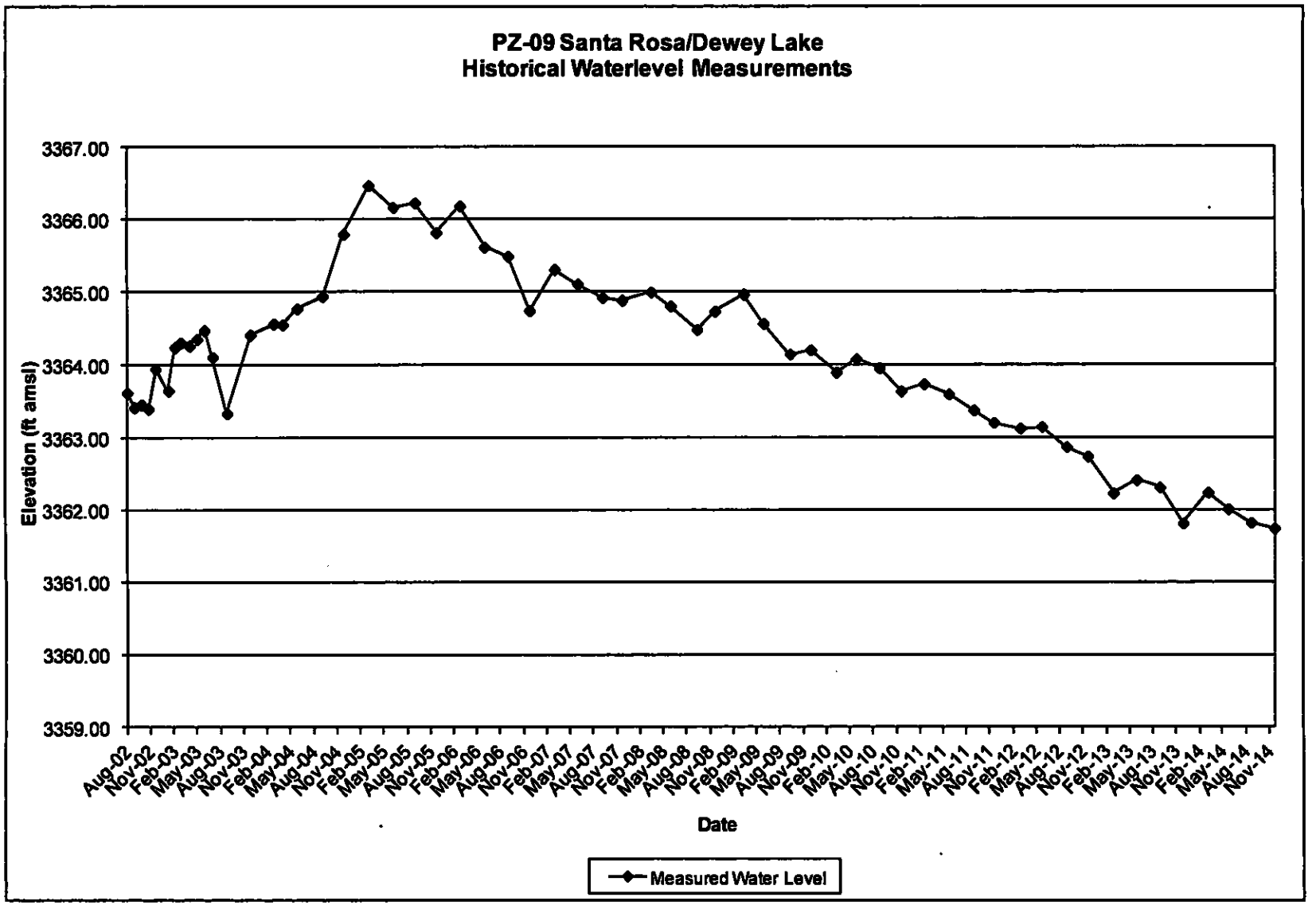

PZ-04 Santa Rosa/Dewey Lake
Historical Waterlevel Measurements
Elevation (ft asml)
3370.00
3368.00
3366.00
3364.00
3362.00
3360.00
3358.00
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13
Aug-13
Dec-13
Apr-14
Aug-14
Dec-14
Date
Measured Water Level

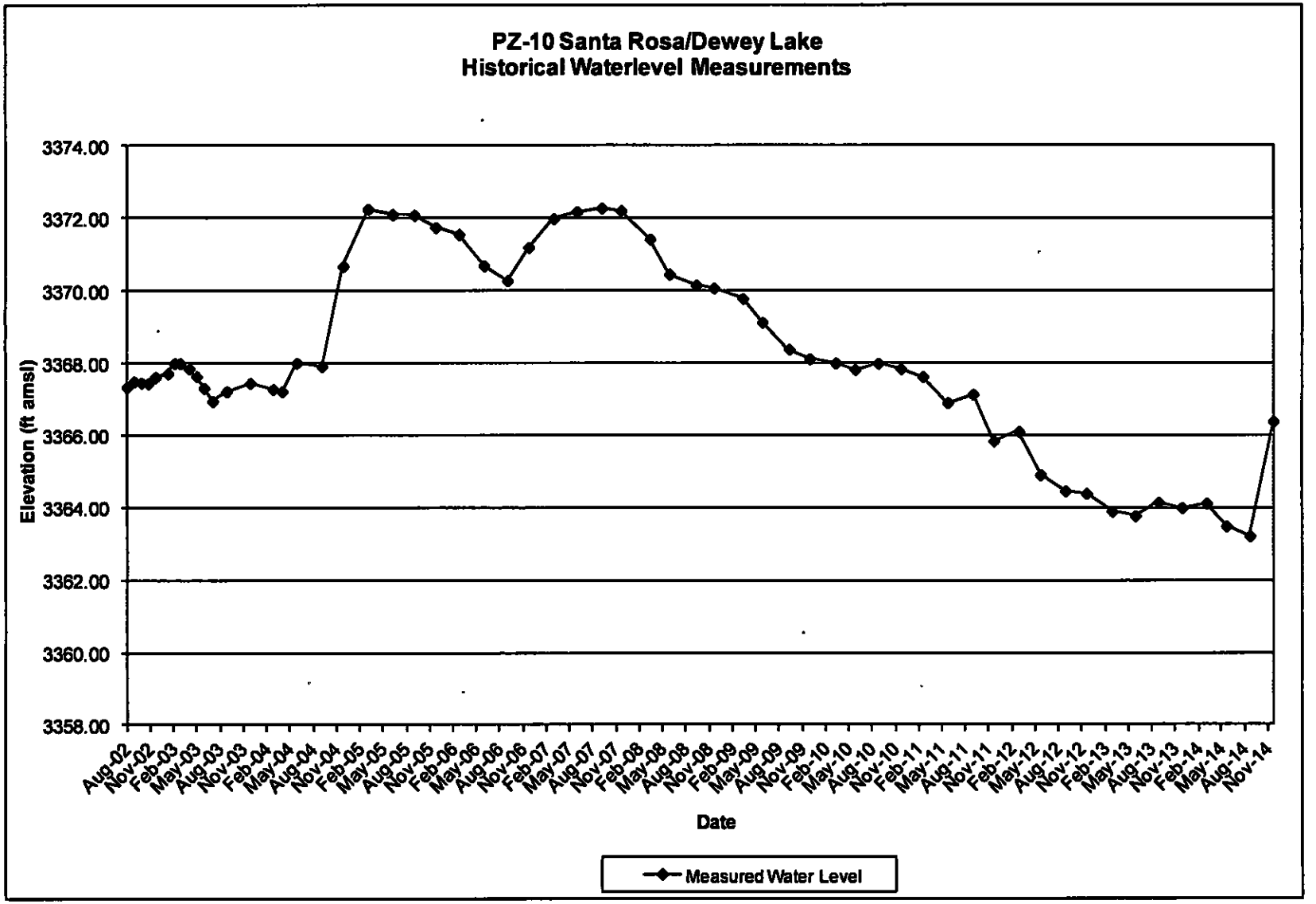

PZ-05 Santa Rosa/Dewey Lake
Histroical Waterlevel Measurements
Elevation (ft amsl)
3378.00
3376.00
3374.00
3372.00
3370.00
3368.00
3366.00
3364.00
Aug-02
Nov-02
Feb-03
May-03
Aug-03
Nov-03
Feb-04
May-04
Aug-04
Nov-04
Feb-05
May-05
Aug-05
Nov-05
Feb-06
May-06
Aug-06
Nov-06
Feb-07
May-07
Aug-07
Nov-07
Feb-08
May-08
Aug-08
Nov-08
Feb-09
May-09
Aug-09
Nov-09
Feb-10
May-10
Aug-10
Nov-10
Feb-11
May-11
Aug-11
Nov-11
Feb-12
May-12
Aug-12
Nov-12
Feb-13
May-13
Aug-13
Nov-13
Feb-14
May-14
Aug-14
Nov-14
Date
Measured Water Level

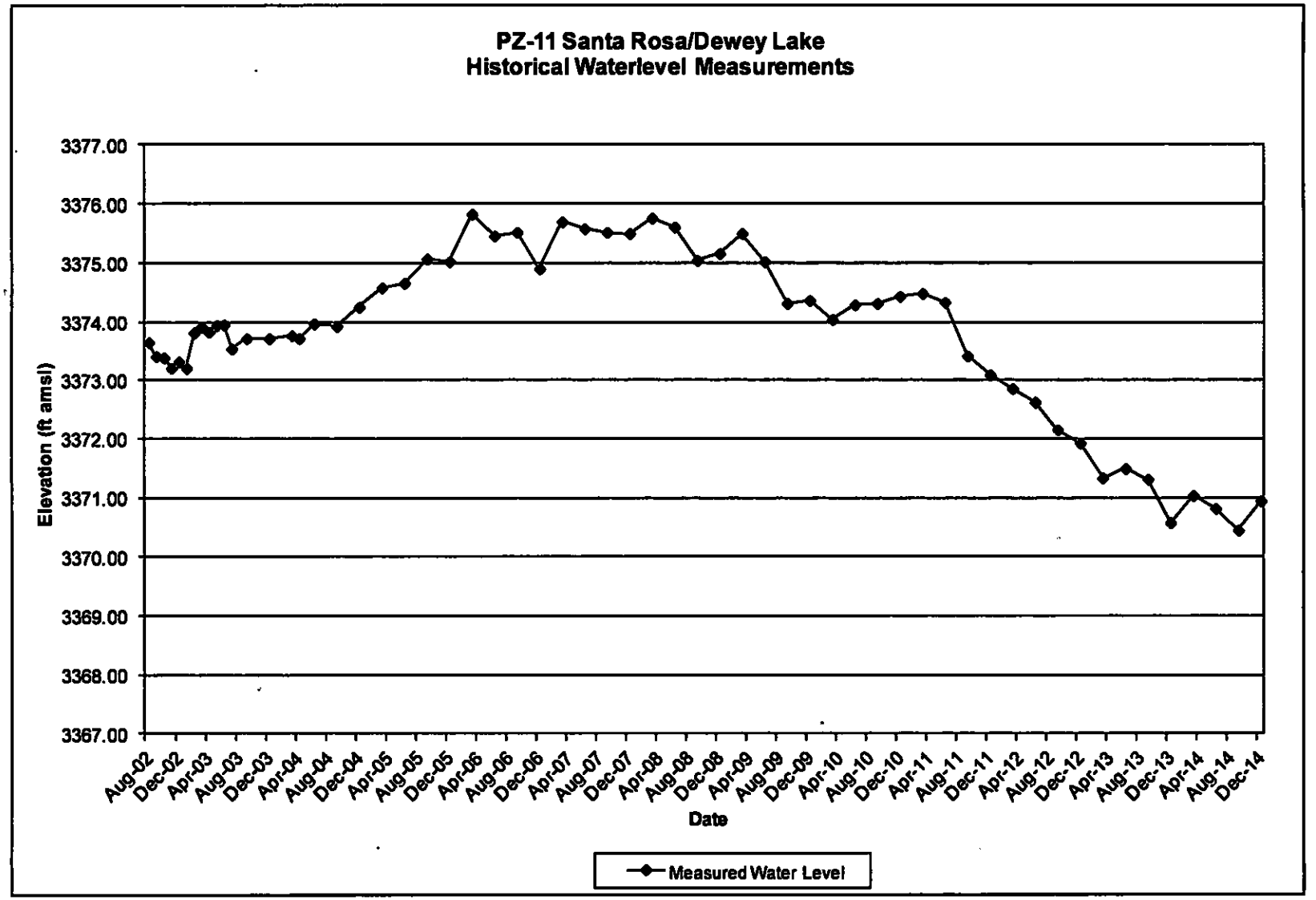

PZ-06 Santa Rosa
Historical Waterlevel Measurements
Elevation (ft amsl)
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
3362.00
Aug-02
Nov-02
Feb-03
May-03
Aug-03
Nov-03
Feb-04
May-04
Aug-04
Nov-04
Feb-05
May-05
Aug-05
Nov-05
Feb-06
May-06
Aug-06
Nov-06
Feb-07
May-07
Aug-07
Nov-07
Feb-08
May-08
Aug-08
Nov-08
Feb-09
May-09
Aug-09
Nov-09
Feb-10
May-10
Aug-10
Nov-10
Feb-11
May-11
Aug-11
Nov-11
Feb-12
May-12
Aug-12
Nov-12
Feb-13
May-13
Aug-13
Nov-13
Feb-14
May-14
Aug-14
Nov-14
Date
Measured Water Level

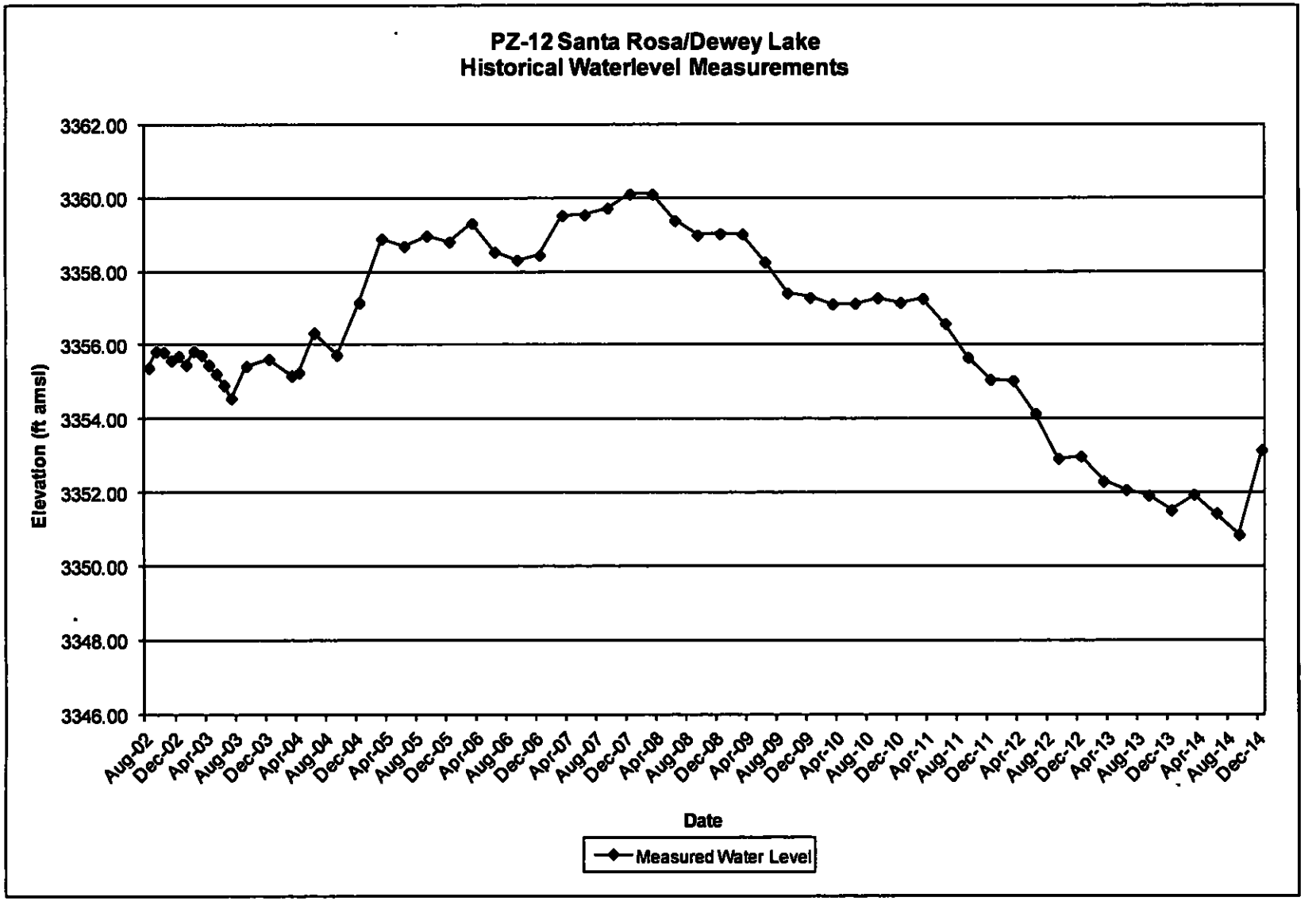

PZ-07 Santa Rosa/Dewey Lake
Historical Waterlevel Measurements
Elevation (ft amsl)
3380.00
3379.00
3378.00
3377.00
3376.00
3375.00
3374.00
3373.00
3372.00
3371.00
3370.00
3369.00
Aug-02
Nov-02
Feb-03
May-03
Aug-03
Nov-03
Feb-04
May-04
Aug-04
Nov-04
Feb-05
May-05
Aug-05
Nov-05
Feb-06
May-06
Aug-06
Nov-06
Feb-07
May-07
Aug-07
Nov-07
Feb-08
May-08
Aug-08
Nov-08
Feb-09
May-09
Aug-09
Nov-09
Feb-10
May-10
Aug-10
Nov-10
Feb-11
May-11
Aug-11
Nov-11
Feb-12
May-12
Aug-12
Nov-12
Feb-13
May-13
Aug-13
Nov-13
Feb-14
May-14
Aug-14
Nov-14
Date
Measured Water Level

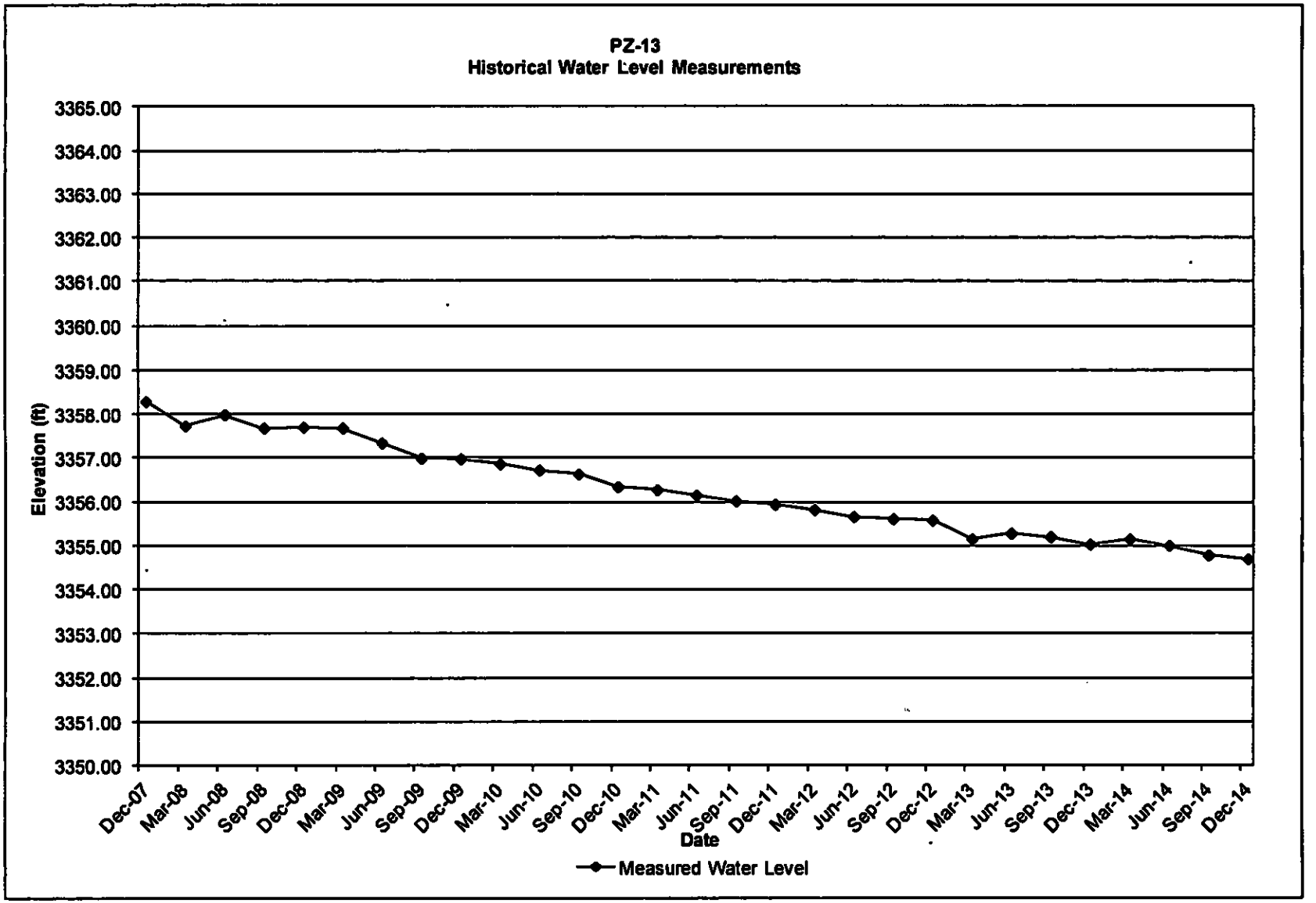

PZ-08 Santa Rosa/Dewey Lake
Historical Waterlevel Measurements
Elevation (ft amsl)
3359.00
3357.00
3355.00
3353.00
3351.00
3349.00
3347.00
3345.00
Mar-07
Jul-07
Nov-07
Mar-08
Jul-08
Nov-08
Mar-09
Jul-09
Nov-09
Mar-10
Jul-10
Nov-10
Mar-11
Jul-11
Nov-11
Mar-12
Jul-12
Nov-12
Mar-13
Jul-13
Nov-13
Mar-14
Jul-14
Nov-14
Date
Measured Water Level

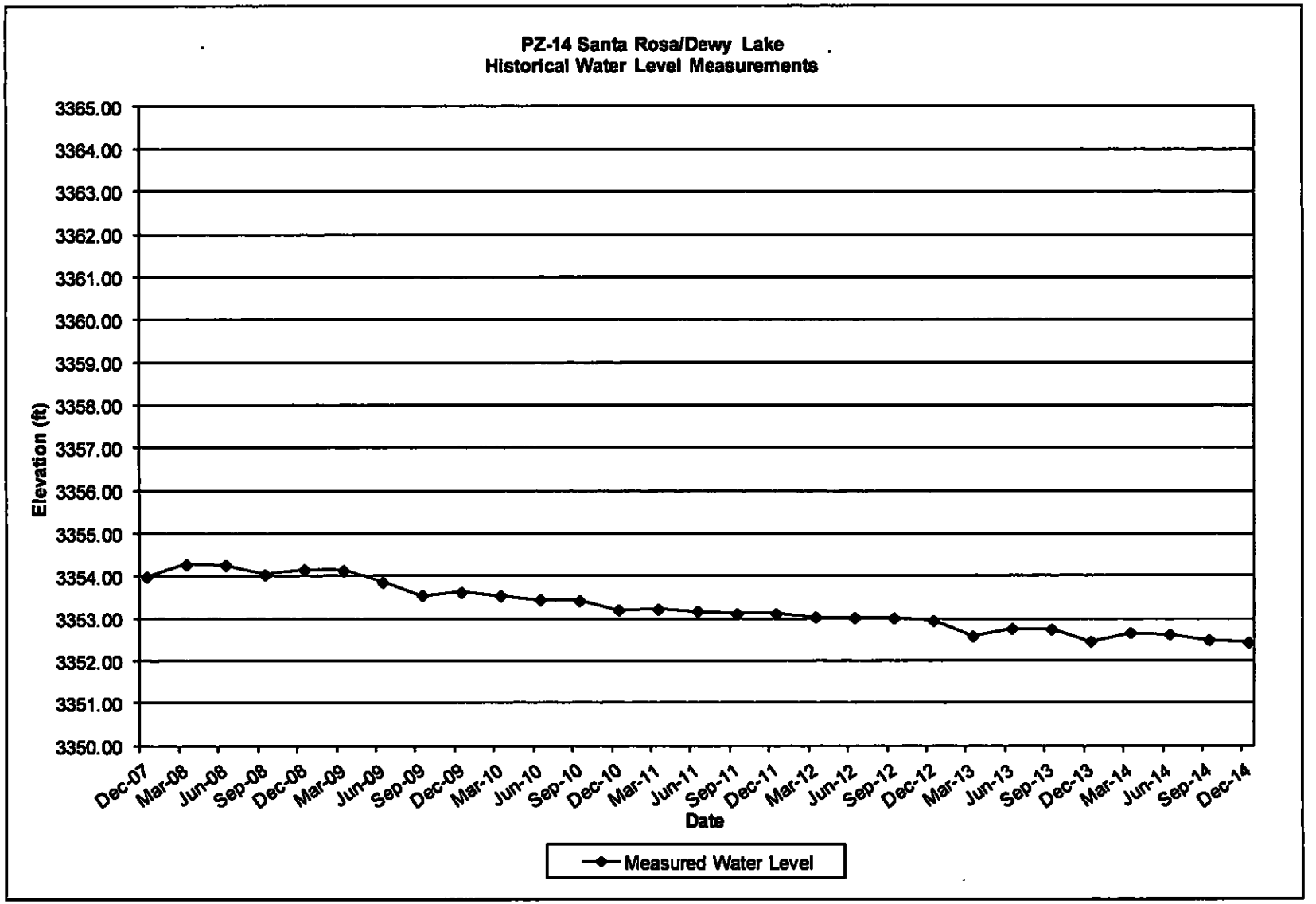

PZ-09 Santa Rosa/Dewey Lake
Historical Waterlevel Measurements
Elevation (ft amsl)
3367.00
3366.00
3365.00
3364.00
3363.00
3362.00
3361.00
3360.00
3359.00
Aug-02
Nov-02
Feb-03
May-03
Aug-03
Nov-03
Feb-04
May-04
Aug-04
Nov-04
Feb-05
May-05
Aug-05
Nov-05
Feb-06
May-06
Aug-06
Nov-06
Feb-07
May-07
Aug-07
Nov-07
Feb-08
May-08
Aug-08
Nov-08
Feb-09
May-09
Aug-09
Nov-09
Feb-10
May-10
Aug-10
Nov-10
Feb-11
May-11
Aug-11
Nov-11
Feb-12
May-12
Aug-12
Nov-12
Feb-13
May-13
Aug-13
Nov-13
Feb-14
May-14
Aug-14
Nov-14
Date
Measured Water Level

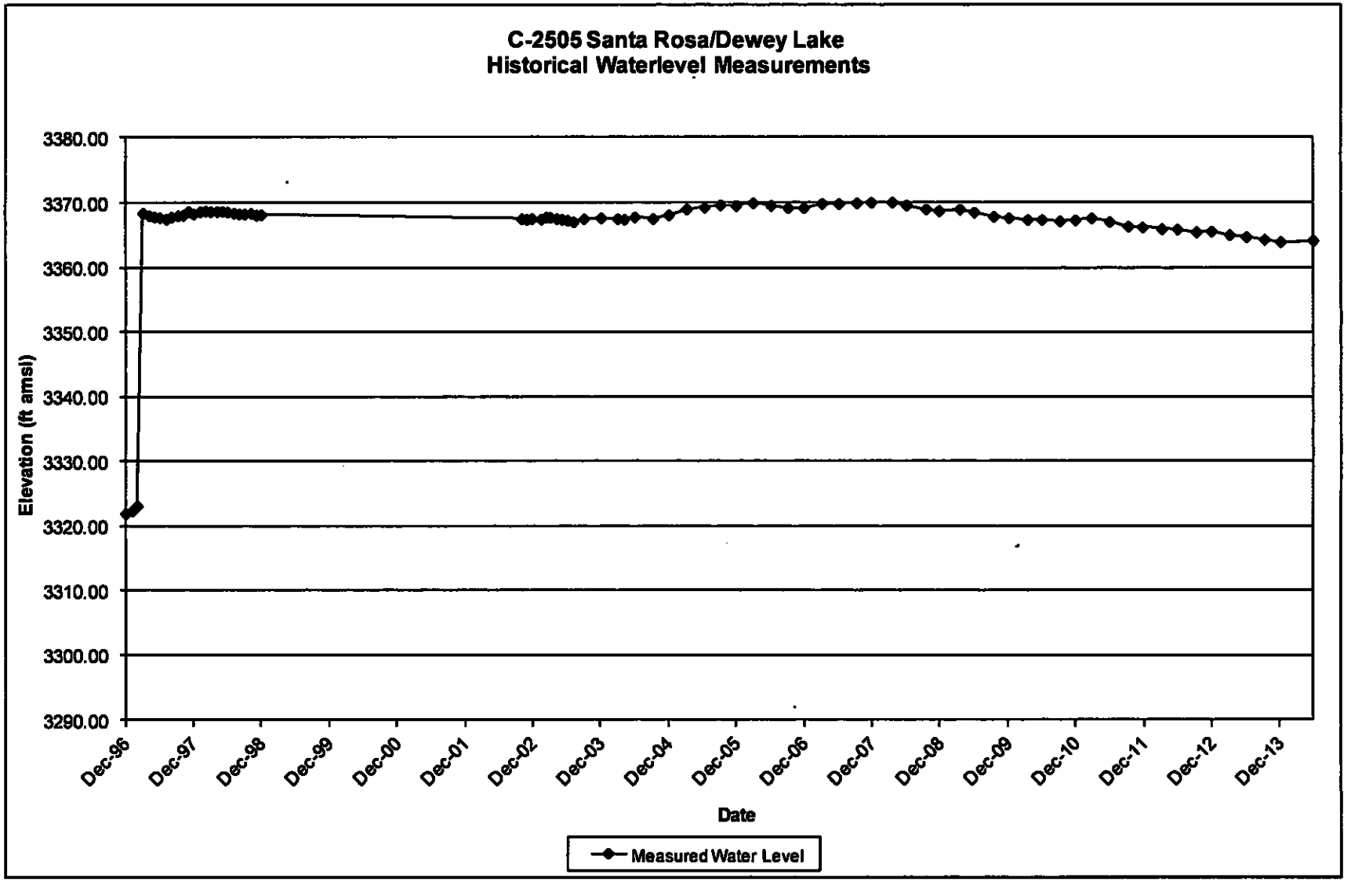

PZ-10 Santa Rosa/Dewey Lake
Historical Waterlevel Measurements
Elevation (ft amsl)
3374.00
3372.00
3370.00
3368.00
3366.00
3364.00
3362.00
3360.00
3358.00
Aug-02
Nov-02
Feb-03
May-03
Aug-03
Nov-03
Feb-04
May-04
Aug-04
Nov-04
Feb-05
May-05
Aug-05
Nov-05
Feb-06
May-06
Aug-06
Nov-06
Feb-07
May-07
Aug-07
Nov-07
Feb-08
May-08
Aug-08
Nov-08
Feb-09
May-09
Aug-09
Nov-09
Feb-10
May-10
Aug-10
Nov-10
Feb-11
May-11
Aug-11
Nov-11
Feb-12
May-12
Aug-12
Nov-12
Feb-13
May-13
Aug-13
Nov-13
Feb-14
May-14
Aug-14
Nov-14
Date
Measured Water Level

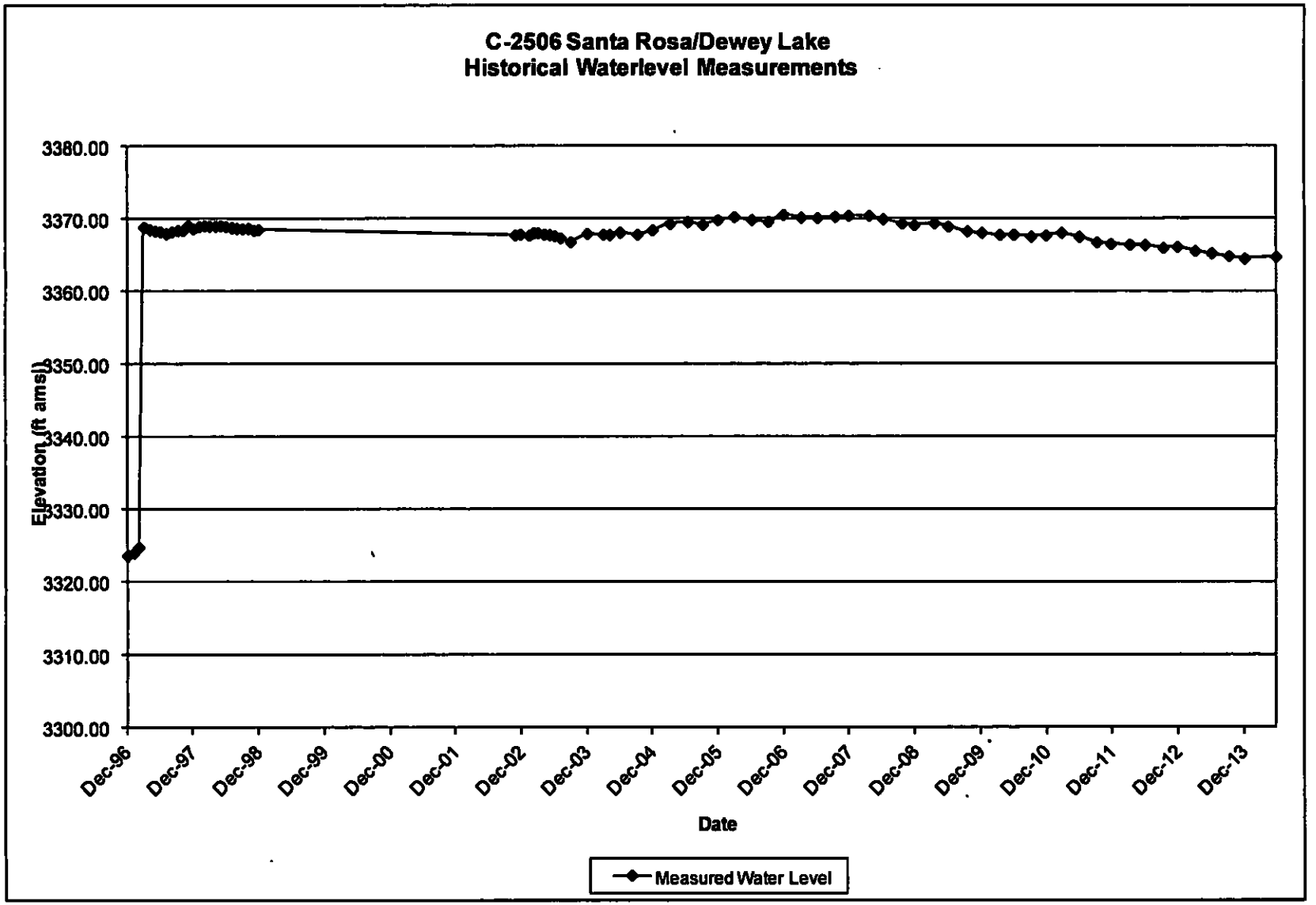

PZ-11 Santa Rosa/Dewey Lake
Historical Waterlevel Measurements
Elevation (ft amsl)
3377.00
3376.00
3375.00
3374.00
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
3367.00
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13
Aug-13
Dec-13
Apr-14
Aug-14
Dec-14
Date
Measured Water Level

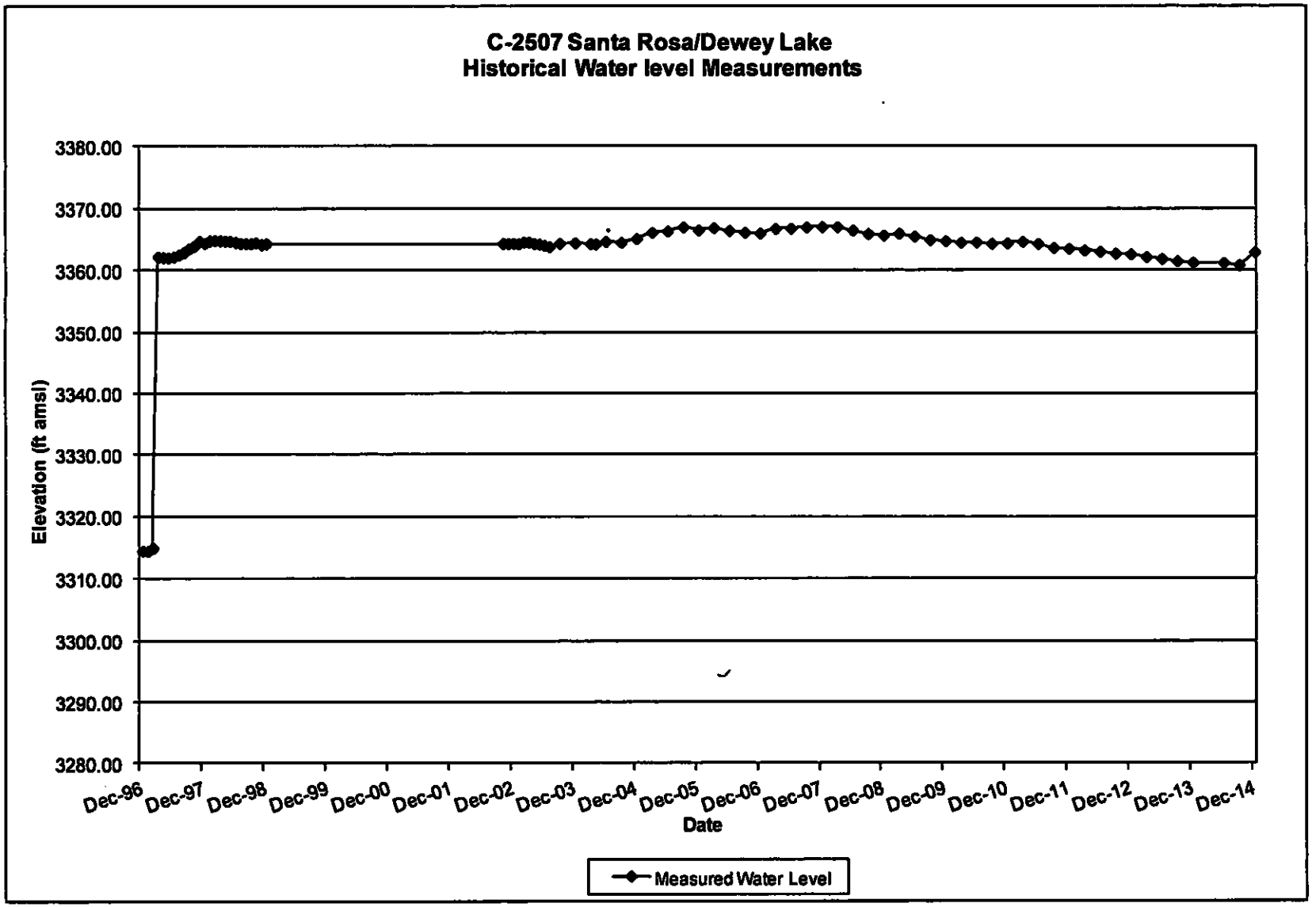

PZ-12 Santa Rosa/Dewey Lake
Historical Waterlevel Measurements
Elevation (ft amsl)
3362.00
3360.00
3358.00
3356.00
3354.00
3352.00
3350.00
3348.00
3346.00
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13
Aug-13
Dec-13
Apr-14
Aug-14
Dec-14
Date
Measured Water Level

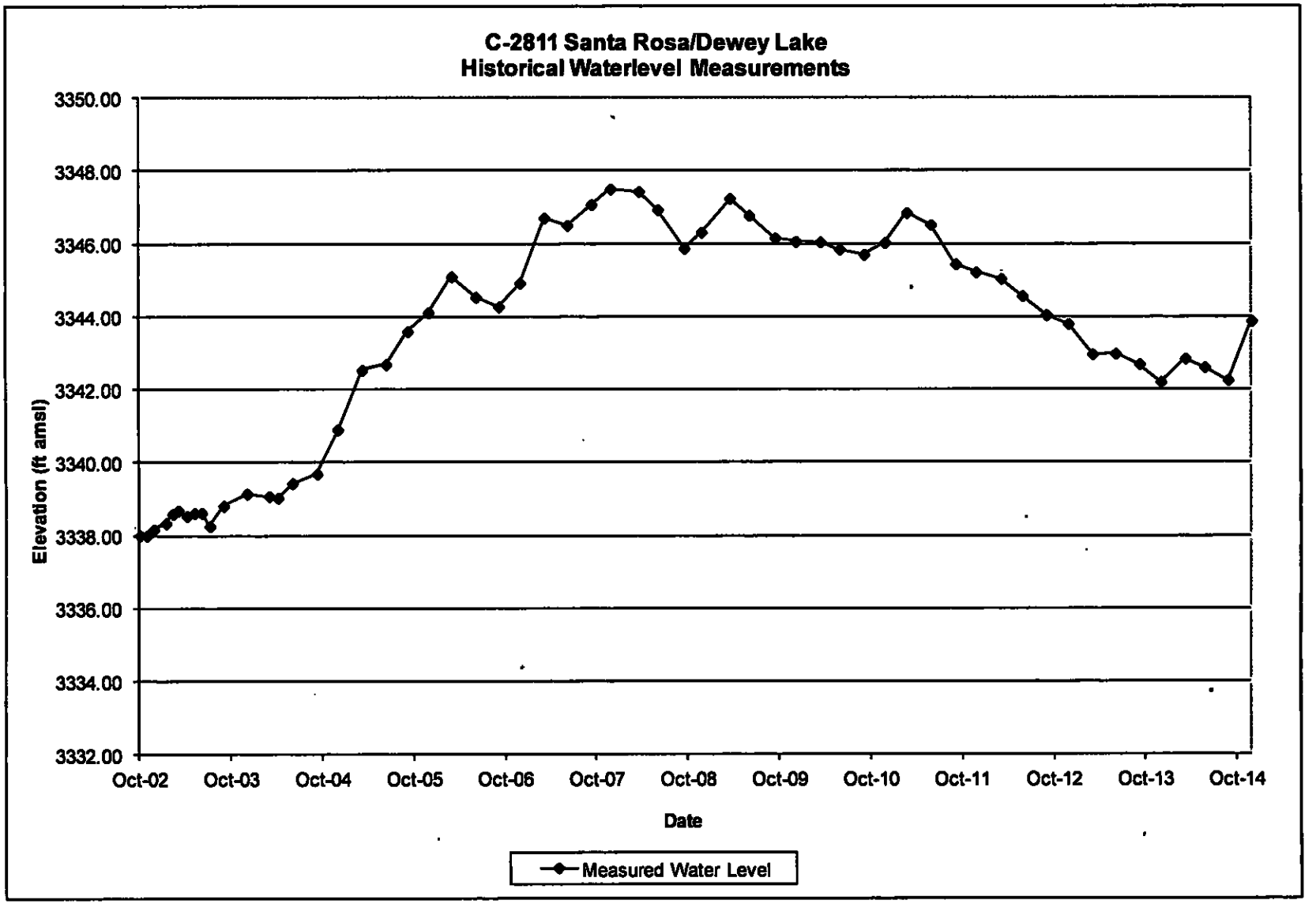

PZ-13
Historical Water Level Measurements
Elevation (ft)
3365.00
3364.00
3363.00
3362.00
3361.00
3360.00
3359.00
3358.00
3357.00
3356.00
3355.00
3354.00
3353.00
3352.00
3351.00
3350.00
Dec-07
Mar-08
Jun-08
Sep-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Mar-10
Jun-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
Dec-11
Mar-12
Jun-12
Sep-12
Dec-12
Mar-13
Jun-13
Sep-13
Dec-13
Mar-14
Jun-14
Sep-14
Dec-14
Date
Measured Water Level

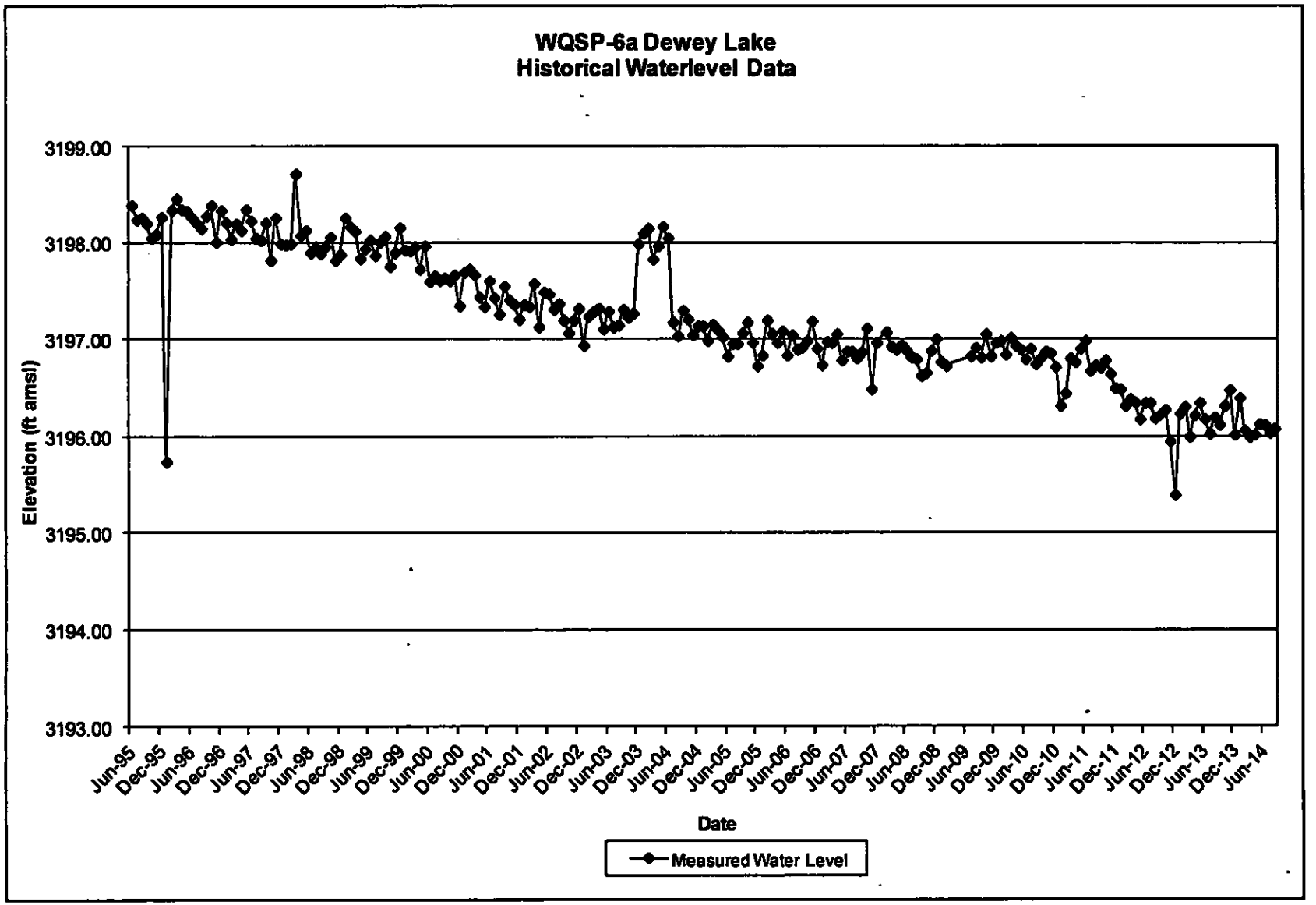

PZ-14 Santa Rosa/Dewy Lake
Historical Water Level Measurements
Elevation (ft)
3365.00
3364.00
3363.00
3362.00
3361.00
3360.00
3359.00
3358.00
3357.00
3356.00
3355.00
3354.00
3353.00
3352.00
3351.00
3350.00
Dec-07
Mar-08
Jun-08
Sep-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Mar-10
Jun-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
Dec-11
Mar-12
Jun-12
Sep-12
Dec-12
Mar-13
Jun-13
Sep-13
Dec-13
Mar-14
Jun-14
Sep-14
Dec-14
Date
Measured Water Level


C-2505 Santa Rosa/Dewey Lake
Historical Waterlevel Measurements
Elevation (ft amsl)
3380.00
3370.00
3360.00
3350.00
3340.00
3330.00
3320.00
3310.00
3300.00
3290.00
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Date
Measured Water Level


C-2506 Santa Rosa/Dewey Lake
Historical Waterlevel Measurements
3380.00
3370.00
3360.00
3350.00
3340.00
3330.00
3320.00
3310.00
3300.00
Elevation (ft amsl)
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Date
Measured Water Level


C-2507 Santa Rosa/Dewey Lake
Historical Water level Measurements
Elevation (ft amsl)
3380.00
3370.00
3360.00
3350.00
3340.00
3330.00
3320.00
3310.00
3300.00
3290.00
3280.00
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Date
Measured Water Level


C-2811 Santa Rosa/Dewey Lake
Historical Waterlevel Measurements
Elevation (ft amsl)
3350.00
3348.00
3346.00
3344.00
3342.00
3340.00
3338.00
3336.00
3334.00
3332.00
Oct-02
Oct-03
Oct-04
Oct-05
Oct-06
Oct-07
Oct-08
Oct-09
Oct-10
Oct-11
Oct-12
Oct-13
Oct-14
Date
Measured Water Level


WQSP-6a Dewey Lake
Historical Waterlevel Data
Elevation (ft amsl)
3199.00
3198.00
3197.00
3196.00
3195.00
3194.00
3193.00
Jun-95
Dec-95
Jun-96
Dec-96
Jun-97
Dec-97
Jun-98
Dec-98
Jun-99
Dec-99
Jun-00
Dec-00
Jun-01
Dec-01
Jun-02
Dec-02
Jun-03
Dec-03
Jun-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Dec-10
Jun-11
Dec-11
Jun-12
Dec-12
Jun-13
Dec-13
Jun-14
Date
Measured Water Level

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

JUL 29 2014

GROUND WATER
JUL 31 2014
BUREAU

Ms. Jennifer Pruitt
New Mexico Environment Department
Ground Water Quality Bureau
P.O. Box 5469
Santa Fe, NM 87502-5469

Subject: Semiannual Discharge Monitoring Report for January 1, 2014, through June 30, 2014, Discharge Permit 831

Dear Ms. Pruitt:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Discharge Monitoring Report, including Table 6 in Excel® format on the compact disk, for the period of January 1, 2014, through June 30, 2014. This report is required by Discharge Permit 831.

If you have any questions about this report or require any additional information, please contact me at (575) 234-7488.

Sincerely,

George T. Basabilvazo

George T. Basabilvazo, Director
Environmental Protection Division

Enclosures(2)

cc: w/o enclosures
J. Kieling, NMED *ED
M. Menetrey, NMED ED
CBFO M&RC
*ED denotes electronic distribution

CBFO:EPD:GTB:MN:14-1556:UFC 5486.00

04263

GROUND WATER
JUL 31 2014
BUREAU

ATTACHMENT

WASTE ISOLATION PILOT PLANT SEMIANNUAL MONITORING REPORT FOR DISCHARGE PERMIT DP-831 FOR REPORTING PERIOD JANUARY 1, 2014 THROUGH JUNE 30, 2014

TOTAL PAGES: 9

WASTE ISOLATION PILOT PLANT
SEMIANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JANUARY 1, 2014, THROUGH JUNE 30, 2014

SPECIFIC REPORTING PER THE REQUIREMENTS OF DP-831 SECTION III, CONDITION 14

Condition 14a. – A summary of all activities related to permitted discharges during the preceding 6 month period. Activities may include general operations, construction or demolition of structures, erosion features, maintenance and repairs to liners, pipelines, covers, berms and other facility components covered by this Discharge Permit Renewal and Modification, water management, water quality and ground water level trends, and precipitation patterns.

Facultative Lagoon System

Table 1 shows the volume of "sewage water" discharged to the Facultative Lagoon System for this reporting period. After a release of radioactive contamination from the WIPP underground ventilation air on February 14, 2014, access to the WIPP facility was restricted to essential personnel until mid-April. The reduced number of personnel at the site had some influence on discharge volumes for this reporting period.

Table 1 – Discharge to Facultative Lagoon System

Month	Volume (gallons)
January	446,899
February	375,603
March	237,312
April	235,116
May	368,305
June	284,934
Total	**1,948,169**

Notes: Volume based on total domestic water use.
No miscellaneous non-hazardous water was discharged to Facultative Lagoon System lagoons B or C.

The freeboard was maintained at greater than one foot for the Facultative Lagoon System. Inspections indicated that the liners and the berms are in good condition with no erosion. No new construction or repairs have been performed. No water other than non-hazardous sewage water with some non-hazardous condensate from compressors was discharged into the Facultative Lagoon System.

A surface water sample was collected from the Facultative Lagoon System to determine the extent of radioactive contamination due to the February 14, 2014, radiological event. A composite sample was collected on April 16, 2014, and analyzed for ^{241}americium, ^{238}plutonium, and $^{239/240}$ plutonium. These transuranic actinides are expected to occur in the waste disposed in the WIPP underground. Transuranic actinides were not detected in this sample.

H-19 Evaporation Pond

Table 2 shows the volume of miscellaneous non-hazardous water discharged to the H-19 Evaporation Pond for this reporting period. This water may be from groundwater well pumping, condensate from the Exhaust Shaft ductwork, and removal of Waste Shaft sump water. Only

groundwater from well pumping was discharged to the H-19 Evaporation Pond after the radiological event on February 14, 2014.

Table 2 – Discharge to H-19 Evaporation Pond

Month	Volume (gallons)
January	1,380
February	0
March	0
April	0
May	0
June	4,235
Total	**5,615**

No new construction or demolition of structures related to discharge control occurred during the reporting period. The freeboard was maintained at greater than one foot. Monthly inspections found the liner in good condition, and the berms have no erosion and are in good condition. There were no maintenance/repairs needed and no new construction or demolition performed.

Facultative Lagoon System and H-19 Evaporation Pond Analytical Data

Table 3 shows the analytical results for the Facultative Lagoon System and the H-19 Evaporation Pond.

Table 3 – Facultative Lagoon System and H-19 Evaporation Pond Analytical Data

		Facultative Lagoon System			
Analyte	Sample Date	Influent Lagoon 2A	Lagoon B	Lagoon C	H-19 Evaporation Pond
Nitrate (mg/L)	4/16/14	ND	NS	NS	NS
TKN (mg/L)	4/16/14	112	NS	NS	NS
TDS (mg/L)	4/16/14	610	NS	NS	NS
Sulfate (mg/L)	4/16/14	49.0	NS	NS	NS
Chloride (mg/L)	4/16/14	89.9	NS	NS	NS

TKN: Total Kjeldahl nitrogen
TDS: Total dissolved solids
ND: Not detected, analyte below the method detection limit
NS: Not sampled, insufficient amount of liquid for sampling

Storm Water Infiltration Control Ponds 1 and 2 and Evaporation Basin A

Monthly inspections were performed on liners of the storm water infiltration control (SWIC) ponds which included erosion, floating plants and debris, deep-rooted plants, damage from burrowing animals, liner integrity, and storm water escaping from containment.

Inspections for Ponds 1 and 2 and Evaporation Basin A indicated liners were in good condition, with no signs of burrowing animals, or storm water escaping. No maintenance/repairs were needed and no new construction or demolition was performed during this reporting period. Only

storm water from the WIPP facility was collected in the SWIC ponds. Water depth is presented in Table 5 to the nearest tenth of a foot.

As indicated in Table 4, no significant storm events occurred during this reporting period. However, surface water samples were collected from SWIC Ponds 1 and 2 and Evaporation Basin A to determine if there was radioactive contamination due to the February 14, 2014, radiological event. Samples were collected on February 19, 2014, and again on April 23, 2014, which were analyzed for ^{241}americium, ^{238}plutonium, and $^{239/240}$ plutonium. These transuranic actinides are expected to occur in the waste disposed in the WIPP underground. The transuranic actinides were not detected in any of the samples.

Salt Pile Evaporation Pond and Salt Storage Extension Basins I and II

Monthly inspections of the Salt Pile Evaporation Pond found a seam at the northeast corner was loosening. This will be repaired by a contractor whose specialty is liner repair. The berms were in good condition with no signs of erosion. No construction/demolition or maintenance were performed during this reporting period. Only storm water from the capped Salt Pile is discharged into this pond. Water depth is presented in Table 5 to the nearest tenth of a foot.

The Salt Storage Extension Basin I is used to impound storm water from the Salt Storage Extension Area. The liner is in good condition and the berms have no erosion. There were no maintenance/repairs needed and no new construction or demolition performed. Sump water removal was performed as needed during the reporting period. Water depth is presented in Table 5 to the nearest tenth of a foot.

The Salt Storage Extension Basin II is used to impound outflow from the Salt Storage Extension Basin I. The liner was found to have a small hole in the north side of the basin. This will be repaired by a contractor whose specialty is liner repair. The berms showed no signs of erosion as was noted in the monthly inspections. No maintenance/repairs were needed and no new construction or demolition was performed during this report period. Sump water removal was performed as needed during the reporting period. A minimal amount of drinking water was used for priming the lines and the water removed from the sump was discharged into the basin. Water depth is presented in Table 5 to the nearest tenth of a foot.

As indicated in Table 4, no significant storm events occurred during this reporting period. However, surface water samples were collected from the Salt Pile Evaporation Pond and the Salt Storage Extension Basins I and II to determine if there was radioactive contamination in the ponds due to the February 14, 2014, radiological event. Samples were collected on February 19, 2014, and analyzed for ^{241}americium, ^{238}plutonium, and $^{239/240}$ plutonium. These transuranic actinides are expected to occur in the waste disposed in the WIPP underground. The transuranic actinides were not detected in any of the samples.

Infiltration Controls Analytical Data

Table 4 shows "NS" for all analytical parameters. There were no significant storm events to trigger a requirement to sample during this reporting period.

Table 4 – Infiltration Controls Analytical Data

Analyte	Sample Date	Salt Pile Evaporation Pond	Salt Storage Extension Basin I	Salt Storage Extension Basin II	Evaporation Basin A	Pond 1	Pond 2
TDS (mg/L)	NS	NS	NS	NS	NS	NS	NS
Sulfate (mg/L)	NS	NS	NS	NS	NS	NS	NS
Chloride (mg/L)	NS	NS	NS	NS	NS	NS	NS

NS: Not sampled, insufficient storm water to trigger requirement to sample.
Bold: Concentration exceeds the human health standards listed in 20.6.2.3103 NMAC for domestic water supply (not applicable to data in this table).

All infiltration control structures maintained greater than one foot of freeboard.

Salt Pile

The capped salt pile is inspected monthly and the liner was noted to be in good condition. No erosion has taken place on the cover of this pile. New mesquite bushes were noted in the inspections and an action request was made to have a contractor spray the mesquite with herbicide to prevent damage to the liner. No construction/demolition or maintenance was performed during this reporting period.

Salt Storage Extension Area

The Salt Storage Extension Area is inspected monthly. These inspections noted minor holes in the liner that occurred since all the liners were repaired in 2013. These will be repaired when the contractor is determined. All mined salt is currently stockpiled in this area. No construction/demolition or maintenance was performed during this reporting period.

Site and Preliminary Design Validation Salt Pile

Monthly inspections of the Site and Preliminary Design Validation Salt Pile noted no issues with the liner. New mesquite bushes were noted in the inspections and an action request was made to have a contractor spray the mesquite with herbicide to prevent damage to the liner. No construction/demolition or maintenance was performed during this reporting period. No erosion has occurred during this reporting period.

Precipitation Patterns

Total rainfall in the area of WIPP for this reporting period was 4.85 inches compared to 1.63 inches for the same time period in 2013, a difference of 3.22 inches. Total rainfall in 2013 of 10.73 inches was considerably less than the average annual rainfall for the region of 12.92 inches reported by the National Oceanic and Atmospheric Administration.

Shallow Subsurface Water Monitoring Program

Water levels in the shallow subsurface water (SSW) wells (PZ-1 through PZ-15, C-2811, C-2505, C-2506, and C-2507), Figure 1, were obtained March 4 - 20, 2014, and June 2 - 5, 2014, for wells that were accessible, and are included in Table 6. These were taken on the quarterly milestones outlined in the Ground Water Monitoring Schedule, in the September 9, 2008, DP-831 Modification.

During the reporting period, the general water level trend for the SSW monitoring points was an average decrease in elevation of 0.24 feet. Overall water level elevation trends indicate that, in combination with lower rainfall since 2008, the evaporation pond liners are reducing infiltration enough to see an effect.

WQSP-6A was sampled on May 14, 2014. WQSP-6A sampling results are provided in Table 6. Sulfate, chloride, and total dissolved solids were detected in WQSP-6A samples at concentrations exceeding standards of 20.6.2.3103 NMAC, Standards for Ground Water of 10,000 mg/L TDS Concentration or Less for Human Health and Domestic Water Supply. Although the concentrations were higher than the standards, they are less than background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285). Nitrate was also detected but did not exceed the standards. Total Kjeldahl Nitrogen was below the detection limit of one mg/L. The SSW identified at the WIPP site has not impacted the Dewey Lake groundwater in WQSP-6A based on the consistency of analyzed parameters in WQSP-6A.

The SSW piezometers were sampled for field and general chemistry parameters in May 2014, as required by the September 9, 2008, modification to DP-831. Three piezometers were sampled on May 12, 2014, and eight on May 13, 2014. Results for the field sampling parameters and laboratory analyses are presented in Table 6. Due to pH meter malfunction, pH was not measured during this time period. An evaluation of the pH for these wells will be conducted during the next sampling event to determine if pH values remain consistent with the water at these locations. Conductivity indicates that formation water was present in the well. Chloride concentrations exceeded values listed in 20.6.2.3103 NMAC in all shallow piezometers sampled. The maximum chloride concentration was 104,000 mg/L in PZ-13, while the minimum concentration was 407 mg/L in PZ-10. Total dissolved solids concentrations exceeded 20.6.2.3103 NMAC values in all shallow piezometers sampled, with the maximum concentration of 265,000 mg/L in PZ-13 and a minimum concentration of 1,840 mg/L in PZ-10. Sulfate concentrations exceeded 20.6.2.3103 NMAC values in 8 of 11 piezometers sampled with a maximum concentration of 4,730 mg/L in PZ-9 and a minimum concentration of 297 mg/L in C-2811.

Condition 14b. – A single table in a paper and electronic format (EXCEL spreadsheet) of water level measurements and water quality data with only those constituents analyzed and water levels measured during a single event shown in columns. Tabulated field measurements to include temperature, pH and electrical conductivity corrected to 25 degrees Celsius. Monitoring sites shall be shown in rows. The second column shall contain the date of the sampling event. Values exceeding standards shall be bolded. Any constituent not analyzed for a particular site shall be shown as "NA", any site not sampled shall be shown as "NS" with an associated reason, and any site not measured for water levels shall be shown as "NM" with an associated reason.

This table is noted as Table 6 to follow. Electrical conductivity is listed as specific conductivity in this table. A Microsoft EXCEL spreadsheet containing these data is included on the enclosed CD.

Condition 14c. – A single table as described in Condition 13b [sic, DP-831] above that includes all available ground water data to date shall be submitted annually. For each monitoring well, the name of the well shall be entered in the far left column in a row by itself. Sampling events, beginning with the earliest event first, shall be entered in subsequent rows with the sampling date in the second column and the corresponding analytical data in columns further to the right. Each new sampling event shall be added as an additional row to the existing spreadsheet with the corresponding date of the sampling event noted in the second column next to the monitoring well name.

As has been the practice for reporting this information, this table will be included in the next Semiannual Monitoring Report which is due to the Ground Water Quality Bureau on January 31, 2015, reporting data through December 31, 2014.

Condition 14d. – Discharge volumes, water depths, and calculated storm water volumes for all permitted impoundments at the facility.

Table 5 contains the SWIC Pond depths, volumes of water in the pond; and discharge volumes into the ponds.

Table 5 – SWIC Pond Depth, Volume and Discharge Volume

Analyte	Date	Salt Pile Evaporation Pond	Salt Storage Extension Basin I	Salt Storage Extension Basin II	Evaporation Basin A	Pond 1	Pond 2
Water Depth (ft)	6/10/14	0.3	1.4	4.3	1.8	0.9	2.8
Impounded Water Volume (gallons)	6/10/14	343,220	1,593,892	1,540,196	2,596,308	125,215	962,322
Volume Discharged to Pond (gallons)	6/10/14	343,220	0	0	187,511	27,825	137,475

Condition 14e. – Copies of the signed laboratory analyses sheet shall be kept onsite and made available to NMED upon request.

Laboratory analyses with the signed analyses sheets are kept onsite and are available for inspection.

Condition 14f. – Hydrographs shall be submitted annually for all monitoring wells and piezometers covered under Condition 11a of this Discharge Permit Renewal and Modification. At a minimum, graphs shall include the previous five years of water level data, or for new wells, all data since the well was installed. Data for several wells may be included on one graph.

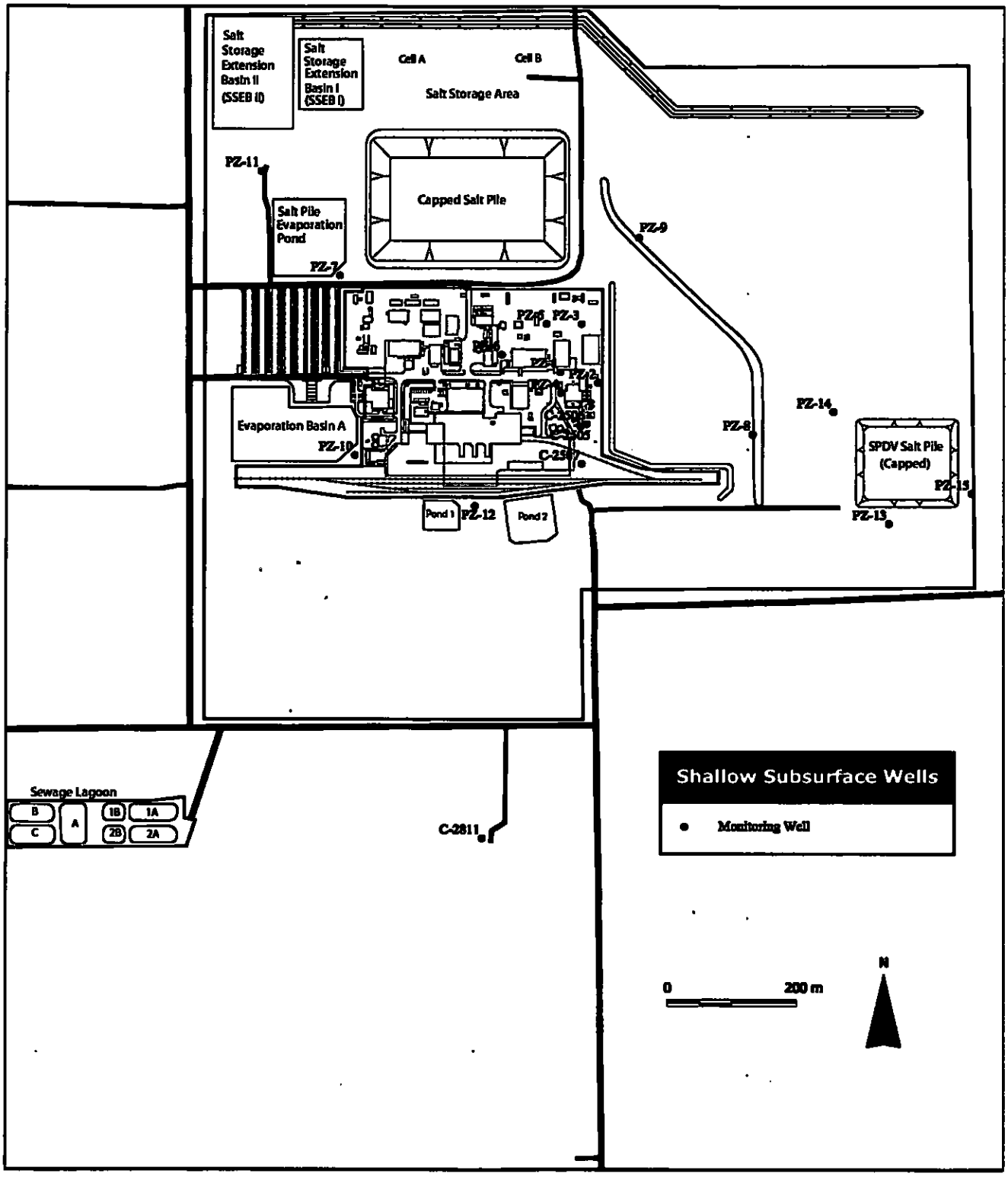
As has been the practice for reporting this information, these hydrographs will be included in the next Semiannual Monitoring Report due to the Ground Water Quality Bureau on January 31, 2015, reporting data through December 31, 2014.

Condition 14g. – A potentiometric map for the WIPP facility area shall be submitted annually. The map shall incorporate the most recent water level data for all monitoring wells and piezometers installed in the SSW.

As has been the practice for reporting this information, this map will be included in the next Semiannual Monitoring Report due to the Ground Water Quality Bureau on January 31, 2015, reporting data through December 31, 2014.

WASTE ISOLATION PILOT PLANT
SEMIANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE
PERMIT DP-831
FOR REPORTING PERIOD
JANUARY 1, 2014, THROUGH JUNE 30, 2014

Shallow Subsurface Water Monitor Well Locations



WASTE ISOLATION PILOT PLANT
SEMIANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JANUARY 1, 2014, THROUGH JUNE 30, 2014

Table 6 – Subsurface Water Well Water Levels and Chemical Analyses

	Field and General Chemistry Parameters								Other	Water Level Monitoring (Ft AMSL)	
Monitoring Site	Sample Date	pH (SU)	Temp. (C)	Specific Conductivity @25 °C (µS/cm)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)	3/4/14-3/20/14	6/2/14-6/5/14
PZ-1	5/13/2014	ND	22.3	99,800	NA	**2,010**	**44,000**	**76,000**	NA	NM	3368.46
PZ-2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NM	3367.58
PZ-3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NM	3369.09
PZ-4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NM	NM
PZ-5	5/13/2014	ND	22.4	27,700	NA	**1,180**	**9,080**	**18,100**	NA	NM	3369.40
PZ-6	5/13/2014	ND	23.5	108,900	NA	**2,040**	**46,600**	**80,800**	NA	NM	3366.33
PZ-7	5/13/2014	ND	24.5	135,300	NA	**2,650**	**35,400**	**114,000**	NA	3373.56	3373.29
PZ-8	NS	NS	NS	NS	NS	NS	NS	NS	NS	3349.36	3349.38
PZ-9	5/13/2014	ND	20.0	163,700	NA	**4,730**	**83,600**	**161,000**	NA	3362.24	3362.01
PZ-10	5/12/2014	ND	24.6	2,754	NA	471	**407**	**1,840**	NA	3364.13	3363.50
PZ-11	5/12/2014	ND	23.3	138,300	NA	**2,260**	**45,000**	**102,000**	NA	3371.04	3370.82
PZ-12	5/12/2014	ND	22.9	8,560	NA	374	**2,490**	**5,640**	NA	3351.95	3351.44
PZ-13	5/13/2014	Bailed*			NA	**2,900**	**104,000**	**265,000**	NA	3355.16	3355.01
PZ-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	3352.66	3352.62
PZ-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	3381.50	3381.41
C-2811	5/13/2014	ND	21.3	3,630	NA	297	**865**	**2,250**	NA	3342.85	3342.62
C-2505	NS	NS	NS	NS	NS	NS	NS	NS	NS	NM	3364.16
C-2506	NS	NS	NS	NS	NS	NS	NS	NS	NS	NM	3364.84
C-2507	5/13/2014	ND	19.5	10,880	NA	**643**	**2,770**	**7,590**	NA	NM	3361.25
WQSP-6A	5/14/2014	ND	22.4	3,863	5.40	**1,870**	**342**	**3,500**	<1.0	NM	3196.12
Explanation:	NA: Not Analyzed, parameter not required, per permit conditions.										
	NS: Not Sampled, not required per permit conditions										
	ND: Not Determined. pH for these wells was not determined due to pH meter malfunction.										
	* PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty using Low-Flow pumps										
	"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply										
	NM: Water levels were not measured for this period, as wells were not accessible										

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

JAN 30 2014

GROUND WATER
JAN 31 2014
BUREAU

Ms. Melisa Halick
New Mexico Environment Department
Ground Water Quality Bureau
Pollution Prevention Section
P.O. Box 5469
Santa Fe, NM 87502

Subject: Semi-Annual Discharge Monitoring Report for July 1 through December 31, 2013
Discharge Permit 831

Dear Ms. Halick:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Discharge Monitoring Report, including Table 6 in Excel® format on compact disk (CD), for the period of July 1 through December 31, 2013. This report is required by Discharge Permit 831.

If you have any questions about this report or require any additional information, please contact me at (575) 234-7488.

Sincerely,

George T. Basabilvazo

George T. Basabilvazo, Director
Office of Environment, Safety and Health

Enclosure

cc: w/o enclosure
J. Schoeppner, NMED *ED
J. Kieling, NMED ED
T. Kliphuis, NMED ED
CBFO M&RC
*ED denotes electronic distribution

CBFO:OESH:GB:MN:14-1402:UFC5487.00

04274

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

JAN 3 0 2014

Ms. Melisa Halick
New Mexico Environment Department
Ground Water Quality Bureau
Pollution Prevention Section
P.O. Box 5469
Santa Fe, NM 87502

Subject: Semi-Annual Discharge Monitoring Report for July 1 through December 31, 2013
Discharge Permit 831

Dear Ms. Halick:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Discharge Monitoring Report, including Table 6 in Excel® format on compact disk (CD), for the period of July 1 through December 31, 2013. This report is required by Discharge Permit 831.

If you have any questions about this report or require any additional information, please contact me at (575) 234-7488.

Sincerely,

George T. Basabilvazo

George T. Basabilvazo, Director
Office of Environment, Safety and Health

Enclosure

cc: w/o enclosure
J. Schoeppner, NMED *ED
J. Kieling, NMED ED
T. Kliphuis, NMED ED
CBFO M&RC
*ED denotes electronic distribution

CBFO:OESH:GB:MN:14-1402:UFC5487.00

WASTE ISOLATION PILOT PLANT (WIPP)
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831 FOR REPORTING PERIOD JULY 1, 2013, THROUGH DECEMBER 31, 2013

SPECIFIC REPORTING TO THE REQUIREMENTS OF DP-831 SECTION III, CONDITION 14

Condition 14a. – A summary of all activities related to permitted discharges during the preceding 6 month period. Activities may include general operations, construction or demolition of structures, erosion features, maintenance and repairs to liners, pipelines, covers, berms and other facility components covered by this Discharge Permit Renewal and Modification, water management, water quality and ground water level trends, and precipitation patterns.

Facultative Lagoon System

Table 1 shows the volume of sewage water discharged to the Facultative Lagoon System for this reporting period.

TABLE 1 – Discharge to Facultative Lagoon System

Month (2013)	Volume (gallons)
July	242,438
August	307,875
September	253,692
October	231,314
November	285,582
December	299,097

Notes: Volume based on total domestic water use.
No miscellaneous non-hazardous water was discharged to Facultative Lagoon System lagoons B or C.

The freeboard was maintained at greater than 1 foot for the Facultative Lagoon System. Inspections indicated that the liners and the berms are in good condition with no erosion. No new construction or repairs have been performed. No water other than non-hazardous sewage water with some non-hazardous condensate from compressors was discharged into the Facultative Lagoon System.

H-19 Evaporation Pond

Table 2 shows the volume of miscellaneous non-hazardous water discharged to the H-19 Evaporation Pond for this reporting period. This water was generated from groundwater well pumping, condensate from the Exhaust Shaft ductwork, and removal of Exhaust Shaft condensate water.

TABLE 2 – Discharge to H-19 Evaporation Pond

Month (2013)	Volume (gallons)
July	8,395
August	2,600
September	0
October	30,200
November	0
December	0

No new construction or demolition of structures related to discharge control occurred during the reporting period. The freeboard was maintained at greater than 1 foot. Monthly inspections found the liner in good condition, and the berms have no erosion and are in good condition.

Facultative Lagoon System and H-19 Evaporation Pond Analytical Data

Table 3 shows the analytical results for the Facultative Lagoon System and the H-19 Evaporation Pond.

TABLE 3 – Facultative Lagoon System and H-19 Evaporation Pond Analytical Data

		Facultative Lagoon System			
Analyte	Sample Date	Influent Lagoon 2A	Lagoon B	Lagoon C	H-19 Evaporation Pond
Nitrate (mg/L)	10/22/13	ND	NA	NA	NA
TKN (mg/L)	10/22/13	72.2	NA	NA	NA
TDS (mg/L)	10/22/13	510	**352,000**	570	**404,000**
Sulfate (mg/L)	10/22/13	46.6	**19,000**	72.4	**1,660**
Chloride (mg/L)	10/22/13	66.9	**260,000**	172	**217,000**

TKN: Total Kjeldahl nitrogen
TDS: total dissolved solids
ND: Not detected, analyte below the method detection limit
NA: Not analyzed, analysis of this parameter is not required by the Discharge Permit
NS: Not sampled, insufficient amount of liquid for sampling
Bold: Concentration exceeds the human health standards listed in 20.6.2.3103 NMAC for domestic water supply. No standards listed for TKN.

Storm Water Infiltration Control Ponds 1, 2, and A

Monthly inspections were performed on liners of the storm water infiltration control (SWIC) ponds which included erosion, floating plants and debris, deep-rooted plants, damage from burrowing animals, liner integrity, and storm water escaping from containment.

Pond 1: Inspections indicated the liner is in good condition with no signs of burrowing animals or storm water escaping the pond. There were no maintenance/repairs needed and no new construction or demolition was performed. Only storm water runoff from the WIPP facility was collected in Pond 1. Water depth is presented in Table 5 to the nearest tenth of a foot.

Pond 2: Inspections indicated the liner had some minor holes above the waterline, no signs of burrowing animals, or storm water escaping the pond. An Action Request was submitted and a contractor has made repairs to these holes and to holes in the liner in Pond A as discussed below. This was the only maintenance to pond liners performed during this reporting period. Only storm water runoff from the WIPP facility was collected in Pond 2. Water depth is presented in Table 5 to the nearest tenth of a foot.

Pond A: The inspection on June 13, 2013 noted that the liner in Pond A had separated from the culvert outlets and that water had infiltrated beneath the liner. On August 19, Ag Services Construction Inc of Roswell, New Mexico began repairs to the liner in Pond A as well as other liners on the WIPP facility. Repairs were completed by the end of this reporting period. The only water discharged into the pond was from the Pump House, WIPP facility drinking water source, and storm water from the WIPP facility. Water depth is presented in Table 5 to the nearest tenth of a foot. This water contained no hazardous constituents approaching regulatory limits.

Salt Pile Evaporation Pond and Salt Storage Extension Basins I and II

Salt Pile Evaporation Pond: Monthly inspections of the Salt Pile Evaporation Pond found minor holes in the liner. These holes were repaired by Ag Services Construction Inc as mentioned above. The berms were in good condition with no erosion. No other construction/demolition or maintenance was performed during this reporting period. Only storm water runoff from the capped Salt Pile is discharged into this pond. Water depth is presented in Table 5 to the nearest tenth of a foot.

Salt Storage Extension Basin I: The Salt Storage Extension Basin I is used to impound storm water runoff from the Salt Storage Extension Area. The liner is in good condition and the berms have no erosion. No construction/demolition was performed on this basin during this reporting period. Sump water removal was performed as needed during the reporting period. Water depth is presented in Table 5 to the nearest tenth of a foot.

Salt Storage Extension Basin II: The Salt Storage Extension Basin II is used to impound outflow from the Salt Storage Extension Basin I. The liner is in good condition and the berms have no erosion as was noted in the monthly inspections. No construction/demolition was performed on this basin during this reporting period. Sump water removal was performed as needed during the reporting period. A minimal amount

drinking water was used to prime the sump pump. The water removed from the sump was discharged back into the basin. Water depth is presented in Table 5 to the nearest tenth of a foot.

Table 4 shows analytical results for analytical parameters. There was a storm event in early July that triggered the requirement to sample during this reporting period.

TABLE 4 – Infiltration Controls Analytical Data

Analyte	Sample Date	Salt Pile Evaporation Pond	Salt Storage Extension Basin I	Salt Storage Extension Basin II	Pond 1	Pond 2	Pond A
TDS (mg/L)	07/23/13	**42,100**	**340,000**	**266,000**	761	**2,520**	**1,510**
Sulfate (mg/L)	07/23/13	254	**21,300**	**8,930**	137	49.5	99.1
Chloride (mg/L)	07/23/13	**24,600**	**184,000**	**153,000**	**283**	**1,290**	**647**

Bold: Concentration exceeds the human health standards listed in 20.6.2.3103 NMAC for domestic water supply.

Infiltration control structures maintained greater than 1 foot of freeboard.

Salt Pile

The Capped Salt Pile had minor holes on the top and in the containment ditches around the pile as noted in the monthly inspections. Ag Services Construction Inc repaired these holes in August at the time they repaired the other liners. No erosion has taken place on the cover of this pile. Mesquite bushes were sprayed with herbicide to prevent damage to the liner.

Salt Storage Extension Area

The Salt Storage Extension Area is inspected monthly. These inspections noted minor holes in the liner which were repaired in August at the time the other liners were repaired. Mesquite bushes were sprayed with herbicide to prevent damage to the liner. Mined salt is currently stockpiled in Cells A and B.

SPDV Salt Pile

Monthly inspections of the Site and Preliminary Design Validation (SPDV) Salt Pile noted some mesquite bushes growing on top of the liner. Spraying of these bushes will begin in the spring as these bushes begin to grow again. No construction/demolition or maintenance has been performed during this reporting period. No erosion has occurred during this reporting period.

Precipitation Patterns

Total rainfall in the area of WIPP facility for this reporting period was 8.74 inches compared to 4.77 inches for the same time period in 2012, a difference of 3.97 inches more in 2013. There were two significant storm events in the second half of the year. Both events were below 2" of rainfall in 24 hours. Therefore, no additional inspections were required by the discharge permit. Sampling and calculation of storm water volume is shown in Tables 4 and 5 for these surface impoundments.

Shallow Subsurface Water Monitoring Program

Water levels in the shallow subsurface water (SSW) wells were obtained September 9-17, 2013, and December 9-12, 2013, and are included in Table 6. These were taken on the quarterly milestones outlined in the Ground Water Monitoring Schedule, in the September 9, 2008, DP-831 Modification.

During the reporting period, the general water level trend for the SSW monitoring points was an average decrease in elevation of 1.42 feet. Overall water level elevation trends indicate that, in combination with lower than average rainfall since 2010, the pond and basin liners are reducing infiltration.

WQSP-6A was sampled on October 23, 2013. WQSP-6A sampling results are provided in Table 6. Sulfate, chloride, and total dissolved solids were detected in WQSP-6A samples at concentrations exceeding human health standards of 20.6.2.3103 NMAC for domestic water supply. Although the concentrations were higher than the standards, they are less than background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285). Nitrate was also detected but did not exceed the standards. Total Kjeldahl nitrogen was below the method detection limit of 1.0 mg/L. These results lead to the conclusion that the SSW identified at the WIPP site has not impacted the Dewey Lake Redbeds Formation groundwater in WQSP-6A.

Specific SSW piezometers, as required by condition 11b of the September 9, 2008, modification to DP-831, were sampled for field and general chemistry parameters in October 2013. Results for the field sampling parameters and laboratory analyses are presented in Table 6. Chloride concentrations exceeded values listed in 20.6.2.3103 NMAC in all piezometers sampled. The maximum chloride concentration was 139,000 mg/L in PZ-13, while the minimum concentration was 348 mg/L in PZ-10. Total dissolved solids concentrations exceeded 20.6.2.3103 NMAC values in all piezometers sampled, with the maximum concentration of 262,000 mg/L in PZ-13 and a minimum concentration of 1,710 mg/L in PZ-10. Sulfate concentrations exceeded 20.6.2.3103 NMAC values in 8 of 11 piezometers sampled with a maximum concentration of 4,620 mg/L in PZ-9 and a minimum concentration of 341 mg/L in C-2811.

Condition 14b. – A single table in a paper and electronic format (EXCEL spreadsheet) of water level measurements and water quality data with only those constituents analyzed and water levels measured during a single event shown in columns. Tabulated field measurements to include temperature, pH and electrical conductivity corrected to 25 degrees Celsius. Monitoring sites shall be shown in rows. The second column shall contain the date of the sampling event. Values exceeding standards shall be bolded. Any constituent not analyzed for a particular site shall be shown as "NA", any site not sampled shall be shown as "NS" with an associated reason, and any site not measured for water levels shall be shown as "NM" with an associated reason.

This table can be seen below as Table 6. Electrical conductivity is listed as specific conductance in this table. A Microsoft Excel® spreadsheet containing these data is included on the enclosed compact disc.

Condition 14c. – A single table as described in Condition 13b [sic, DP-831] above that includes all available ground water data to date shall be submitted annually. For each monitoring well, the name of the well shall be entered in the far left column in a row by itself. Sampling events, beginning with the earliest event first, shall be entered in subsequent rows with the sampling date in the second column and the corresponding analytical data in columns further to the right. Each new sampling event shall be added as an additional row to the existing spreadsheet with the corresponding date of the sampling event noted in the second column next to the monitoring well name.

This information is found in Table 7 and includes available groundwater data through December 2013.

Condition 14d. – Discharge volumes, water depths, and calculated storm water volumes for all permitted impoundments at the facility.

Table 5 contains the SWIC Pond depths, volumes of water in the pond, and discharge volumes into the ponds.

TABLE 5 – SWIC Pond Depth, Volume and Discharge Volume

Analyte	Date	Salt Pile Evaporation Pond	Salt Storage Extension Basin I	Salt Storage Extension Basin II	Pond A	Pond 1	Pond 2
Water Depth (ft)	12/05/13	0.2	1.5	4.8	1.9	2.4	4.1
Impounded Water Volume (gallons)	12/05/13	502,315	393,562	2,721,115	1,587,487	261,897	1,130,860
Volume Discharged (gallons)	12/05/13	502,315	0	835,839	1,183,064	261,897	965,985

Condition 14e. – Copies of the signed laboratory analyses sheet shall be kept onsite and made available to NMED upon request.

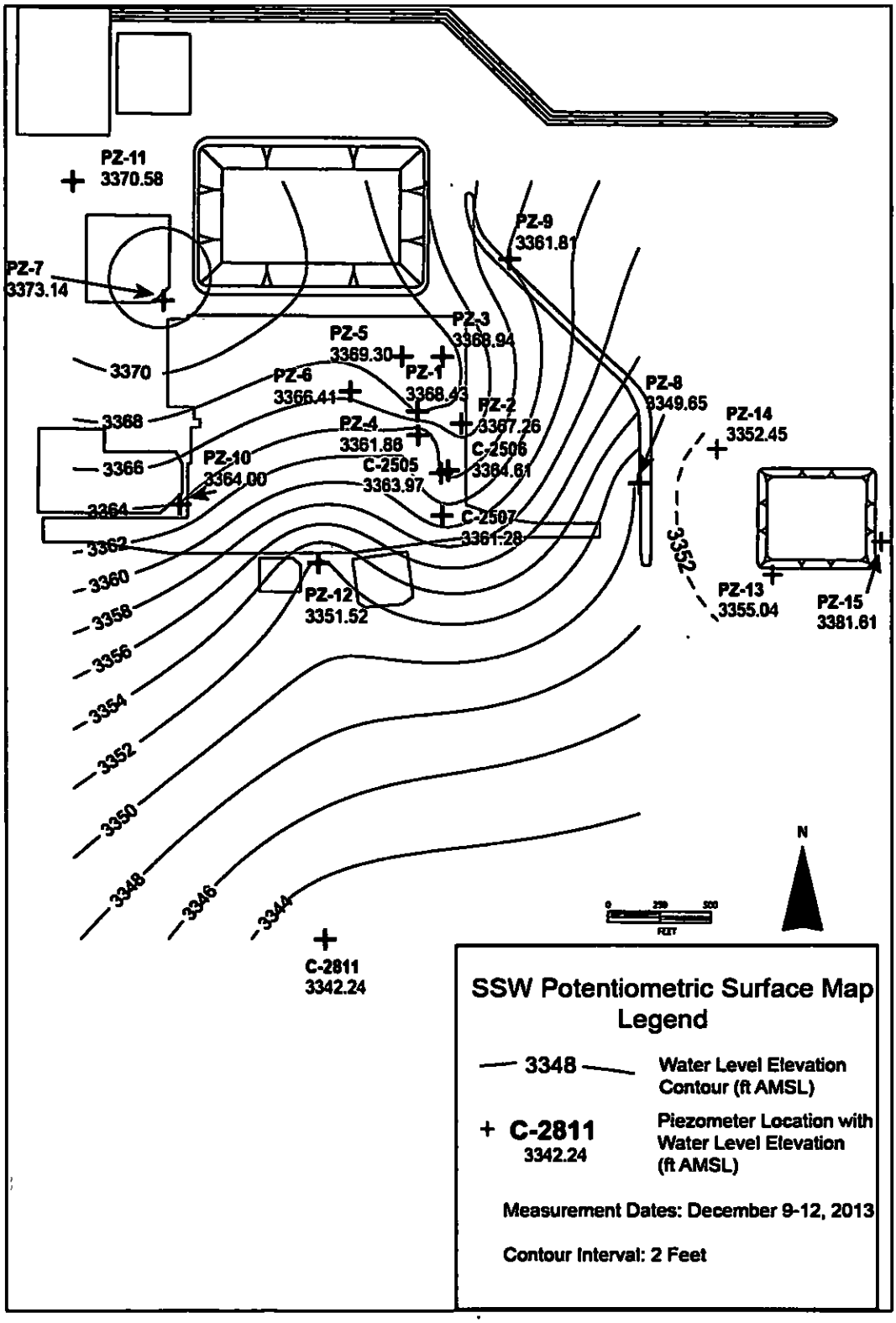
Laboratory analyses with the signed analyses sheets are kept onsite and are available for inspection.

Condition 14f. – Hydrographs shall be submitted annually for all monitoring wells and piezometers covered under Condition 11a of this Discharge Permit Renewal and Modification. At a minimum, graphs shall include the previous five years of water level data, or for new wells, all data since the well was installed. Data for several wells may be included on one graph.

Hydrographs for each monitoring well are found after Table 7, and include monitoring well water level data for the previous five years or since the well was installed and through December 2013.

Condition 14g. – A potentiometric map for the WIPP facility area shall be submitted annually. The map shall incorporate the most recent water level data for all monitoring wells and piezometers installed in the shallow subsurface water (SSW).

A potentiometric map is found below and includes the most recent water level data.


PZ-11
3370.58
PZ-7
3373.14
PZ-9
3361.81
PZ-3
3368.94
PZ-5
3369.30
PZ-1
3368.43
PZ-6
3366.41
PZ-8
3349.65
PZ-14
3352.45
PZ-2
3367.26
PZ-4
3361.88
C-2506
3364.61
PZ-10
3364.00
C-2505
3363.97
C-2507
3361.28
PZ-12
3351.52
PZ-13
3355.04
PZ-15
3381.61
C-2811
3342.24
3370
3368
3366
3364
3362
3360
3358
3356
3354
3352
3350
3348
3346
3344
N
0
250
500
FEET
SSW Potentiometric Surface Map Legend
3348
Water Level Elevation Contour (ft AMSL)
C-2811
3342.24
Piezometer Location with Water Level Elevation (ft AMSL)
Measurement Dates: December 9-12, 2013
Contour Interval: 2 Feet

WASTE ISOLATION PILOT PLANT (WIPP)
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2013, THROUGH DECEMBER 31, 2013

TABLE 6

	Field and General Chemistry Parameters								Other	Water Level Monitoring (Ft AMSL)	
Monitoring Site	Sample Date	pH (SU)	Temp. (°C)	Specific Conductivity @25 °C (µS/cm)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)	9/9/13-9/17/13	12/9/13-12/12/13
PZ-1	10/22/2013	5.99	23.5	112,200	NA	**2,050**	**42,500**	**100,000**	NA	3,368.99	3,368.43
PZ-2	NS	NS	NS	NS	NS	NS	NS	NS	NS	3,367.70	3,367.26
PZ-3	NS	NS	NS	NS	NS	NS	NS	NS	NS	3,369.33	3,368.94
PZ-4	NS	NS	NS	NS	NS	NS	NS	NS	NS	3,362.38	3,361.86
PZ-5	10/23/2013	6.79	21.7	35,260	NA	**1,180**	**11,400**	**25,200**	NA	3,369.68	3,369.30
PZ-6	10/22/2013	6.15	22.9	115,900	NA	**2,120**	**46,000**	**90,500**	NA	3,366.55	3,366.41
PZ-7	10/22/2013	5.85	22.4	142,900	NA	**3,100**	**61,100**	**126,000**	NA	3,373.61	3,373.14
PZ-8	NS	NS	NS	NS	NS	NS	NS	NS	NS	3,350.43	3,349.65
PZ-9	10/22/2013	5.79	20.9	177,900	NA	**4,620**	**88,200**	**179,000**	NA	3,362.31	3,362.81
PZ-10	10/21/2013	6.98	22.0	2,474	NA	434	**348**	**1,710**	NA	3,364.15	3,364.00
PZ-11	10/21/2013	6.15	22.7	138,100	NA	**2,360**	**59,000**	**123,000**	NA	3,371.32	3,370.58
PZ-12	10/21/2013	6.87	22.3	10,850	NA	415	**3,320**	**8,110**	NA	3,351.92	3,351.52
PZ-13	10/22/2013	Bailed			NA	**3,220**	**139,000**	**262,000**	NA	3,355.21	3,355.04
PZ-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	3,352.74	3,352.45
PZ-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	3,381.76	3,381.61
C-2811	10/21/2013	6.87	20.2	3,606	NA	341	**838**	**2,490**	NA	3,342.70	3,342.21
C-2505	NS	NS	NS	NS	NS	NS	NS	NS	NS	3,364.32	3,363.97
C-2506	NS	NS	NS	NS	NS	NS	NS	NS	NS	3,364.94	3,364.61
C-2507	10/23/2013	6.71	20.2	11,940	NA	**692**	**3,270**	**8,350**	NA	3,361.53	3,361.28
WQSP-6A	10/23/2013	7.00	23.2	3,050	5.85	**1,840**	**284**	**3,540**	<1.0	3,196.12	3,196.02
Explanation:	NA: Not Analyzed, analysis of this parameter for this monitoring site is not required by the Discharge Permit										
	NS: Not Sampled, sampling is not required by the Discharge Permit										
	PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty using Low-Flow pumps										
	"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply										
	AMSL: Above Mean Sea Level										

TABLE 7 – Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-1	6/21/04	<10	1,530	36,300	79,600	0.0440	<0.00500
PZ-1	11/09/04	1.30	6,530	45,700	85,800	0.106	<0.0100
PZ-1	5/17/05	1.47	2,640	62,300	100,500	0.0600	0.0770
PZ-1	10/11/05	2.59	1,950	54,900	74,800	0.0430	<0.0100
PZ-1	5/16/06	<2.5	2,490	62,400	113,000	0.0510	<0.0100
PZ-1	10/10/06	<1.00	1,390	55,300	70,200	<0.0500	<0.0250
PZ-1	5/09/07	2.70	2,220	63,000	107,000	<0.0500	<0.0250
PZ-1	10/09/07	<1.00	2,820	83,200	99,500	<0.1000	<0.0250
PZ-1	6/5/08	<2.0	2,100	57,000	98,000	0.667	0.00218
PZ-1	10/14/08	NA	2,200	59,000	94,000	NA	NA
PZ-1	05/19/09	NA	2,200	54,000	96,000	NA	NA
PZ-1	10/19/09	NA	2,300	66,000	101,000	NA	NA
PZ-1	5/25/10	NA	2,200	53,000	92,800	NA	NA
PZ-1	10/26/10	NA	1,800	62,000	96,100	NA	NA
PZ-1	05/24/11	NA	2,000	51,000	85,200	NA	NA
PZ-1	10/05/11	NA	2,000	50,000	84,600	NA	NA
PZ-1	05/16/12	NA	2,100	54,000	82,100	NA	NA
PZ-1	10/02/12	NA	2,110	48,100	84,200	NA	NA
PZ-1	5/14/13	NA	1,840	35,800	74,400	NA	NA
PZ-1	10/22/13	NA	2,050	42,500	100,000	NA	NA
PZ-5	6/21/04	20.7	1,340	28,800	55,200	0.0670	<0.00500
PZ-5	11/09/04	<2.50	1,820	47800	86,000	0.0940	<0.0100
PZ-5	5/17/05	2.96	3,260	46,000	65,400	0.0930	0.0670
PZ-5	10/11/05	5.14	769	14,000	32,800	0.0620	<0.0100
PZ-5	5/16/06	2.56	1,520	18,300	32,600	0.0710	<0.0100
PZ-5	10/10/06	5.04	1,330	28,800	47,400	<0.0500	<0.0250
PZ-5	5/09/07	4.60	1,640	17,300	32,400	<0.0500	<0.0250
PZ-5	10/09/07	<1.00	1,880	19,400	28,700	0.0710	<0.005
PZ-5	6/5/08	5.7	1,500	19,000	33,000	0.0801	0.00317
PZ-5	10/14/08	NA	1,400	13,000	25,000	NA	NA
PZ-5	05/19/09	NA	1,500	13,000	24,000	NA	NA
PZ-5	10/19/09	NA	1,600	14,000	20,200	NA	NA
PZ-5	5/25/10	NA	1,400	13,000	21,900	NA	NA
PZ-5	10/26/10	NA	1,400	13,000	20,800	NA	NA
PZ-5	5/24/11	NA	1,200	10,000	18,400	NA	NA
PZ-5	10/4/11	NA	1,300	13,000	19,800	NA	NA

WASTE ISOLATION PILOT PLANT (WIPP)
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR
DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2013, THROUGH DECEMBER 31, 2013

TABLE 7 – Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-5	05/16/12	NA	1,500	12,000	21,400	NA	NA
PZ-5	10/2/12	NA	1,340	9,870	18,600	NA	NA
PZ-5	5/15/13	NA	1,200	9,540	19,200	NA	NA
PZ-5	10/23/13	NA	1,180	11,400	25,200	NA	NA
PZ-6	6/21/04	21.2	2,860	70,500	134,000	0.0170	<0.00500
PZ-6	11/09/04	4.89	13,000	75,400	113,000	0.0600	<0.0100
PZ-6	5/17/05	4.25	3,610	109,000	160,500	0.0500	0.0540
PZ-6	10/11/05	<20.0	2,850	83,800	106,000	0.0210	<0.0100
PZ-6	5/16/06	7.69	3,050	68,800	115,000	<0.0100	<0.0100
PZ-6	10/10/06	252	2,790	79,800	134,000	<0.0500	<0.0250
PZ-6	5/09/07	6.65	2,840	73,500	122,500	<0.0500	<0.0250
PZ-6	10/09/07	<1.00	3,080	81,000	105,000	<0.1000	<0.0250
PZ-6	6/5/08	6.1	2,100	47,000	81,000	0.0412	0.00259
PZ-6	10/14/08	NA	2,500	58,000	87,000	NA	NA
PZ-6	05/19/09	NA	2,700	61,000	89,000	NA	NA
PZ-6	10/19/09	NA	2,300	50,000	83,600	NA	NA
PZ-6	5/25/10	NA	2,300	47,000	82,100	NA	NA
PZ-6	10/26/10	NA	1,900	47,000	72,300	NA	NA
PZ-6	5/24/11	NA	1,700	37,000	67,700	NA	NA
PZ-6	10/5/11	NA	1,900	41,000	69,800	NA	NA
PZ-6	05/16/12	NA	1,800	41,000	67,200	NA	NA
PZ-6	10/2/12	NA	2,130	52,200	78,700	NA	NA
PZ-6	5/15/13	NA	2,060	47,900	86,900	NA	NA
PZ-6	10/22/13	NA	2,120	46,000	90,500	NA	NA
PZ-7	6/21/04	20.7	2,620	53,000	109,000	0.041	<0.00500
PZ-7	11/08/04	2.89	7,460	43,600	80,400	0.0880	<0.0100
PZ-7	5/16/05	4.02	2,530	42,100	65,900	0.0820	0.0940
PZ-7	10/10/05	6.37	2,770	61,000	88,000	0.0470	<0.0100
PZ-7	5/15/06	<5.3	3,190	54,100	139,000	0.0680	<0.0100
PZ-7	10/9/06	<1.00	2,890	66,800	81,500	<0.00100	<0.0500
PZ-7	5/07/07	5.15	3,190	64,800	119,000	<0.0200	0.0200
PZ-7	10/08/07	<1.00	2,660	45,600	65,000	0.0640	<0.00500
PZ-7	6/4/08	5.0	2,300	49,000	86,000	0.0635	0.00257
PZ-7	10/13/08	NA	1,700	27,000	42,000	NA	NA
PZ-7	05/18/09	NA	3,700	76,000	120,000	NA	NA
PZ-7	10/20/09	NA	4,200	67,000	106,000	NA	NA

TABLE 7 – Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-7	5/24/10	NA	3,000	68,000	103,000	NA	NA
PZ-7	10/25/10	NA	3,000	75,000	103,000	NA	NA
PZ-7	05/23/11	NA	2,700	60,000	101,000	NA	NA
PZ-7	10/04/11	NA	3,100	81,000	116,000	NA	NA
PZ-7	05/15/12	NA	3,000	64,000	96,600	NA	NA
PZ-7	10/3/12	NA	4,380	67,500	106,000	NA	NA
PZ-7	5/13/13	NA	3,050	58,500	112,000	NA	NA
PZ-7	10/22/13	NA	3,100	61,100	126,000	NA	NA
PZ-8	10/15/07	0.677	500	7,440	15,000	0.039	<0.00500
PZ-8	6/6/08	1.8	630	11,000	16,000	0.0655	<0.001
PZ-9	6/21/04	<20.0	3,740	80,200	140,000	<0.0100	<0.00500
PZ-9	11/09/04	1.40	14,500	92,400	144,000	0.0660	<0.0100
PZ-9	5/17/05	2.82	5,090	182,000	164,000	0.0500	0.0710
PZ-9	10/11/05	<20.0	3,930	85,500	107,000	0.0220	<0.0100
PZ-9	5/16/06	3.01	4,350	84,700	153,000	0.0230	<0.0100
PZ-9	10/10/06	<20.0	3,370	102,000	135,000	<0.0500	<0.0250
PZ-9	5/09/07	3.28	4,320	89,600	164,000	<0.0500	<0.0250
PZ-9	10/09/07	<200	4,720	116,000	144,000	<0.0200	<0.0050
PZ-9	6/5/08	2.2	4,400	87,000	150,000	0.0351	0.00492
PZ-9	10/14/08	NA	4,100	96,000	140,000	NA	NA
PZ-9	05/19/09	NA	3,600	94,000	130,000	NA	NA
PZ-9	10/19/09	NA	4,000	77,000	139,000	NA	NA
PZ-9	5/25/10	NA	4,400	94,000	144,000	NA	NA
PZ-9	10/26/10	NA	4,300	95,000	149,000	NA	NA
PZ-9	05/24/11	NA	4300	83,000	147,000	NA	NA
PZ-9	10/04/11	NA	4600	99,000	153,000	NA	NA
PZ-9	05/16/12	NA	4,900	98,000	152,000	NA	NA
PZ-9	10/3/12	NA	4,440	99,700	141,000	NA	NA
PZ-9	5/14/13	NA	4,580	82,000	152,000	NA	NA
PZ-9	10/22/13	NA	4,620	88,200	179,000	NA	NA
PZ-10	6/14/04	3.81	469	368	1,714	0.0200	<0.00500
PZ-10	11/08/04	3.69	431	353	1,576	<0.0500	<0.0100
PZ-10	5/16/05	3.63	572	416	1,756	0.0440	0.0370
PZ-10	10/10/05	3.34	515	318	1,720	0.0150	<0.0100
PZ-10	5/15/06	3.42	539	460	1,830	0.0140	<0.0100

WASTE ISOLATION PILOT PLANT (WIPP)
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR
DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2013, THROUGH DECEMBER 31, 2013

TABLE 7 – Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-10	10/9/06	5.5	549	350	1,600	<0.00100	<0.0500
PZ-10	5/07/07	14.8	407	274	1,504	<0.0200	0.0200
PZ-10	10/08/07	<1.00	211	186	968	0.0260	<0.0050
PZ-10	6/4/08	4.5	390	300	1,500	0.0144	0.00119
PZ-10	10/13/08	NA	380	290	1,400	NA	NA
PZ-10	05/18/09	NA	530	460	1,800	NA	NA
PZ-10	10/20/09	NA	500	440	1,730	NA	NA
PZ-10	5/24/10	NA	500	370	1,680	NA	NA
PZ-10	10/25/10	NA	410	360	1,530	NA	NA
PZ-10	05/23/11	NA	400	310	1,620	NA	NA
PZ-10	10/04/11	NA	440	370	1,640	NA	NA
PZ-10	05/15/12	NA	450	410	1,650	NA	NA
PZ-10	10/1/12	NA	480	414	1,700	NA	NA
PZ-10	5/13/13	NA	426	394	1,580	NA	NA
PZ-10	10/21/13	NA	434	348	1,710	NA	NA
PZ-11	6/21/04	20.8	2,220	58,100	123,000	<0.0100	<0.00500
PZ-11	11/08/04	3.15	13,000	84,100	119,000	<0.0500	<0.0100
PZ-11	5/16/05	4.63	2,890	66,000	100,000	<0.0100	<0.0100
PZ-11	10/10/05	<20.0	2,950	84,300	129,000	0.0130	<0.0100
PZ-11	5/15/06	<5.3	3,090	71,000	133,000	<0.0100	<0.0100
PZ-11	10/9/06	<1.00	2,550	85,800	123,000	<0.00100	<0.0500
PZ-11	5/07/07	3.84	2,620	68,700	135,000	<0.0200	<0.0100
PZ-11	10/08/07	<1.00	2,970	94,400	108,000	<0.0200	<0.0050
PZ-11	6/4/08	3.9	2,100	65,000	110,000	0.0149	0.00216
PZ-11	10/13/08	NA	3,000	79,000	110,000	NA	NA
PZ-11	05/18/09	NA	2,500	72,000	110,000	NA	NA
PZ-11	10/20/09	NA	3,200	64,000	112,000	NA	NA
PZ-11	5/24/10	NA	2,500	69,000	107,000	NA	NA
PZ-11	10/25/10	NA	2,300	77,000	100,000	NA	NA
PZ-11	05/23/11	NA	2,000	45,000	80,500	NA	NA
PZ-11	10/03/11	NA	2,300	65,000	92,200	NA	NA
PZ-11	05/15/12	NA	2,400	59,000	93,200	NA	NA
PZ-11	10/3/12	NA	2,220	53,000	95,600	NA	NA
PZ-11	5/13/13	NA	2,270	64,800	105,000	NA	NA
PZ-11	10/21/13	NA	2,360	59,000	123,000	NA	NA

TABLE 7 – Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-12	6/14/04	11.2	773	5,320	9,700	0.0770	<0.00500
PZ-12	11/08/04	19.8	879	7,170	9,540	0.0660	<0.0100
PZ-12	5/16/05	8.85	679	3,730	5,890	0.0510	0.0540
PZ-12	10/10/05	426	805	3,790	7,740	0.0200	<0.0100
PZ-12	5/15/06	20.6	866	4,510	8,790	0.0190	<0.0100
PZ-12	10/9/06	13.2	795	5,340	9,150	<0.00100	<0.0500
PZ-12	5/07/07	10.8	831	3,780	7,010	<0.0200	0.0240
PZ-12	10/08/07	<1.00	958	4,310	6,200	0.0260	<0.0050
PZ-12	6/4/08	11	760	3,300	6,800	0.0291	0.00132
PZ-12	10/13/08	NA	850	3,300	7,000	NA	NA
PZ-12	05/18/09	NA	870	4,600	8,300	NA	NA
PZ-12	10/20/09	NA	980	6,500	10,100	NA	NA
PZ-12	5/24/10	NA	990	5,500	10,100	NA	NA
PZ-12	10/25/10	NA	990	5,800	10,300	NA	NA
PZ-12	05/23/11	NA	900	5,600	10,900	NA	NA
PZ-12	10/03/11	NA	900	6,800	13,100	NA	NA
PZ-12	05/15/12	NA	620	6,400	9,400	NA	NA
PZ-12	10/1/12	NA	503	5,290	9,780	NA	NA
PZ-12	5/13/13	NA	449	3,990	7,610	NA	NA
PZ-12	10/21/13	NA	415	3,320	8,110	NA	NA
PZ-13	10/10/07	12.4	2,670	150,000	245,500	<0.100	<0.00500
PZ-13	6/6/08	<200	2,600	170,000	240,000	0.0118	0.00316
PZ-13	10/13/08	NA	2,900	160,000	230,000	NA	NA
PZ-13	05/18/09	NA	3,300	180,000	240,000	NA	NA
PZ-13	10/20/09	NA	3,300	170,000	255,000	NA	NA
PZ-13	5/24/10	NA	3,000	170,000	240,000	NA	NA
PZ-13	10/26/10	NA	2,900	190,000	246,000	NA	NA
PZ-13	5/24/11	NA	2,700	150,000	248,000	NA	NA
PZ-13	10/4/11	NA	3,000	170,000	259,000	NA	NA
PZ-13	05/15/12	NA	3,300	160,000	252,000	NA	NA
PZ-13	10/2/12	NA	3,260	170,000	263,000	NA	NA
PZ-13	5/14/13	NA	3,130	144,000	260,000	NA	NA
PZ-13	10/22/13	NA	3,220	139,000	262,000	NA	NA
PZ-14	10/15/07	1.41	2,140	71,500	106,000	<0.0100	<0.00500
PZ-14	6/6/08	<100	3,300	130,000	180,000	0.0201	0.00168

WASTE ISOLATION PILOT PLANT (WIPP)
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR
DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2013, THROUGH DECEMBER 31, 2013

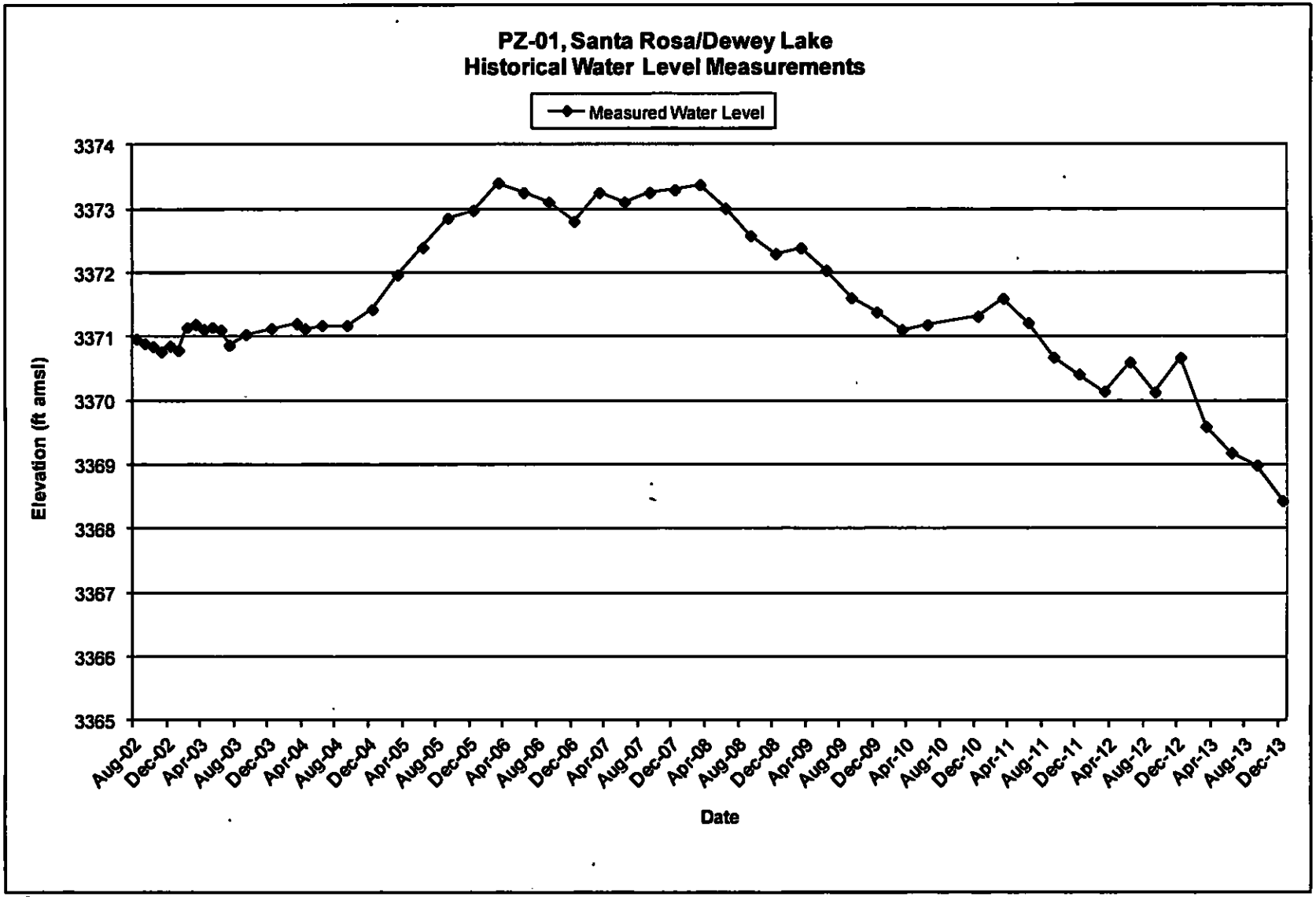
TABLE 7 – Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-15	10/15/07	2.97	169	764	2,060	0.022	<0.00500
PZ-15	6/6/08	12	160	460	1,600	0.00372	<0.001
C-2811	6/14/04	6.06	299	769	2,022	0.0470	<0.00500
C-2811	11/08/04	7.63	305	1,030	1,996	0.0540	<0.0100
C-2811	5/16/05	6.02	524	1,930	3,740	0.0580	0.0530
C-2811	10/10/05	7.48	584	2,250	4,410	0.0340	<0.0100
C-2811	5/15/06	6.94	511	1,760	3,740	0.0310	<0.0100
C-2811	10/9/06	6.05	402	1,310	2,100	<0.00100	<0.0500
C-2811	5/07/07	5.31	516	1,760	4,205	<0.0200	0.0310
C-2811	10/08/07	<1.00	635	2,980	3,860	0.0510	<0.0050
C-2811	6/4/08	5.7	390	1,300	2,800	0.00170	0.0350
C-2811	10/13/08	NA	320	1,000	2,100	NA	NA
C-2811	05/18/09	NA	360	1,200	2,300	NA	NA
C-2811	10/20/09	NA	320	1,000	2,120	NA	NA
C-2811	5/24/10	NA	340	920	2,090	NA	NA
C-2811	10/25/10	NA	370	1,100	2,470	NA	NA
C-2811	05/23/11	NA	350	960	2,370	NA	NA
C-2811	10/03/11	NA	340	910	2,330	NA	NA
C-2811	05/14/12	NA	320	810	1,870	NA	NA
C-2811	10/1/12	NA	337	862	2,100	NA	NA
C-2811	5/13/13	NA	328	872	2,090	NA	NA
C-2811	10/21/13	NA	341	838	2,490	NA	NA
C-2507	6/21/04	7.55	717	1,300	3,830	0.029	0.028
C-2507	11/09/04	7.58	824	1,380	3,350	0.0800	0.0140
C-2507	5/17/05	7.94	860	1,370	3,340	0.0780	0.0630
C-2507	10/11/05	6.13	920	1,630	3,240	0.0470	<0.0100
C-2507	5/16/06	7.37	1,040	1,930	5,300	0.0510	<0.0100
C-2507	10/10/06	2.9	943	3,640	1,740	<0.0500	<0.0250
C-2507	5/9/07	6.62	1,110	3,060	5,485	<0.0500	<0.0250
C-2507	10/9/07	<1.00	1,220	3,500	5,540	0.0550	0.007
C-2507	6/5/08	6.9	990	2,800	5,800	0.0637	0.00493
C-2507	10/14/08	NA	940	2,200	5,100	NA	NA
C-2507	5/19/09	NA	950	2,600	5,200	NA	NA
C-2507	10/19/09	NA	930	3,400	5,710	NA	NA
C-2507	5/25/10	NA	910	3,500	6,640	NA	NA

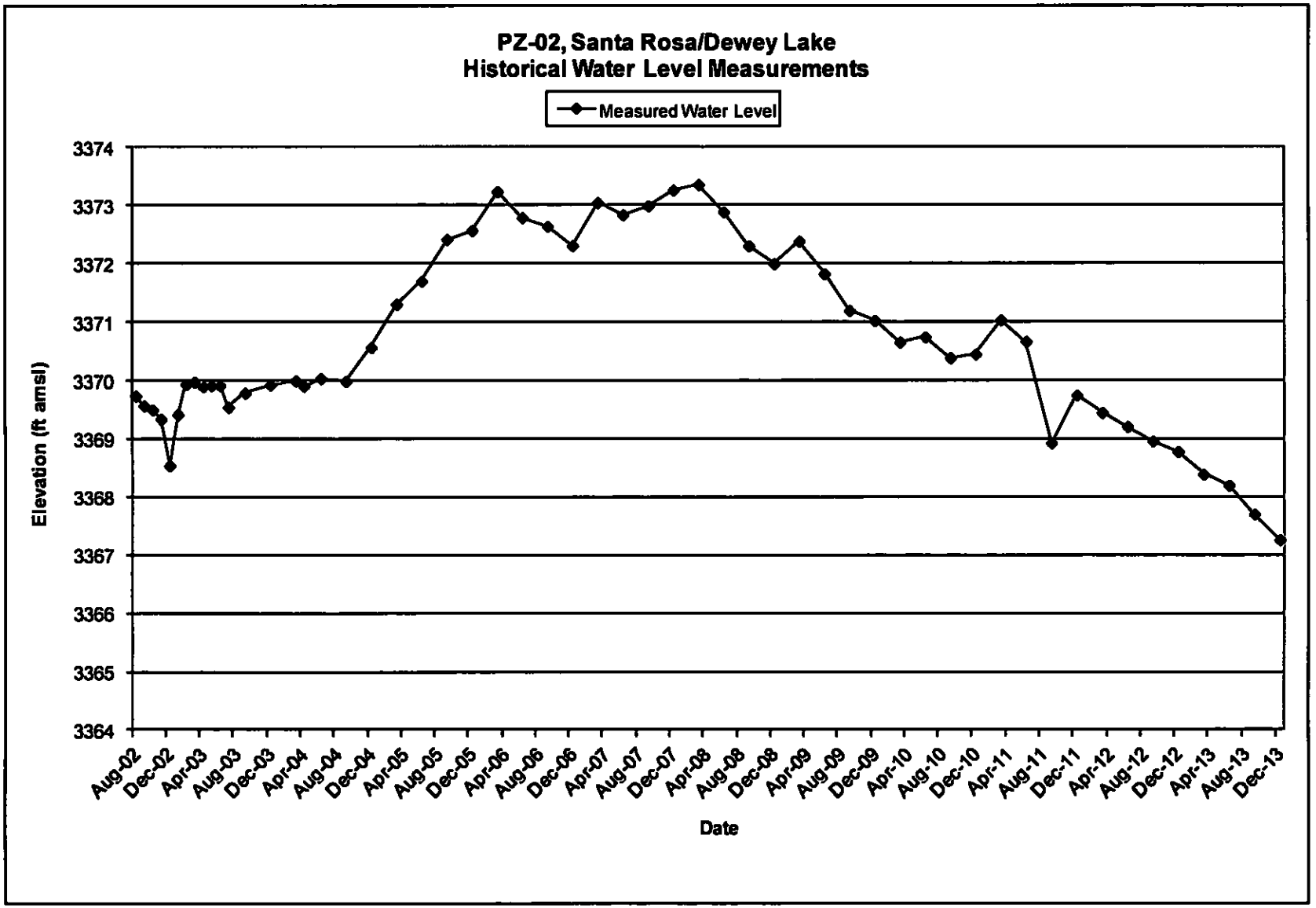
TABLE 7 – Shallow Subsurface Water Quality Sampling Results

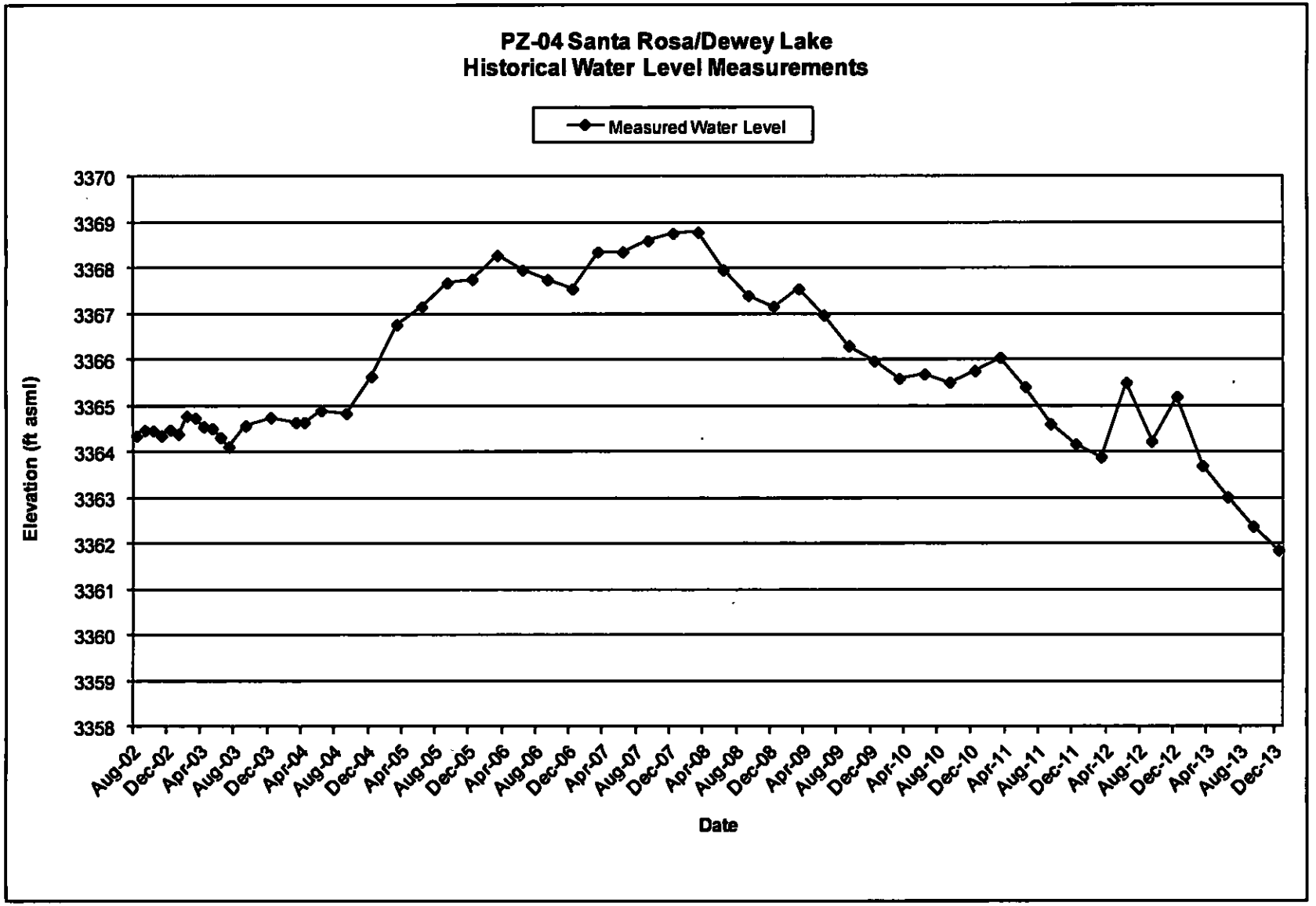
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
C-2507	10/26/10	NA	980	3,500	7,120	NA	NA
C-2507	5/24/11	NA	790	3,200	6,190	NA	NA
C-2507	10/5/11	NA	810	3,400	6,660	NA	NA
C-2507	05/16/12	NA	800	2,800	5,720	NA	NA
C-2507	10/1/12	NA	774	2,970	6,790	NA	NA
C-2507	5/14/13	NA	704	2,820	6,020	NA	NA
C-2507	10/21/13	NA	692	3,270	8,350	NA	NA
WQSP-6A	7/13/95	7.62	1,905	1,040	11,000	<0.006	<0.025
WQSP-6A	3/28/96	3.98	1,810	507	3,920	<0.013	<0.025
WQSP-6A	7/11/96	2.75	1,971	6,748	4,500	0.020	<0.025
WQSP-6A	4/10/97	4.64	2,240	675	3,960	0.017	<0.025
WQSP-6A	7/10/97	4.04	2,560	660	3,840	<0.050	<0.1000
WQSP-6A	6/10/98	6.19	1,950	644	4,120	0.016	0.0015
WQSP-6A	11/3/98	11.00	2,100	770	4,100	0.220	<0.500
WQSP-6A	5/26/99	7.00	1,900	540	3,800	<0.100	<0.050
WQSP-6A	11/10/99	9.40	1,900	540	3,800	<0.050	<0.050
WQSP-6A	5/24/00	7.50	2,100	530	3,800	0.0129	<0.020
WQSP-6A	11/30/00	6.70	1,900	480	3,700	<0.0130	<0.025
WQSP-6A	6/6/01	6.37	1,900	536	3,680	0.0385	<0.025
WQSP-6A	11/14/01	3.67	1,900	414	4,600	<0.050	<0.010
WQSP-6A	5/22/02	5.52	1,930	487	3,540	<0.050	<0.010
WQSP-6A	11/20/02	5.61	2,090	419	3,685	<0.050	<0.010
WQSP-6A	5/21/03	4.74	1,950	384	3,650	<0.123	<0.050
WQSP-6A	11/19/03	<0.01	1,950	391	3,955	<0.219	<0.025
WQSP-6A	5/26/04	9.61	1,970	416	3,646	<0.025	<0.025
WQSP-6A	11/17/04	6.72	1,960	491	3,655	<0.025	<0.025
WQSP-6A	4/20/05	5.98	1,920	432	3,700	0.057	<0.025
WQSP-6A	10/19/05	<0.01	1,940	360	3,430	<0.025	<0.025
WQSP-6A	5/3/06	2.5	2,210	450	3,200	<0.025	<0.025
WQSP-6A	9/20/06	6.00	2,120	360	3,515	<0.025	<0.025
WQSP-6A	3/7/07	5.78	2,170	484	3,355	<0.025	<0.025
WQSP-6A	9/12/07	5.47	1,950	350	3,400	<0.025	<0.025
WQSP-6A	3/12/08	4.67	2,090	378	3,400	<0.025	<0.025

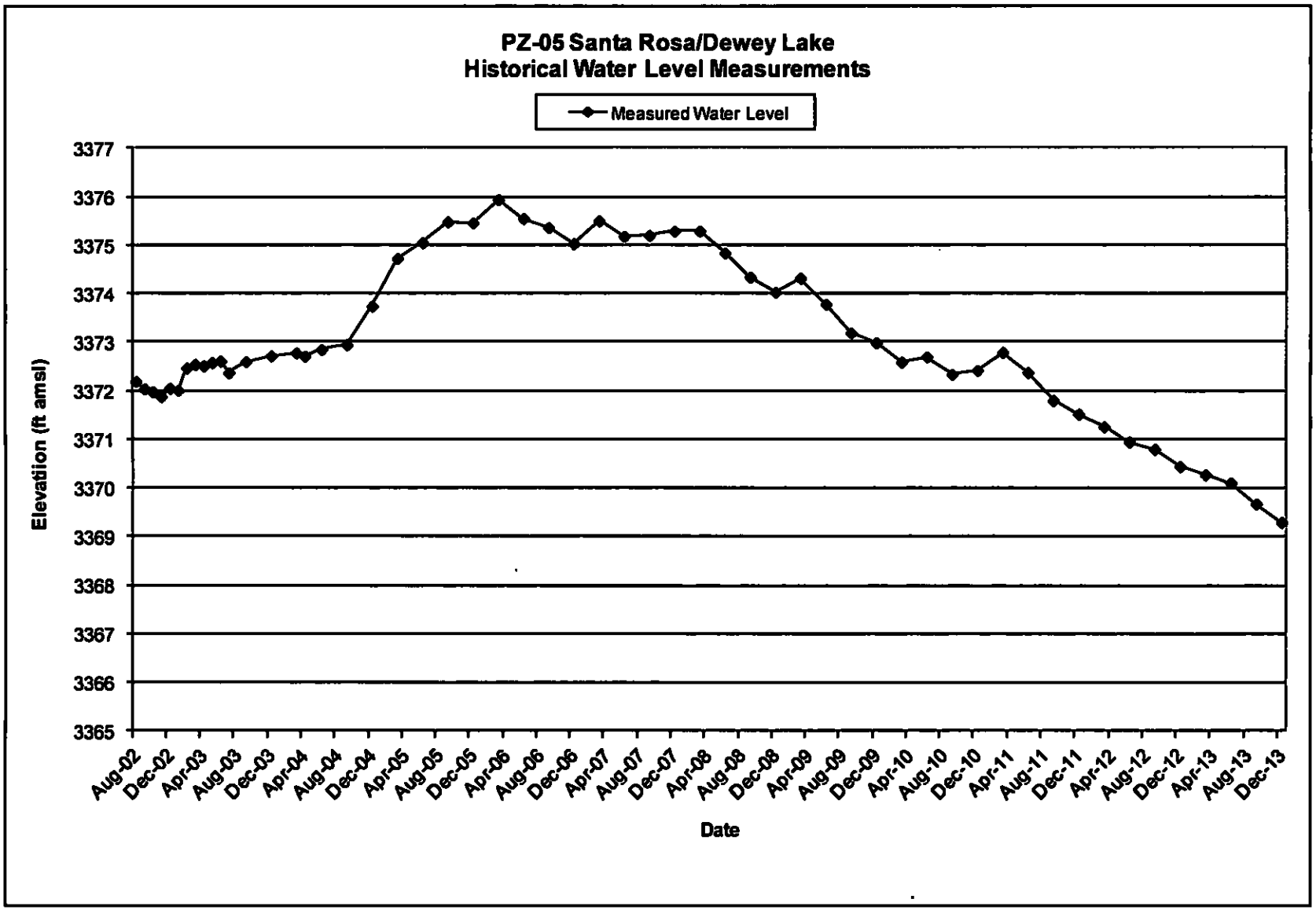
NA: Not Analyzed, analysis of this parameter for this monitoring site is not required by the Discharge Permit.

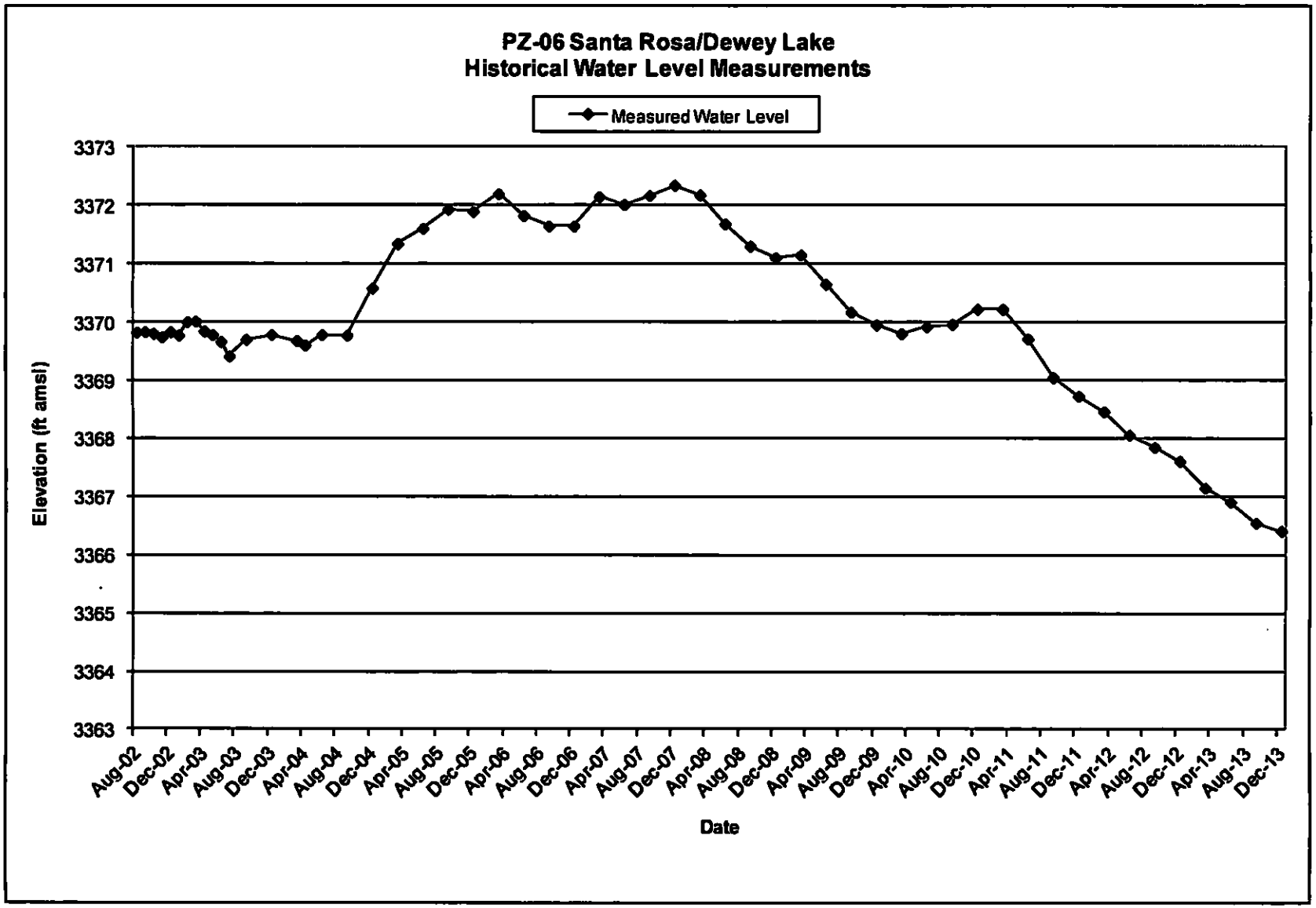
TABLE 7 – Shallow Subsurface Water Quality Sampling Results						
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)
WQSP-6A	9/10/08	5.69	2,030	348	3,150	< 5
WQSP-6A	3/4/09	5.90	2,100	350	3,500	<1.0
WQSP-6A	9/10/09	6.30	2,100	350	3,640	<1.0
WQSP-6A	3/03/10	6.55	2,145	330	3,545	<1.0
WQSP-6A	9/23/10	6.34	2,090	321	3,500	<1.0
WQSP-6A	05/26/11	6.5	2,100	270	3,480	<1.0
WQSP-6A	10/06/11	5.9	2,100	280	3,450	<1.0
WQSP-6A	05/16/12	5.4	2,200	310	3,340	<1.0
WQSP-6A	10/2/12	5.1	2,110	301	3,400	<1.0
WQSP-6A	5/14/13	5.29	2,260	318	3,420	<1.0
WQSP-6A	10/23/13	5.85	1,840	284	3,540	<1.0

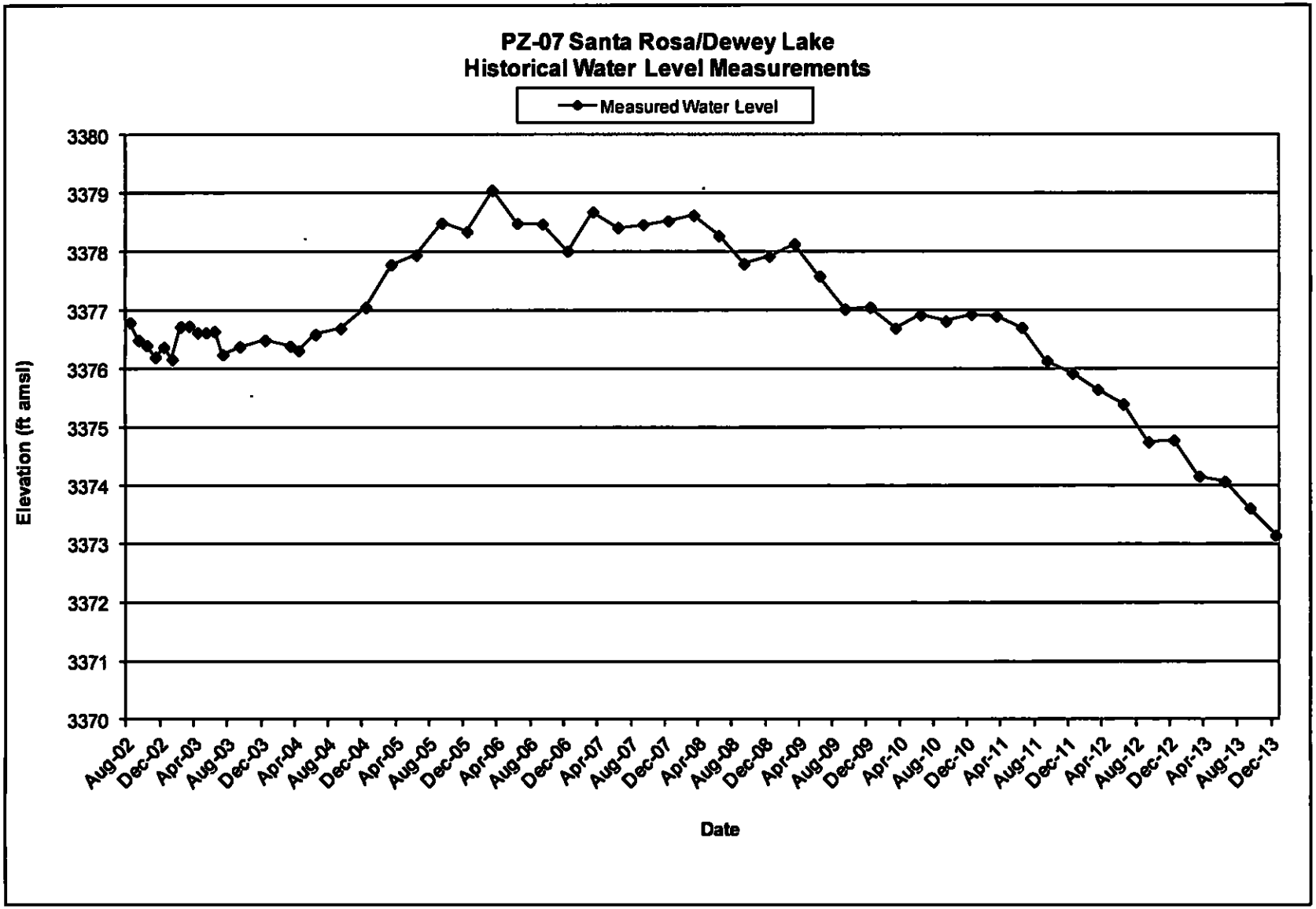

PZ-01, Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3374
3373
3372
3371
3370
3369
3368
3367
3366
3365
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13
Aug-13
Dec-13
Date

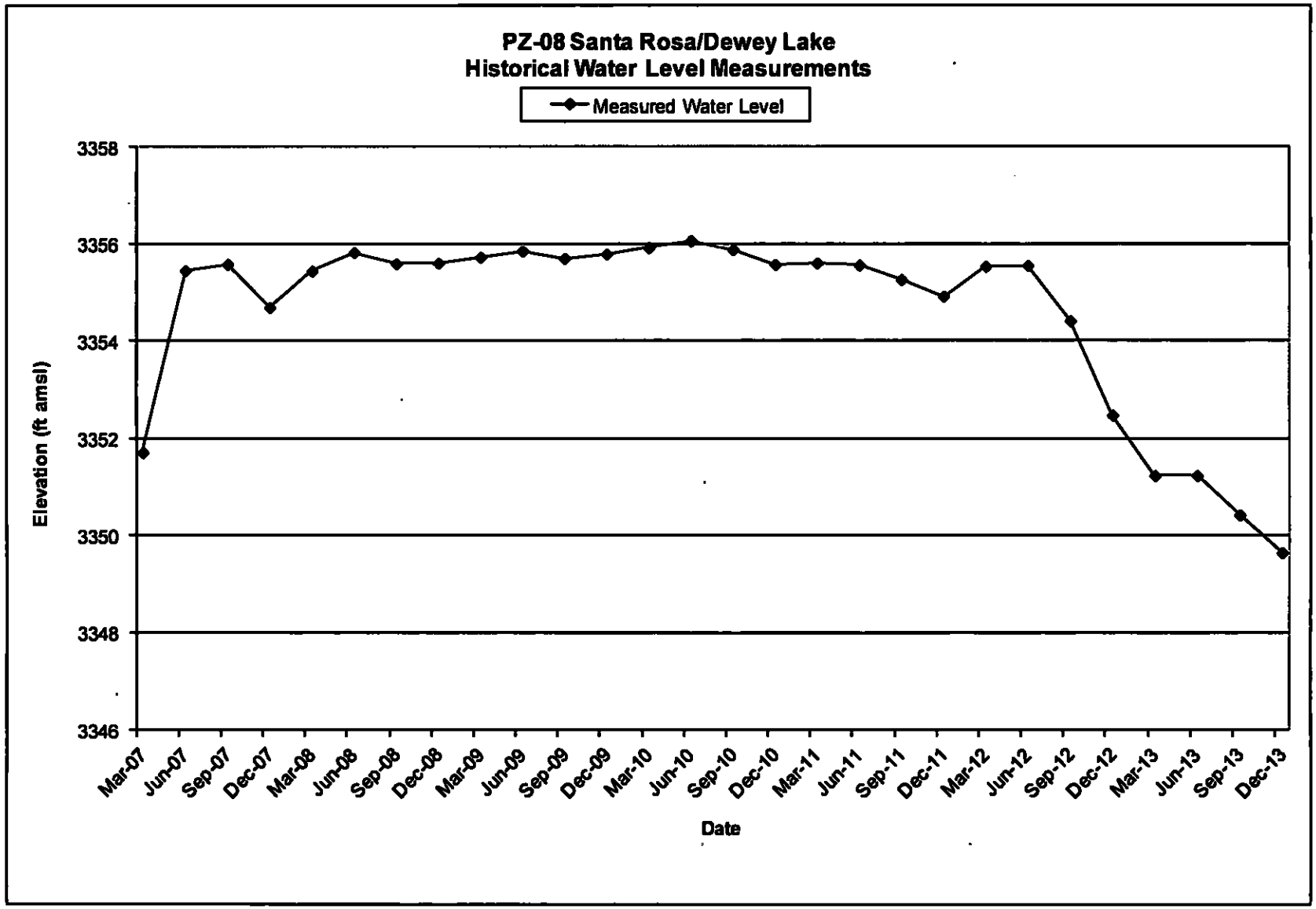

PZ-02, Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3374
3373
3372
3371
3370
3369
3368
3367
3366
3365
3364
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13
Aug-13
Dec-13
Date

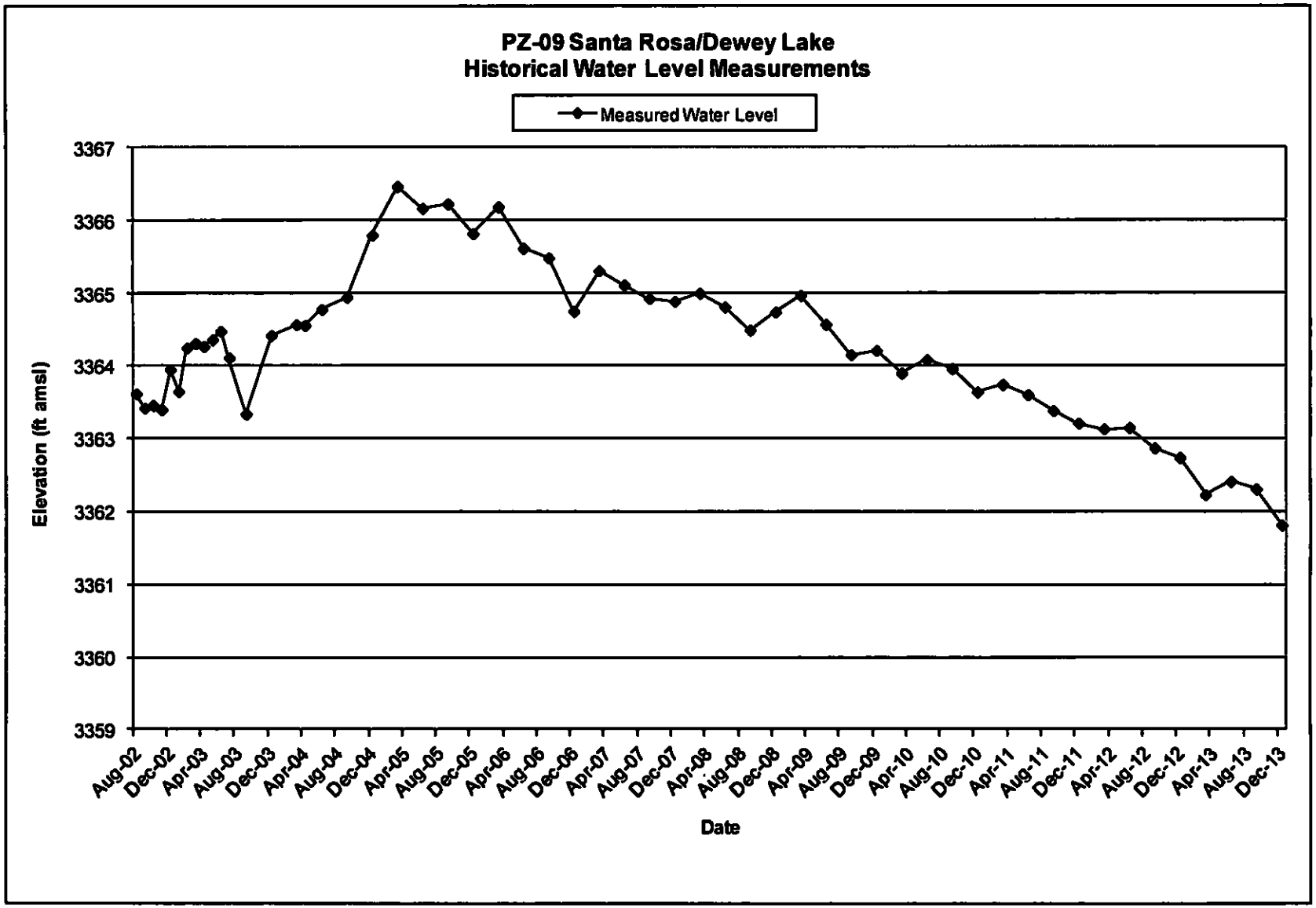

PZ-04 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft asml)
3370
3369
3368
3367
3366
3365
3364
3363
3362
3361
3360
3359
3358
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13
Aug-13
Dec-13
Date

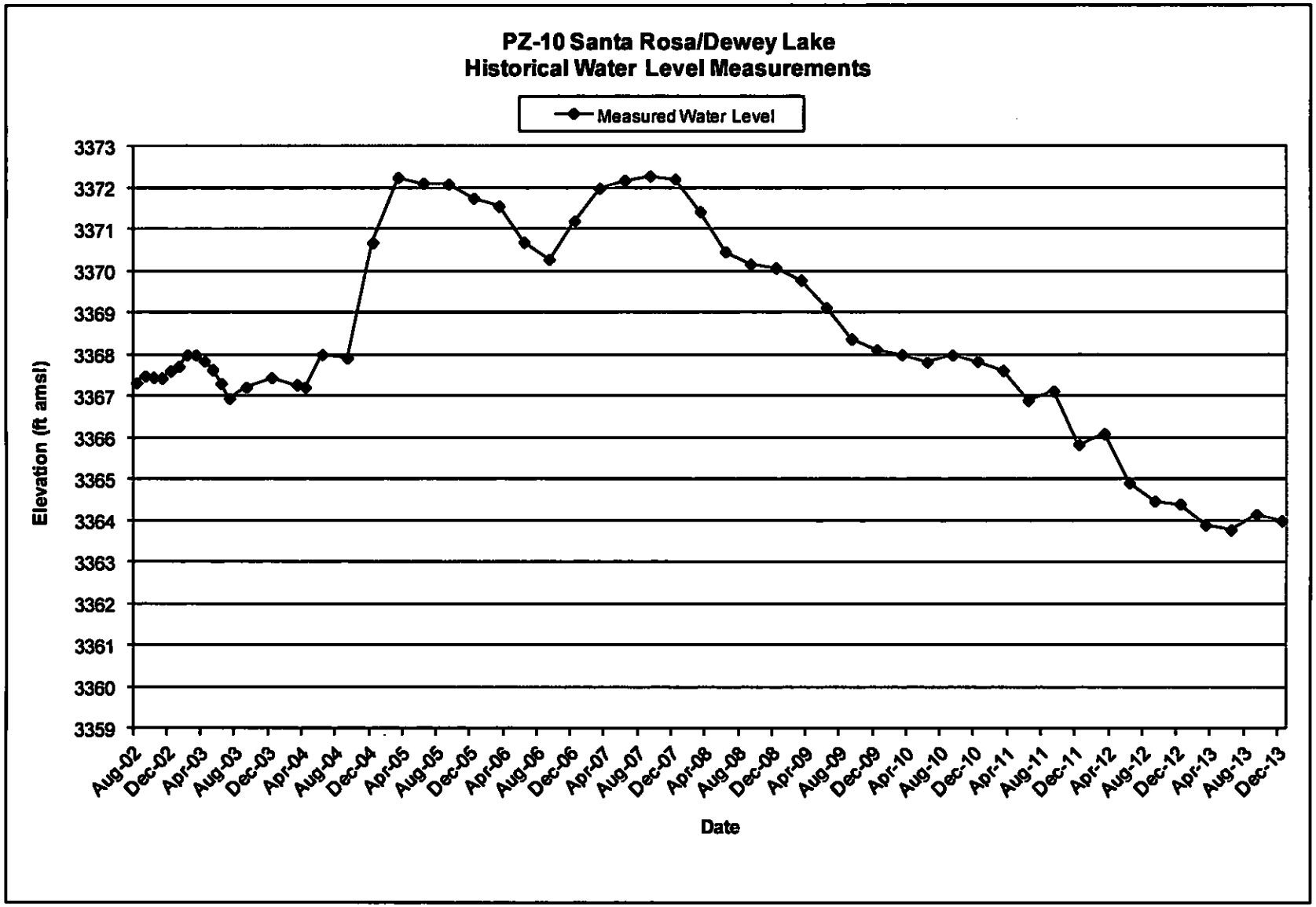

PZ-05 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3377
3376
3375
3374
3373
3372
3371
3370
3369
3368
3367
3366
3365
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13
Aug-13
Dec-13
Date

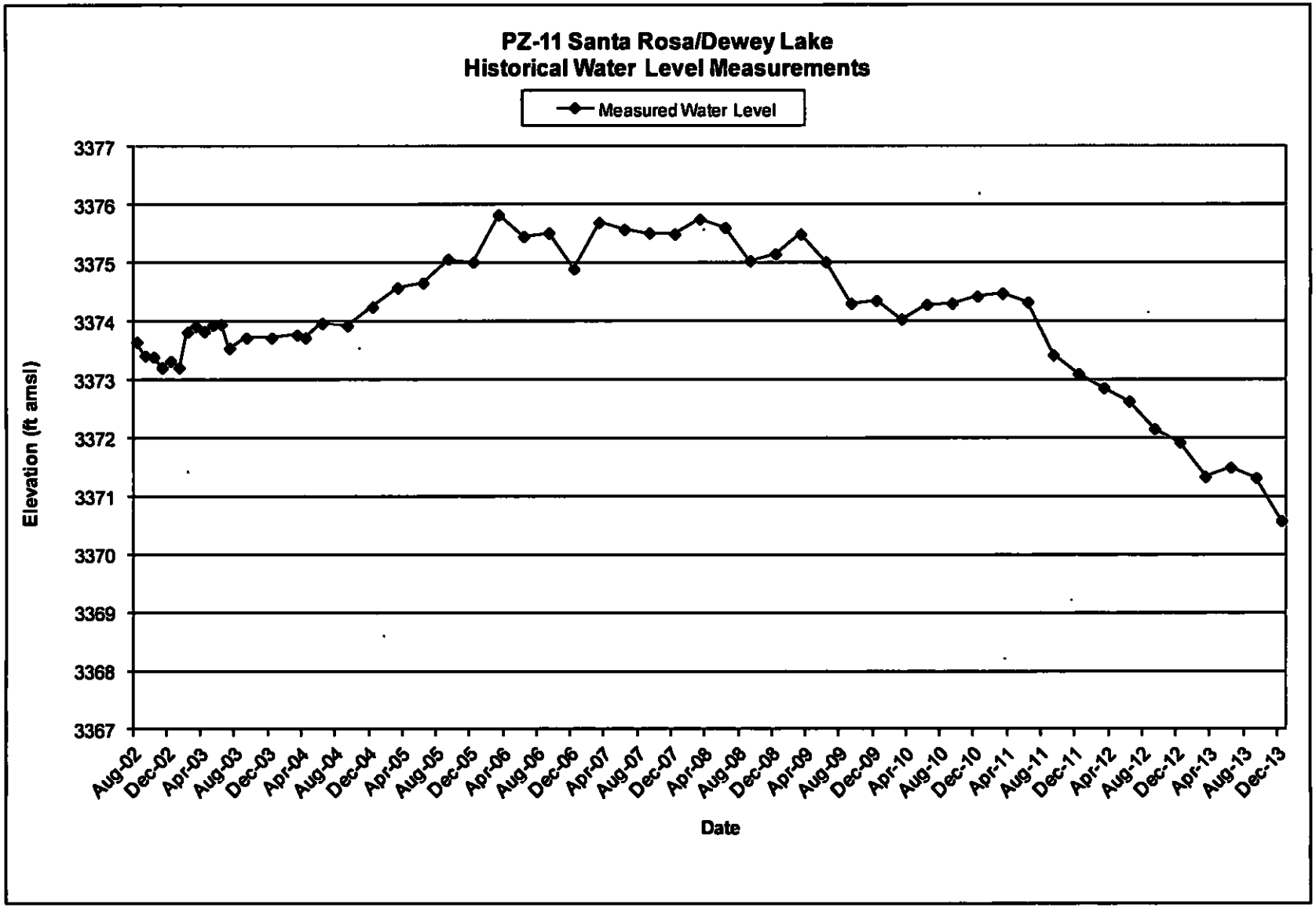

PZ-06 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3373
3372
3371
3370
3369
3368
3367
3366
3365
3364
3363
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13
Aug-13
Dec-13
Date

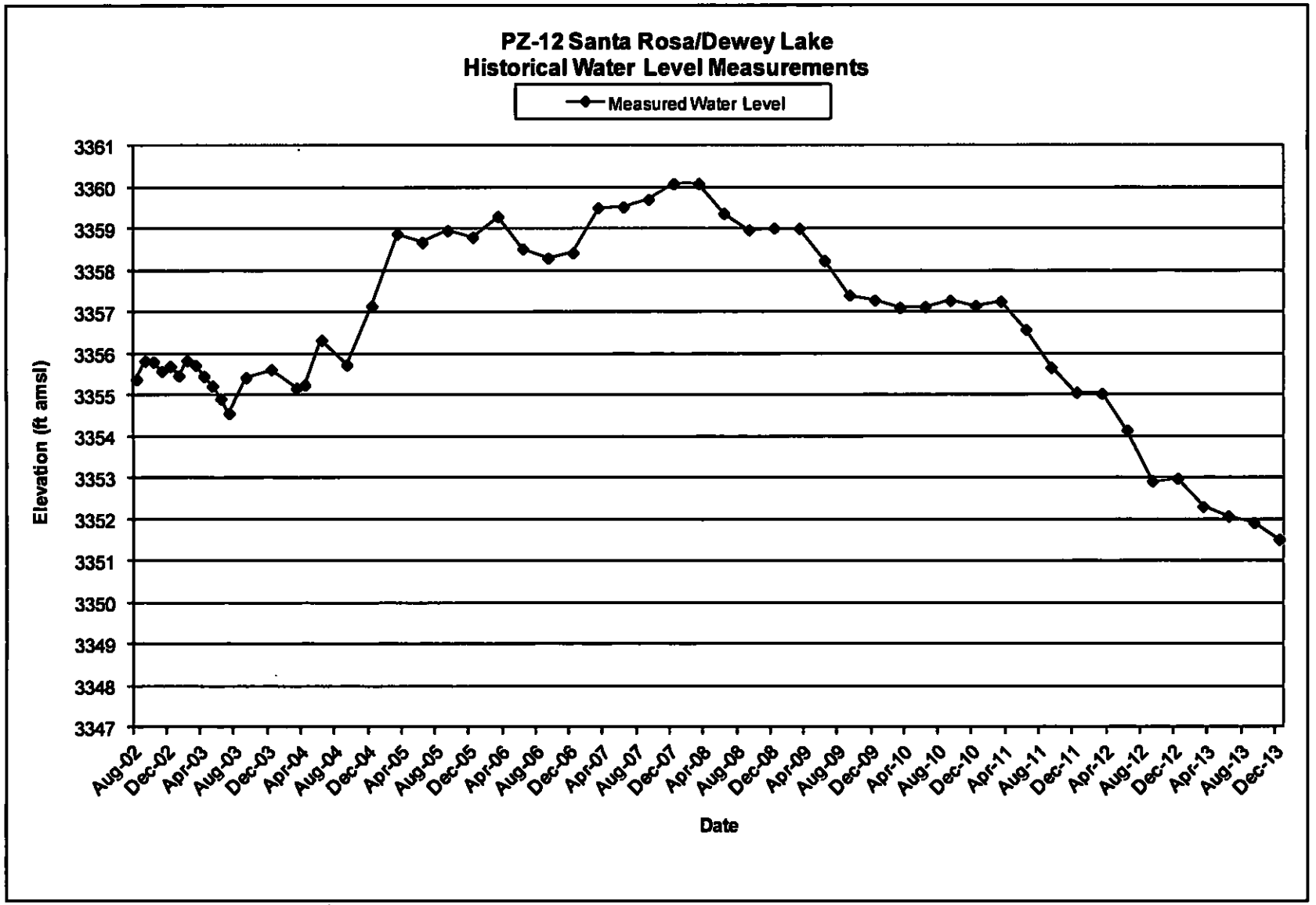

PZ-07 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3380
3379
3378
3377
3376
3375
3374
3373
3372
3371
3370
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13
Aug-13
Dec-13
Date

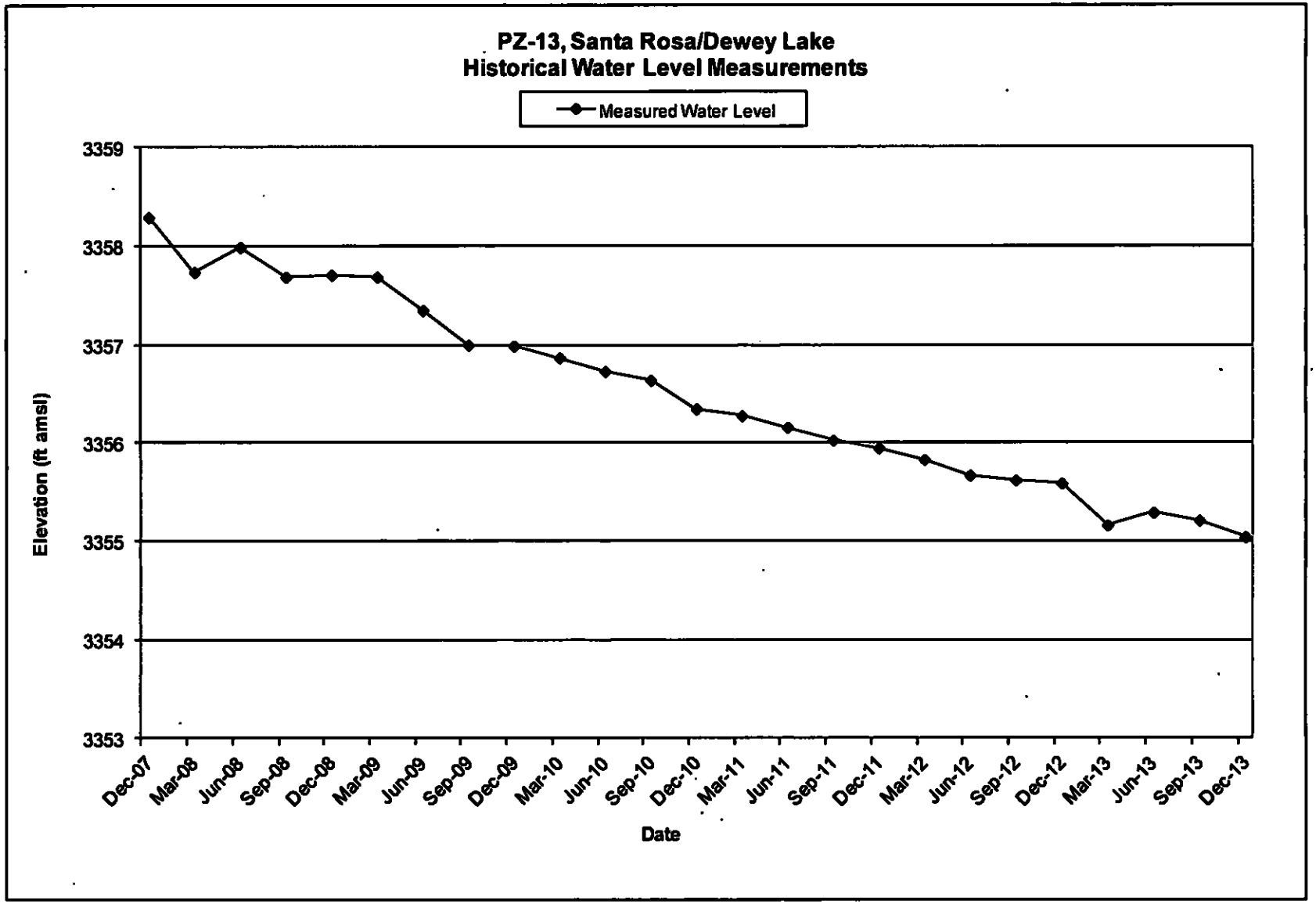

PZ-08 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3358
3356
3354
3352
3350
3348
3346
Mar-07
Jun-07
Sep-07
Dec-07
Mar-08
Jun-08
Sep-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Mar-10
Jun-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
Dec-11
Mar-12
Jun-12
Sep-12
Dec-12
Mar-13
Jun-13
Sep-13
Dec-13
Date

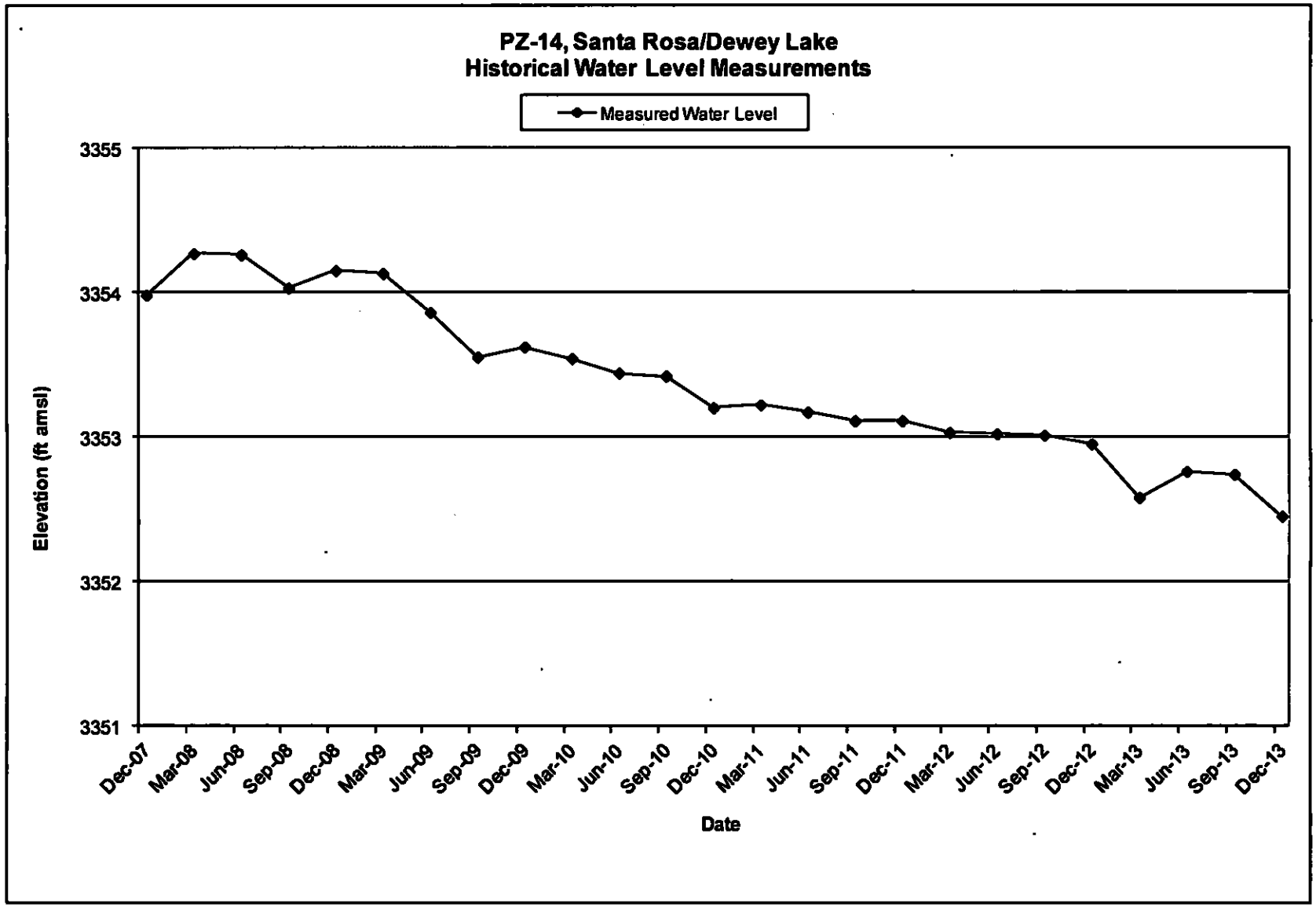

PZ-09 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3367
3366
3365
3364
3363
3362
3361
3360
3359
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13
Aug-13
Dec-13
Date

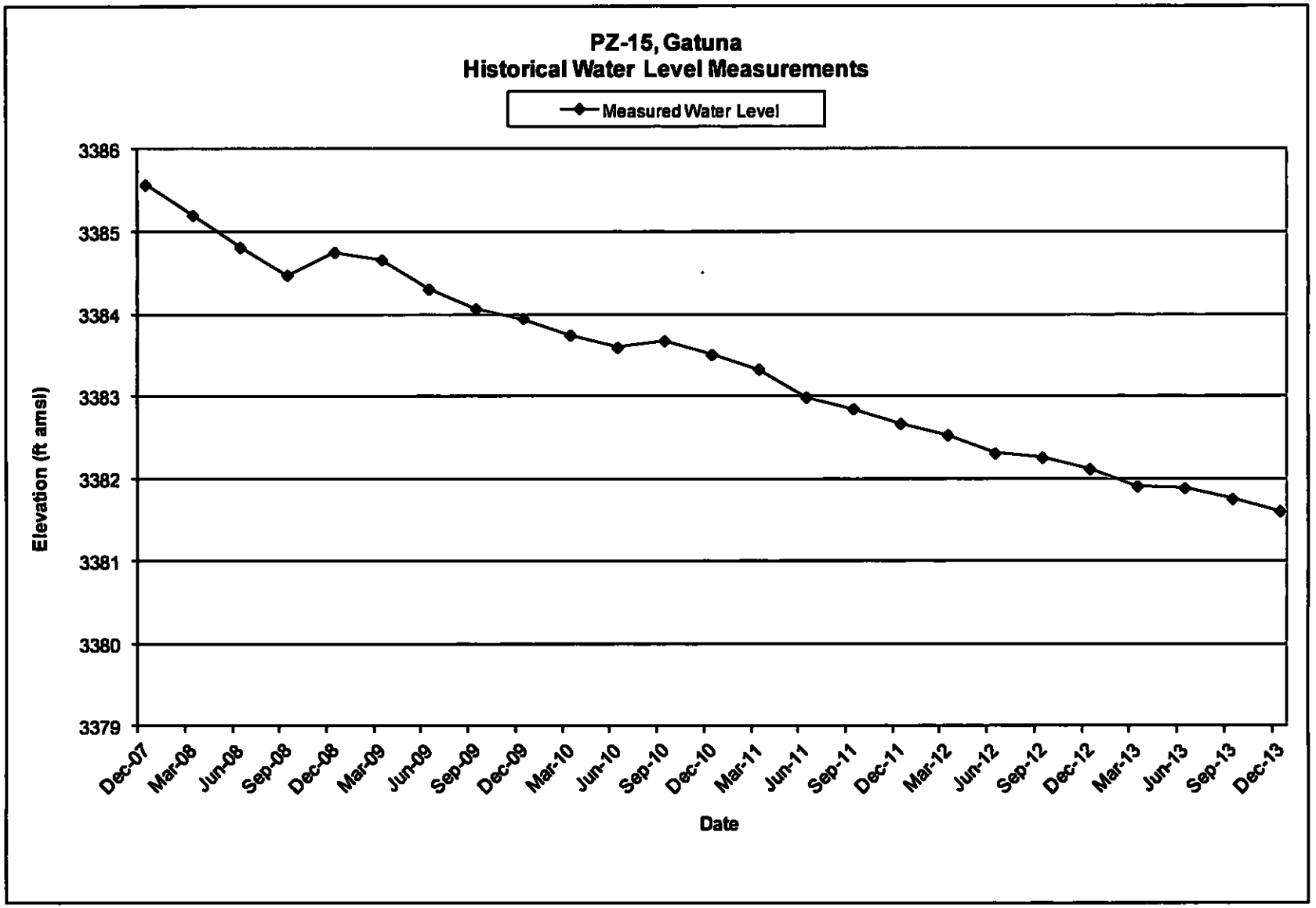

PZ-10 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3373
3372
3371
3370
3369
3368
3367
3366
3365
3364
3363
3362
3361
3360
3359
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13
Aug-13
Dec-13
Date

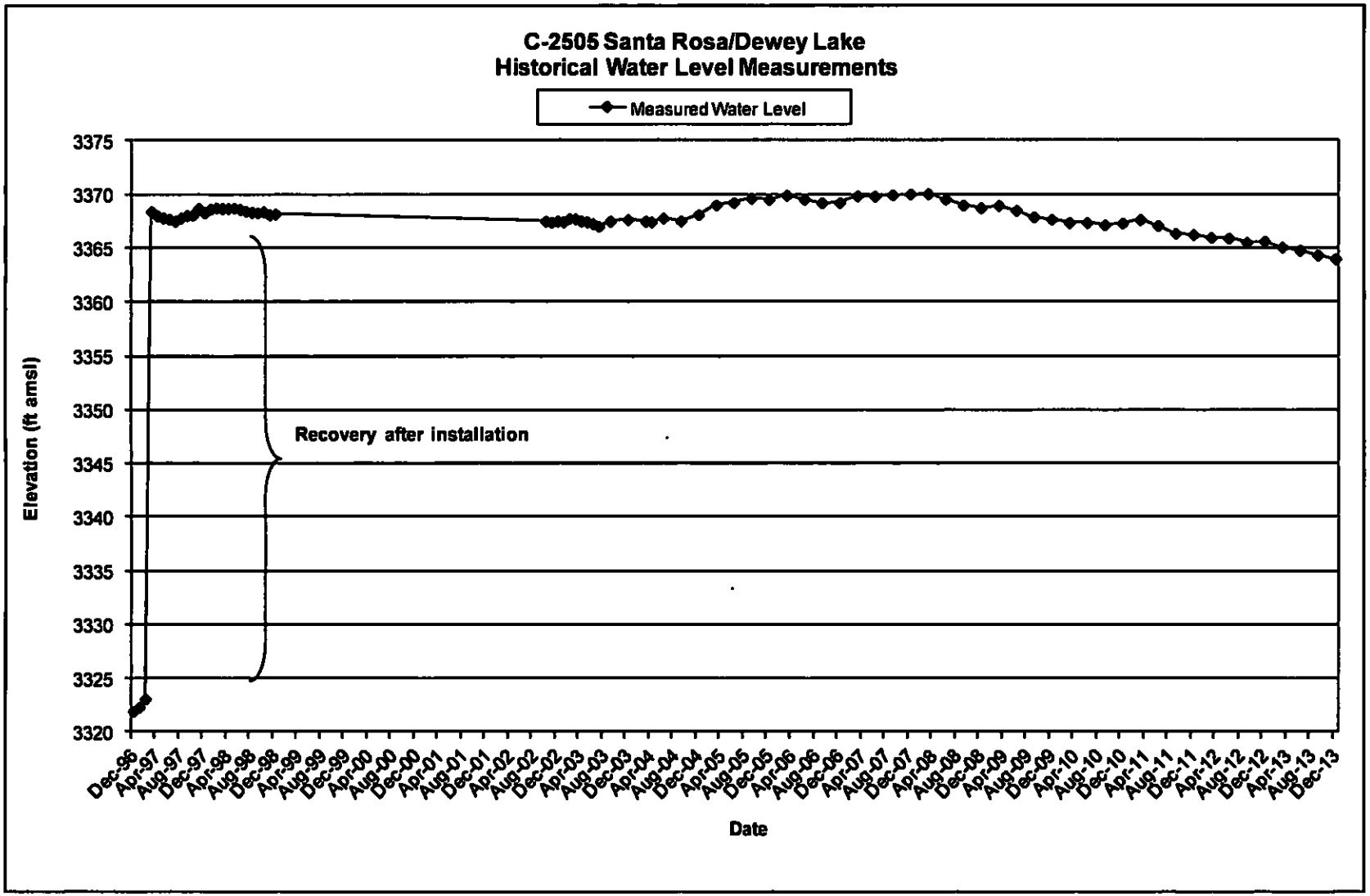

PZ-11 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3377
3376
3375
3374
3373
3372
3371
3370
3369
3368
3367
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13
Aug-13
Dec-13
Date

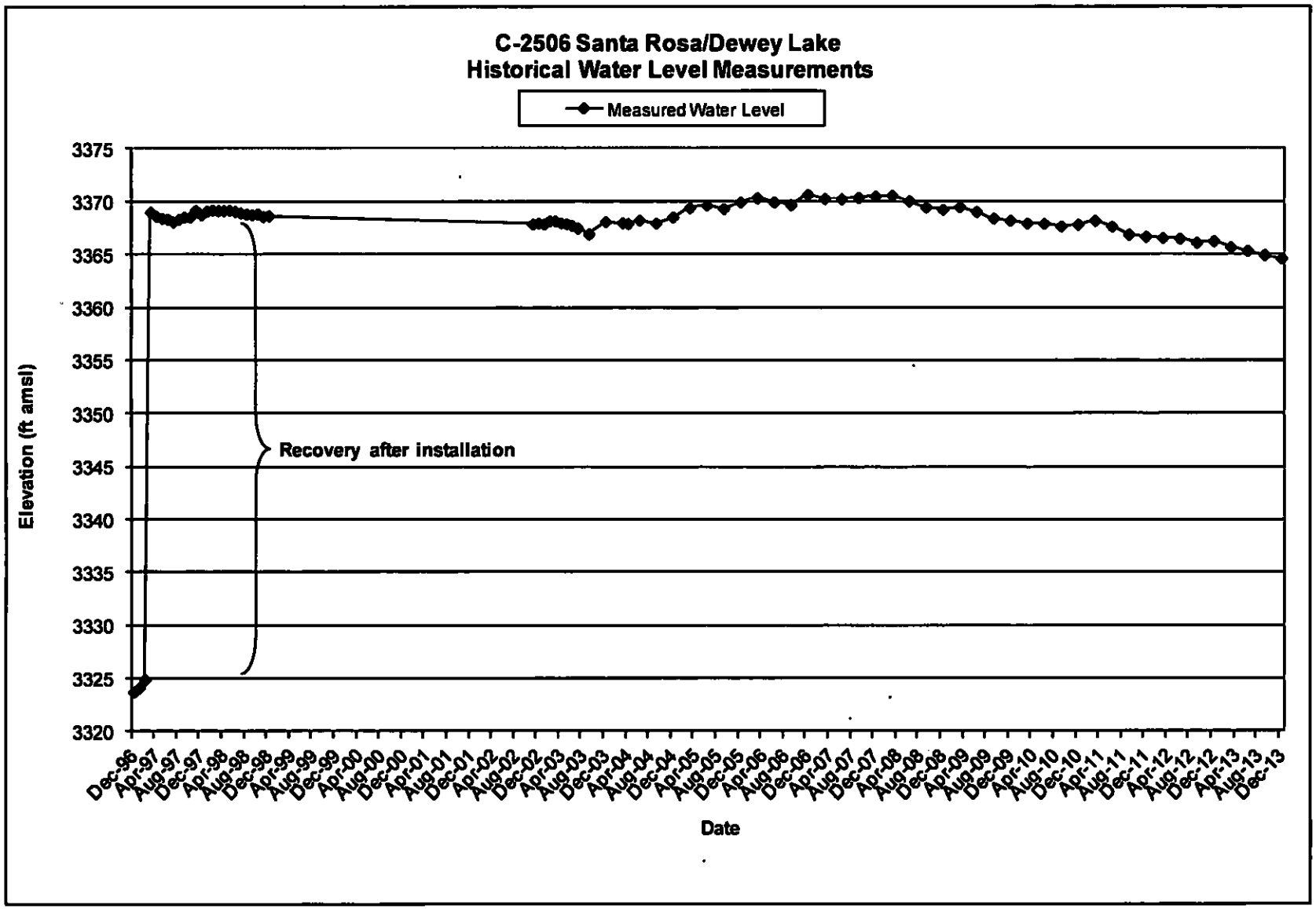

PZ-12 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3361
3360
3359
3358
3357
3356
3355
3354
3353
3352
3351
3350
3349
3348
3347
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13
Aug-13
Dec-13
Date

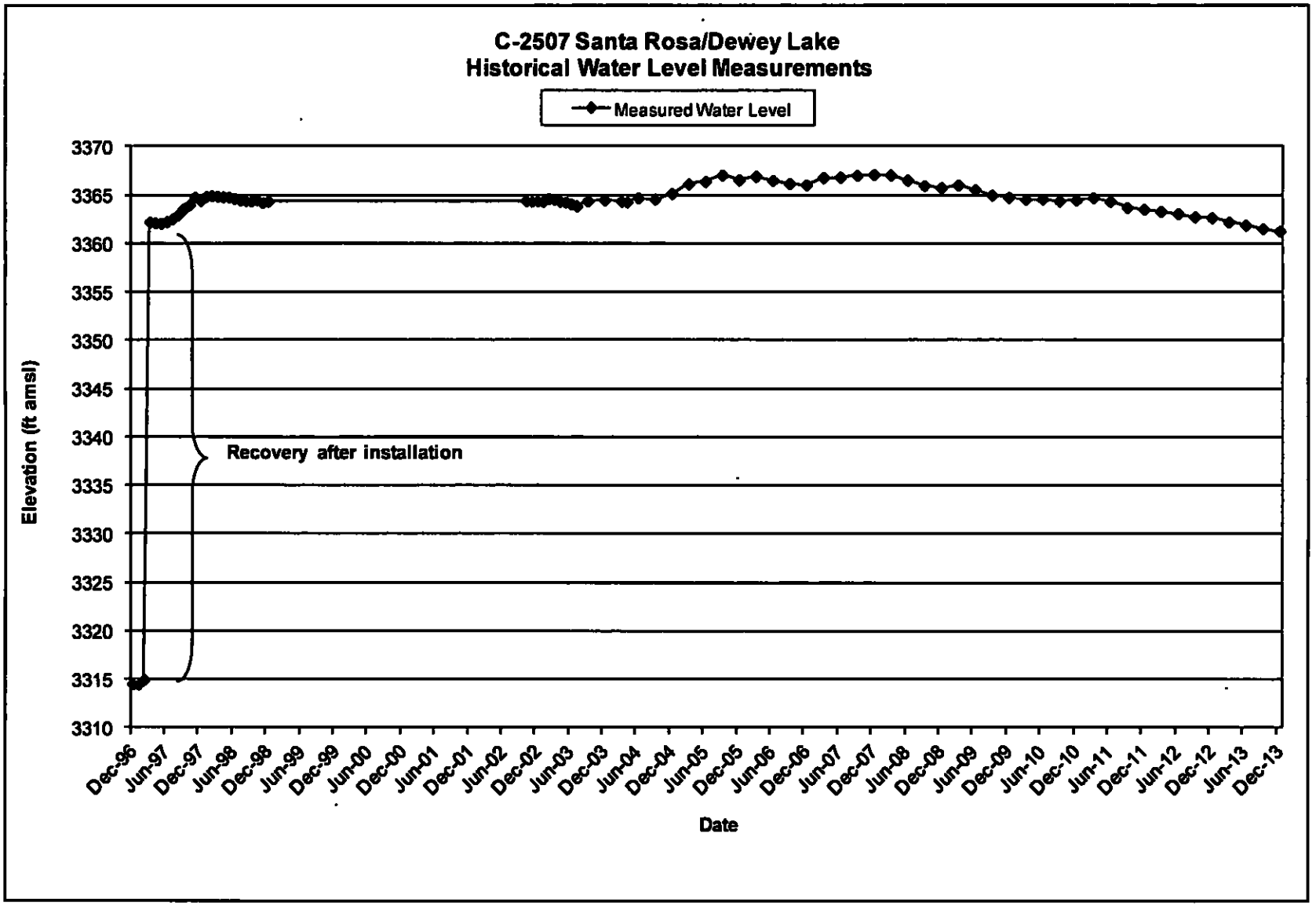

PZ-13, Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3359
3358
3357
3356
3355
3354
3353
Dec-07
Mar-08
Jun-08
Sep-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Mar-10
Jun-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
Dec-11
Mar-12
Jun-12
Sep-12
Dec-12
Mar-13
Jun-13
Sep-13
Dec-13
Date

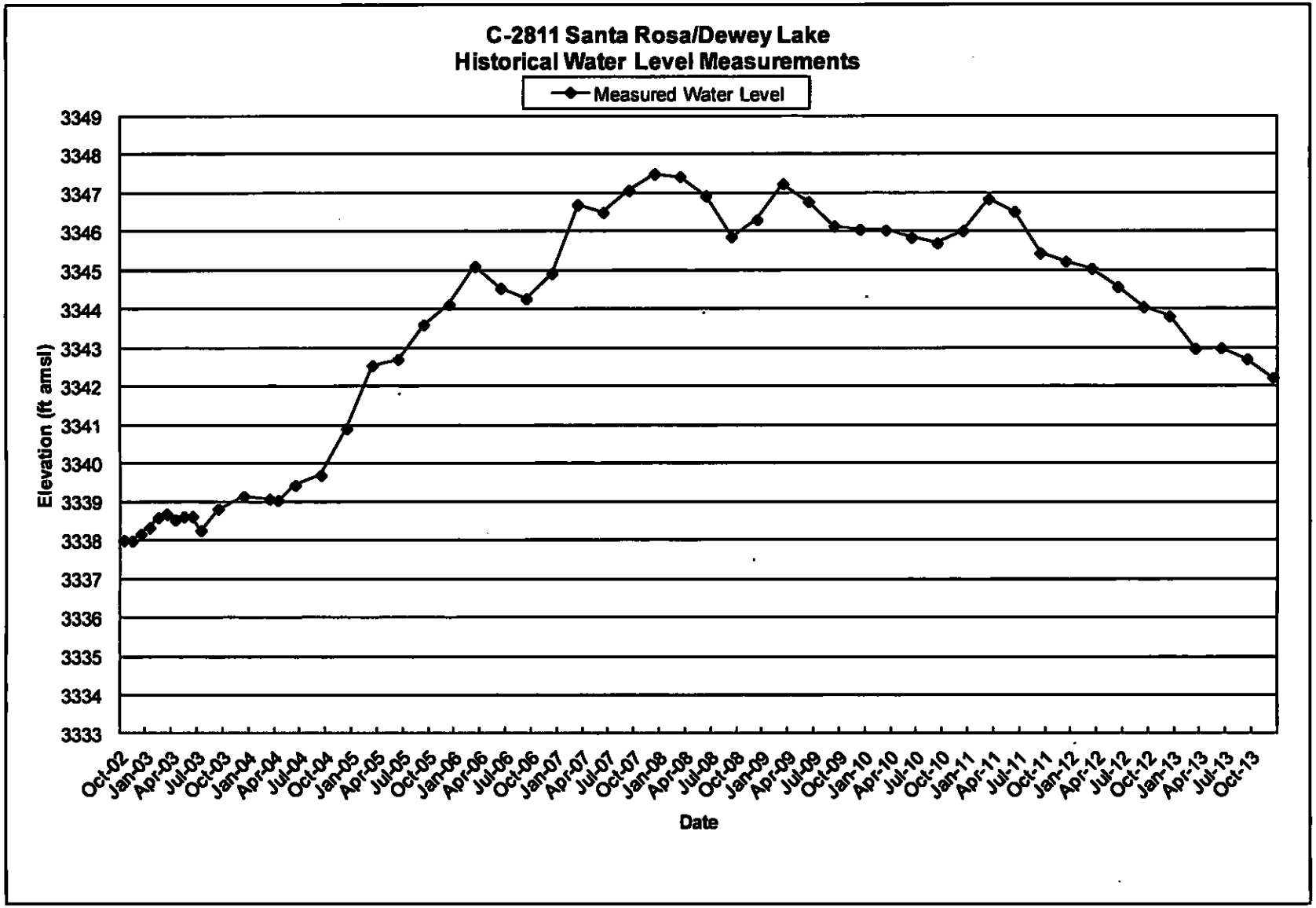

PZ-14, Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3355
3354
3353
3352
3351
Dec-07
Mar-08
Jun-08
Sep-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Mar-10
Jun-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
Dec-11
Mar-12
Jun-12
Sep-12
Dec-12
Mar-13
Jun-13
Sep-13
Dec-13
Date

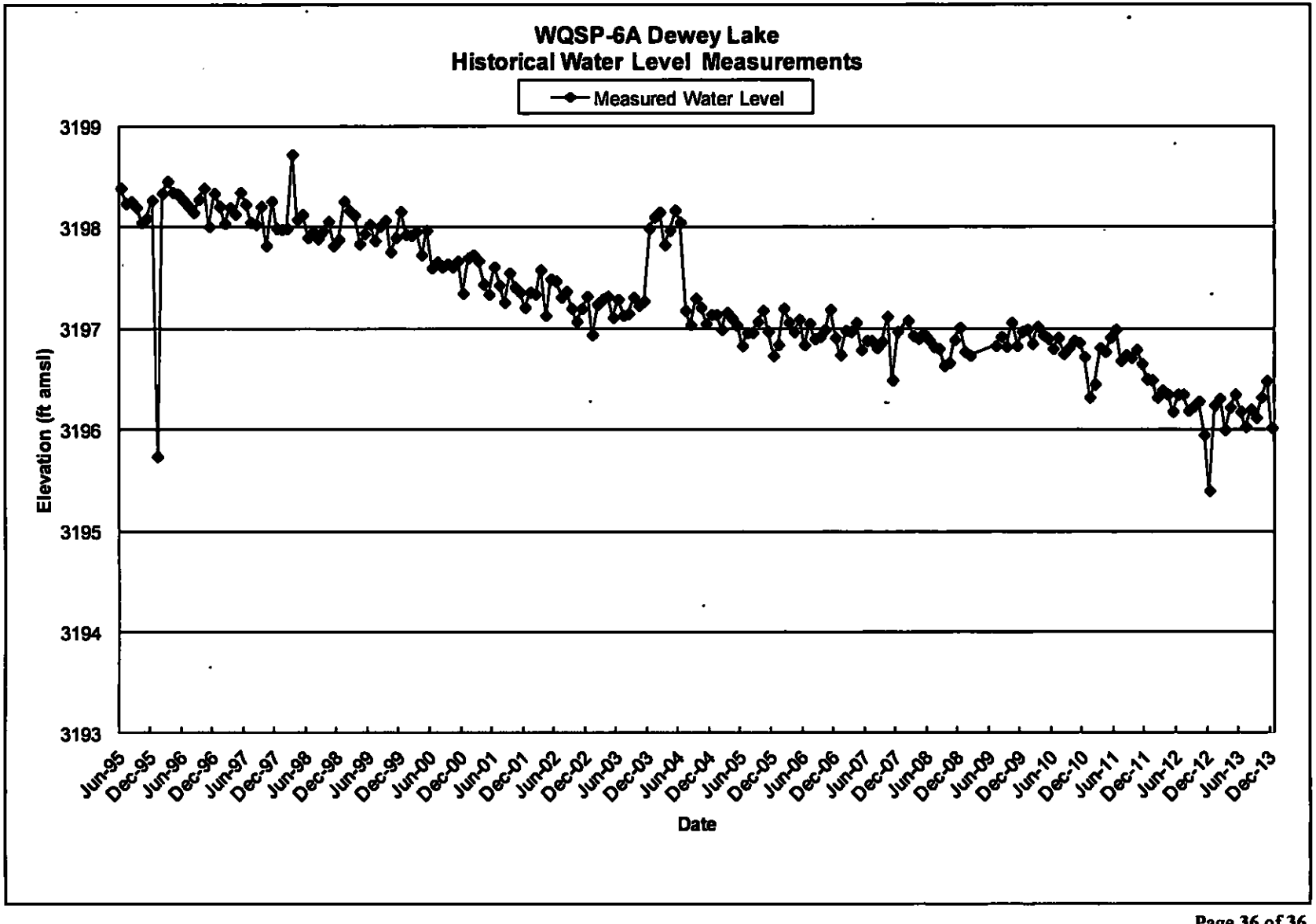

PZ-15, Gatuna
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3386
3385
3384
3383
3382
3381
3380
3379
Dec-07
Mar-08
Jun-08
Sep-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Mar-10
Jun-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
Dec-11
Mar-12
Jun-12
Sep-12
Dec-12
Mar-13
Jun-13
Sep-13
Dec-13
Date


C-2505 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3375
3370
3365
3360
3355
3350
3345
3340
3335
3330
3325
3320
Recovery after installation
Dec-96
Apr-97
Aug-97
Dec-97
Apr-98
Aug-98
Dec-98
Apr-99
Aug-99
Dec-99
Apr-00
Aug-00
Dec-00
Apr-01
Aug-01
Dec-01
Apr-02
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13
Aug-13
Dec-13
Date


C-2506 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3375
3370
3365
3360
3355
3350
3345
3340
3335
3330
3325
3320
Recovery after installation
Dec-96
Apr-97
Aug-97
Dec-97
Apr-98
Aug-98
Dec-98
Apr-99
Aug-99
Dec-99
Apr-00
Aug-00
Dec-00
Apr-01
Aug-01
Dec-01
Apr-02
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13
Aug-13
Dec-13
Date


C-2507 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3370
3365
3360
3355
3350
3345
3340
3335
3330
3325
3320
3315
3310
Recovery after installation
Dec-96
Jun-97
Dec-97
Jun-98
Dec-98
Jun-99
Dec-99
Jun-00
Dec-00
Jun-01
Dec-01
Jun-02
Dec-02
Jun-03
Dec-03
Jun-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Dec-10
Jun-11
Dec-11
Jun-12
Dec-12
Jun-13
Dec-13
Date


C-2811 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3349
3348
3347
3346
3345
3344
3343
3342
3341
3340
3339
3338
3337
3336
3335
3334
3333
Oct-02
Jan-03
Apr-03
Jul-03
Oct-03
Jan-04
Apr-04
Jul-04
Oct-04
Jan-05
Apr-05
Jul-05
Oct-05
Jan-06
Apr-06
Jul-06
Oct-06
Jan-07
Apr-07
Jul-07
Oct-07
Jan-08
Apr-08
Jul-08
Oct-08
Jan-09
Apr-09
Jul-09
Oct-09
Jan-10
Apr-10
Jul-10
Oct-10
Jan-11
Apr-11
Jul-11
Oct-11
Jan-12
Apr-12
Jul-12
Oct-12
Jan-13
Apr-13
Jul-13
Oct-13
Date


WQSP-6A Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3199
3198
3197
3196
3195
3194
3193
Jun-95
Dec-95
Jun-96
Dec-96
Jun-97
Dec-97
Jun-98
Dec-98
Jun-99
Dec-99
Jun-00
Dec-00
Jun-01
Dec-01
Jun-02
Dec-02
Jun-03
Dec-03
Jun-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Dec-10
Jun-11
Dec-11
Jun-12
Dec-12
Jun-13
Dec-13
Date

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

JAN 2 3 2013

GROUND WATER

JAN 2 5 2013

BUREAU

Mr. Clint Marshall
New Mexico Environment Department
Ground Water Quality Bureau
Mining and Environmental Compliance Section
P.O. Box 26110
Santa Fe, NM 87502

Subject: Semi-Annual Discharge Monitoring Report for July 1, 2012, through December 31, 2012

Dear Mr. Marshall:

The purpose of this letter is to transmit the Waste Isolation Pilot Plant Discharge Monitoring Report for the period of July 1, 2012, through December 31, 2012. This report is required by Discharge Permit 831. Also enclosed, as required, are a hard copy and CD (EXCEL format) of the water level measurements and water quality data.

If you have any questions about this report or require any additional information, please contact me at (575) 234-7488.

Sincerely,

George T. Basabilvazo

George T. Basabilvazo, Director
Office of Environment, Safety and Health

Enclosures (2)

cc: w/o enclosures
J. Kieling, NMED ED
T. Kliphuis, NMED ED
M. Menetrey, NMED ED
CBFO M&RC
*ED denotes electronic distribution

04312

CBFO:OESH:AS:ANC:13-0704:UFC 5487.00

GROUND WATER
JAN 25 2013
BUREAU

Enclosure 1

Waste Isolation Pilot Plants (WIPP)
Semi-Annual Discharge Monitoring Report for Discharge Permit DP-831
For Reporting Period
July 1, 2012 through December 31, 2012

WASTE ISOLATION PILOT PLANT (WIPP)
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR
DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2012 THROUGH DECEMBER 31, 2012

GROUND WATER
JAN 25 2013
BUREAU

SPECIFIC REPORTING REQUIREMENTS OF DP-831 SECTION 14

1.0 WIPP SEWAGE TREATMENT FACILITY AND H-19 EVAPORATION POND MONITORING AND REPORTING

Table 1 contains the volume of "sewage water" discharged to the Facultative Lagoon System for this reporting period.

Table 1
Monthly Discharge Volumes to Facultative Lagoon System

Month	Volume (gallons)
July	491,242
August	359,608
September	387,803
October	523,062
November	313,272
December	324,961

Volumes based on total domestic water use.
Zero (0) gallons of discharge to Facultative Lagoon System Evaporation Pond B
Zero (0) gallons of discharge to Facultative Lagoon System Evaporation Pond C

All facultative lagoons maintained greater than 1 foot of freeboard.

Table 2 contains the volume of miscellaneous non-hazardous water discharged to the H-19 Evaporation Pond for this reporting period. This water was generated from groundwater well purging, condensate from the exhaust shaft ductwork, and removal of Waste Shaft sump water.

Table 2
Monthly Discharge Volumes to H-19 Evaporation Pond

Month	Volume (gallons)
July	3,350
August	2,135
September	0
October	560
November	1,110
December	0

There was no new construction or demolition of structures related to discharge control during the reporting period.

The H-19 Evaporation Pond always maintained greater than 1 foot of freeboard.

Monthly inspections were performed on liners of the ponds which included erosion, floating plants and debris, deep-rooted plants, damage from burrowing animals, liner integrity, and storm water escaping

04314

from containment. Minor holes were identified as needing repair during monthly inspections. These holes are planned for repair. These are likely the result of animal activity. Herbicidal applications to control mesquite and desert willows were completed.

Table 3 contains the analytical results for the Facultative Lagoon System and the H-19 Evaporation Pond.

Table 3
Facultative Lagoon System and H-19 Evaporation Pond Analytical Data

Analyte	Sample Date	Influent Pond 2A	Pond B	Pond C	H-19 Evaporation Pond
Nitrate (mg/L)	10/30/12	ND	NA	NA	NA
TKN (mg/L)	10/30/12	69	NA	NA	NA
TDS (mg/L)	10/30/12	500	**456,000**	**3,570**	**432,000**
Sulfate (mg/L)	10/30/12	48	**85,400**	480	504
Chloride (mg/L)	10/30/12	84	**377,000**	**1,330**	**25,000**

TKN: Total Kjeldahl Nitrogen
TDS: Total Dissolved Solids
ND: Not detected, analyte below the method detection limit
NA: Not analyzed, parameters not required
Bold: Concentration exceeds the standards listed in 20.6.2.3103 NMAC for human health. No standards listed for TKN.

2.0 INFILTRATION CONTROL ACTIVITIES

Table 4 contains the analytical results for samples collected from the infiltration control structures. Due to extreme drought conditions, water levels have been low in all infiltration control structures.

Table 4
Infiltration Controls Analytical Data

Analyte	Sample Date	Salt Pile Evaporation Pond	Salt Storage Extension Basin I	Salt Storage Extension Basin II	Evaporation Basin A	Pond 1	Pond 2
TDS (mg/L)	09/18/12	**324,000**	**348,000**	**397,000**	**3,320**	**12,100**	**30,300**
Sulfate (mg/L)	09/18/12	**750**	**16,000**	**58,000**	270	**3,500**	**610**
Chloride (mg/L)	09/18/12	**50,000**	**230,000**	**220,000**	**1,800**	**5,700**	**20,000**
Water Depth (ft)/Volume (gallons)	Depth Measured 10/05/12	0.4/ 412,802	1.4/ 376,710	3.1/ 2,935,000	2.4/ 1,835,777	1.3/ 135,943	1.9/ 488,307

Bold: Concentration exceeds the standards listed in 20.6.2.3103 NMAC for human health

All infiltration control ponds maintained greater than 1 foot of freeboard.

3.0 SUMMARY OF ACTIVITIES RELATED TO THE SHALLOW SUBSURFACE WATER MONITORING AND SAMPLING PROGRAM

Water levels in the shallow subsurface water (SSW) wells (PZ-1 through PZ-15, C-2811, C-2505, C-2506, and C-2507), were obtained September 11-17, 2012, and December 3-6, 2012, and are included in Table 5. These were taken on the quarterly milestones outlined in the ground water monitoring schedule in Table 2 of the September 9, 2008, DP-831 renewal and modification. Total rainfall in the area of the WIPP facility for this reporting period was 4.77 inches compared to 4.10 inches for the same time period in the year 2011. The annual rainfall for the year 2012 was 7.75 inches compared to 4.27 inches in 2011. Total rainfall in 2012 was less than the average annual rainfall for the region of 12.92 inches reported by the National Oceanic and Atmospheric Administration.

In 2012, the general water level trend for the SSW monitoring points was an average decrease in elevation of 0.84 feet. The largest water level elevation decreases were measured in PZ-8 and PZ-12. In 2012, PZ-8 decreased in elevation 2.45 feet and PZ-12 decreased 2.08 feet. The other wells located near lined ponds (PZ-7, PZ-10, and PZ-11) also experienced decreases in water level elevation over one foot in 2012. Overall water level elevation trends indicate that, in combination with a trend of lower rainfall since 2008, the liners are reducing infiltration.

Figure 1 presents a potentiometric surface map of water level elevations measured at the SSW monitoring points in December 2012. Appendix A presents historical hydrographs of SSW monitoring points and WQSP-6A.

WQSP-6A was sampled during October 2012. WQSP-6A data are provided in Table 5. Measurements for pH did not exceed the allowable limit of "between 6 and 9" listed in 20.6.2.3103 NMAC. Measurements for nitrate did not exceed the allowable limit of 10.0 mg/L listed in 20.6.2.3103 NMAC. Sulfate, chloride, and total dissolved solids (TDS) concentrations were detected in WQSP-6A samples at concentrations exceeding standards of 20.6.2.3103 NMAC, *Standards for Ground Water of 10,000 mg/L TDS Concentration or Less*. Although the concentrations were higher than the standards, they are less than background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285, April 1998). Total Kjeldahl nitrogen (TKN) was below the method detection limit of 1 mg/L. There is not a specific allowable limit for TKN listed in 20.6.2.3103 NMAC. These data lead to the conclusion that SSW identified at the WIPP site has not impacted the Dewey Lake groundwater in WQSP-6A.

The SSW piezometers were sampled for field and general chemistry parameters in October 2012, as required by the September 9, 2008, modification to DP-831. Results for the field sampling parameters and laboratory analyses are presented in Table 5. Measurements for pH did not exceed the allowable limit of "between 6 and 9" listed in 20.6.2.3103 NMAC in any of the shallow piezometers sampled. Chloride concentrations exceeded the value of 250.0 mg/L listed in 20.6.2.3103 NMAC in all shallow piezometers sampled. The maximum chloride concentration was 170,000 mg/L in PZ-13, while the minimum concentration was 414 mg/L in PZ-10. Total dissolved solids concentrations exceeded the value of 1000.0 mg/L listed in 20.6.2.3103 NMAC in all shallow piezometers sampled, with the maximum concentration of 263,000 mg/L in PZ-13. Sulfate concentrations exceeded the value of 600.0 mg/L listed in 20.6.2.3103 NMAC in 8 of 11 piezometers sampled with a maximum concentration of 4,440 mg/L in PZ-9.

Appendix B presents historical chemical analysis results for WQSP-6A and the SSW monitoring points obtained since incorporation into the DP-831 permit.

Figure 1 Potentiometric Surface Map

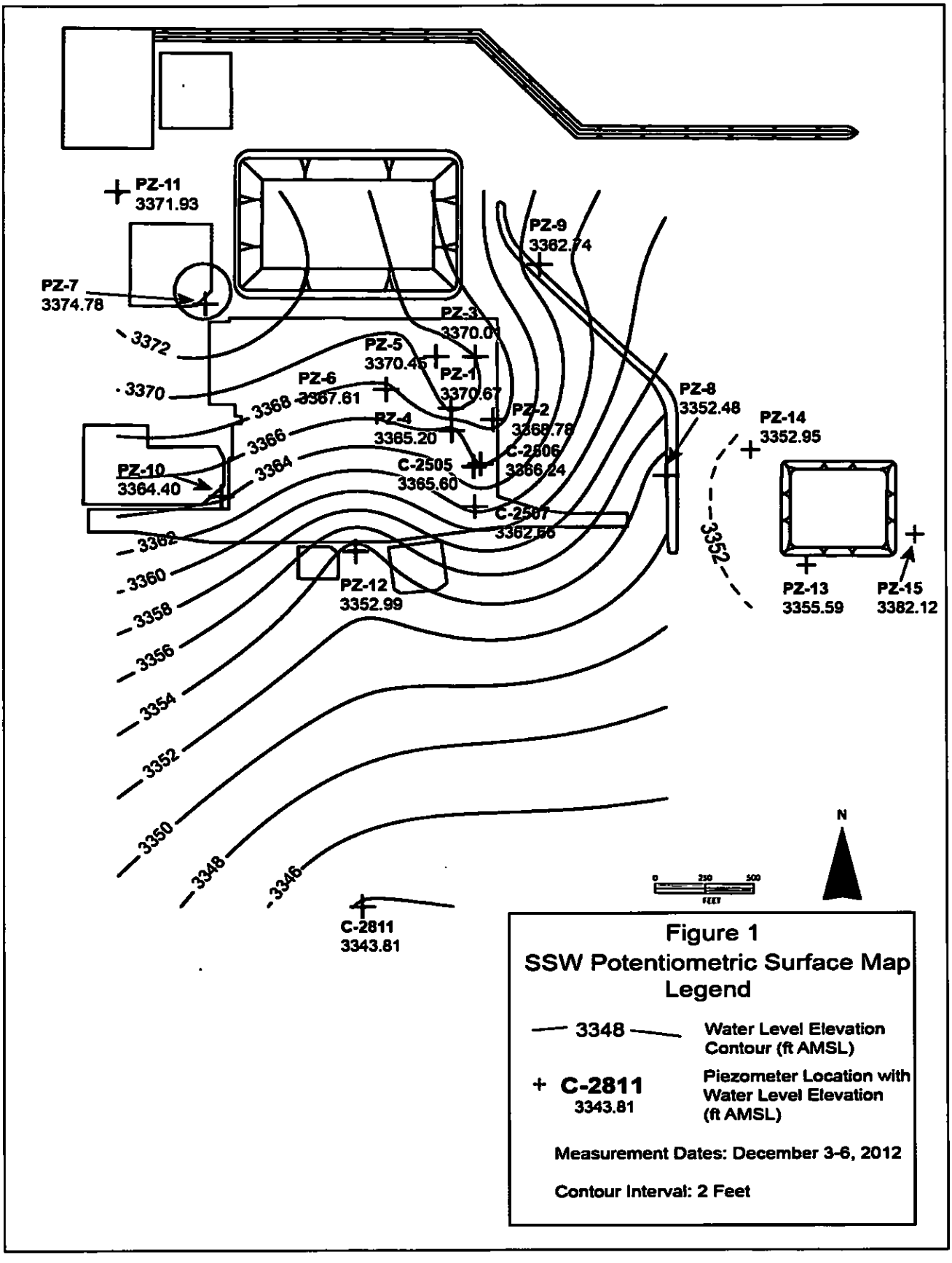
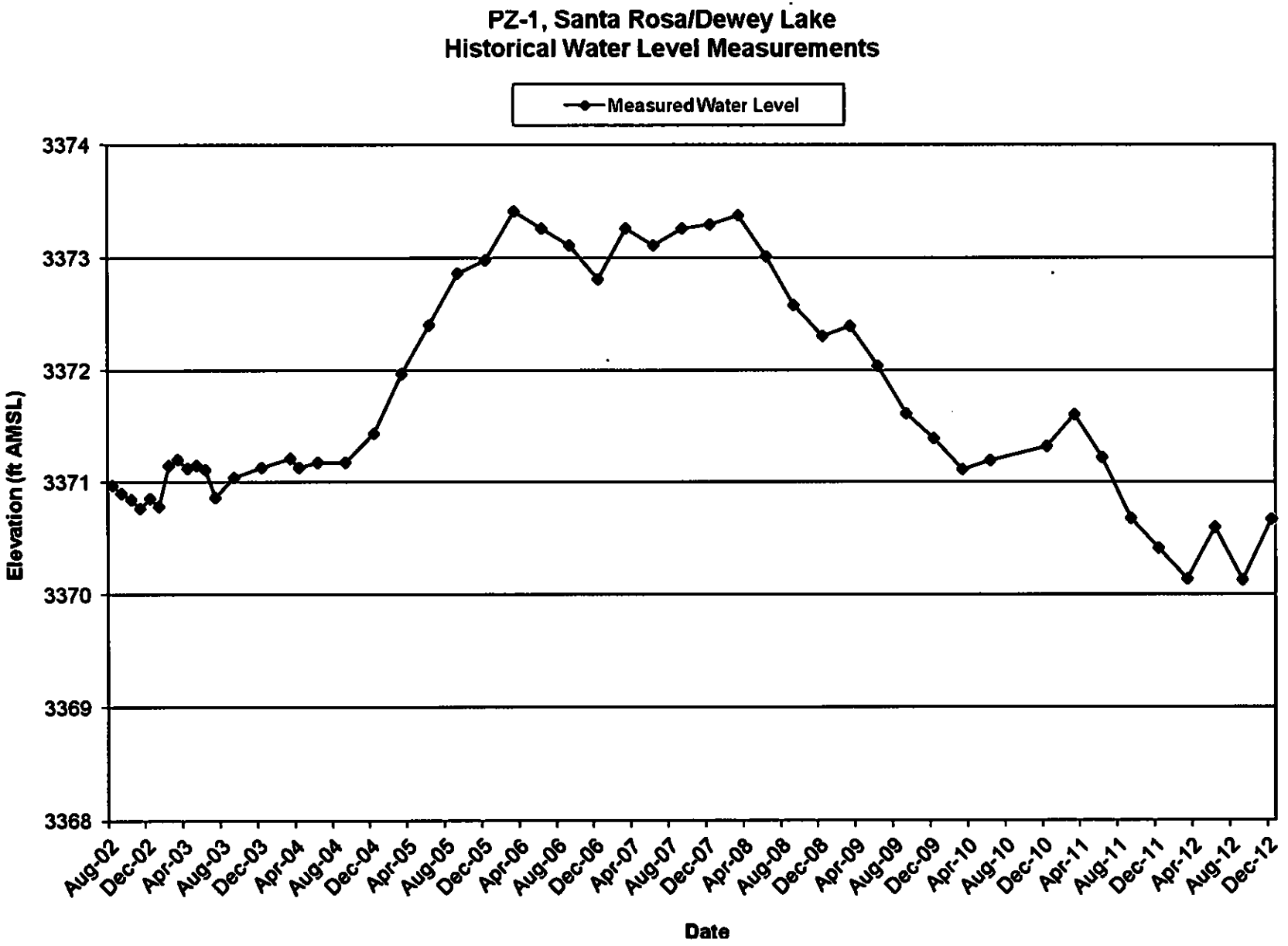
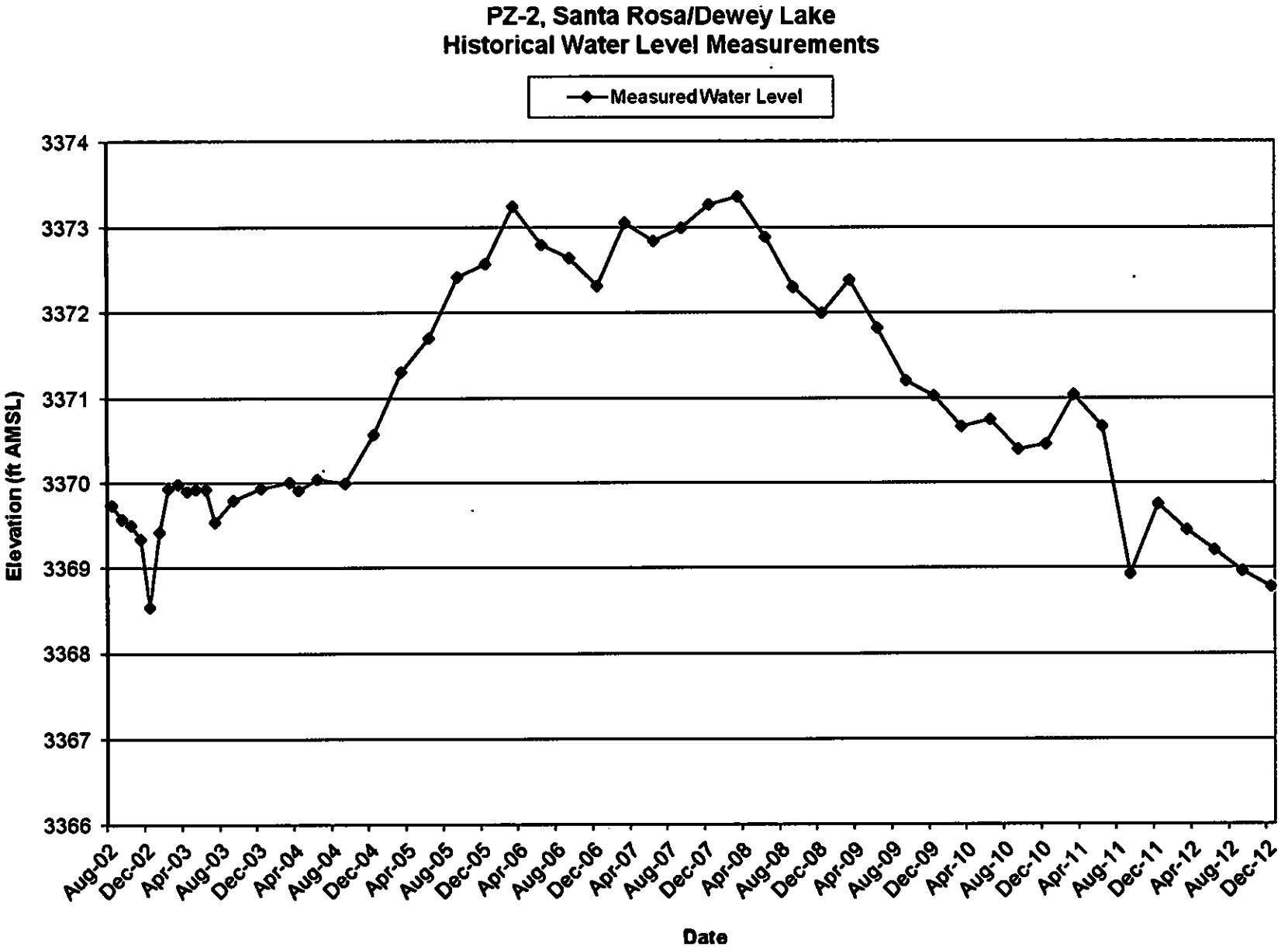


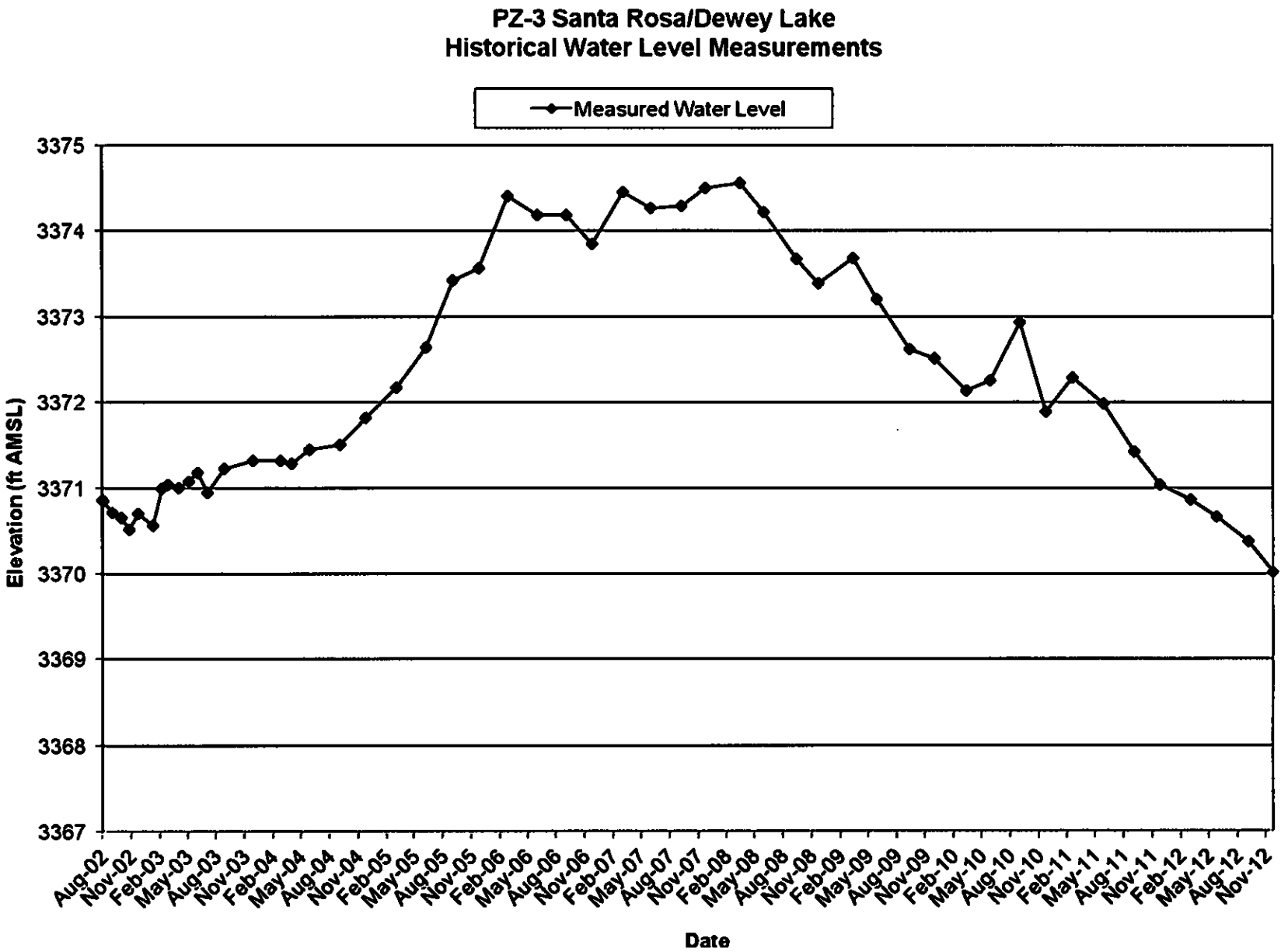
Table 5											
	Water Level Measurements (ft AMSL)		Field and General Chemistry Parameters								Other
Monitoring Site	11-17 Sept. 2012	3-6 Dec. 2012	Sample Date	pH @ 25° C (SU)	Temp. (°C)	Specific Conductivity @25 °C (µS/cm)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)
PZ-1	3,370.13	3,370.67	10/2/2012	6.40	23.4	103,800	NA	**2,110**	**48,100**	**84,200**	NA
PZ-2	3,368.96	3,368.78	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-3	3,370.37	3,370.01	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-4	3,364.23	3,365.20	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-5	3,370.80	3,370.45	10/2/2012	6.92	23.0	27,580	NA	**1,340**	**9,870**	**18,600**	NA
PZ-6	3,367.85	3,367.61	10/2/2012	6.48	22.9	108,800	NA	**2,130**	**52,200**	**78,700**	NA
PZ-7	3,374.75	3,374.78	10/3/2012	6.21	21.8	134,300	NA	**4,380**	**67,500**	**106,000**	NA
PZ-8	3,354.42	3,352.48	NS	NS	NS	NA	NA	NS	NS	NS	NS
PZ-9	3,362.87	3,362.74	10/3/2012	6.15	21.5	155,400	NA	**4,440**	**99,700**	**141,000**	NA
PZ-10	3,364.47	3,364.40	10/1/2012	7.02	24.7	2,805	NA	480	**414**	**1,700**	NA
PZ-11	3,372.16	3,371.93	10/3/2012	6.35	23.3	122,100	NA	**2,220**	**53,000**	**95,600**	NA
PZ-12	3,352.93	3,352.99	10/1/2012	6.87	24.0	14,040	NA	503	**5,290**	**9,780**	NA
PZ-13	3,355.62	3,355.59	10/2/2012	Bailed (See note below)			NA	**3,260**	**170,000**	**263,000**	NA
PZ-14	3,353.01	3,352.95	NS	NS	NS	NS	NA	NS	NS	NS	NS
PZ-15	3,382.26	3,382.12	NS	NS	NS	NS	NA	NS	NS	NS	NS
C-2811	3,344.05	3,343.81	10/1/2012	7.01	20.4	3,568	NA	337	**862**	**2,100**	NA
C-2505	3,365.49	3,365.60	NS	NS	NS	NS	NA	NS	NS	NS	NS
C-2506	3,366.10	3,366.24	NS	NS	NS	NS	NA	NS	NS	NS	NS
C-2507	3,362.77	3,362.66	10/2/2012	6.88	21.0	10,020	NA	**774**	**2,970**	**6,790**	NA
WQSP-6A	3,196.23	3,195.40	10/2/2012	7.04	23.5	3,842	5.1	**2,110**	**301**	**3,400**	<1.0
Explanation:	NA: Not analyzed, parameter not required per DP-831 permit conditions.										
	NS: Not sampled, not required per DP-831 permit conditions. ft AMSL: Feet Above Mean Sea Level										
	PZ-13 Field parameters were not measured since a bailer was used to collect the sample due to difficulty using low-flow pumps.										
	"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health. No limits indicated for TKN.										

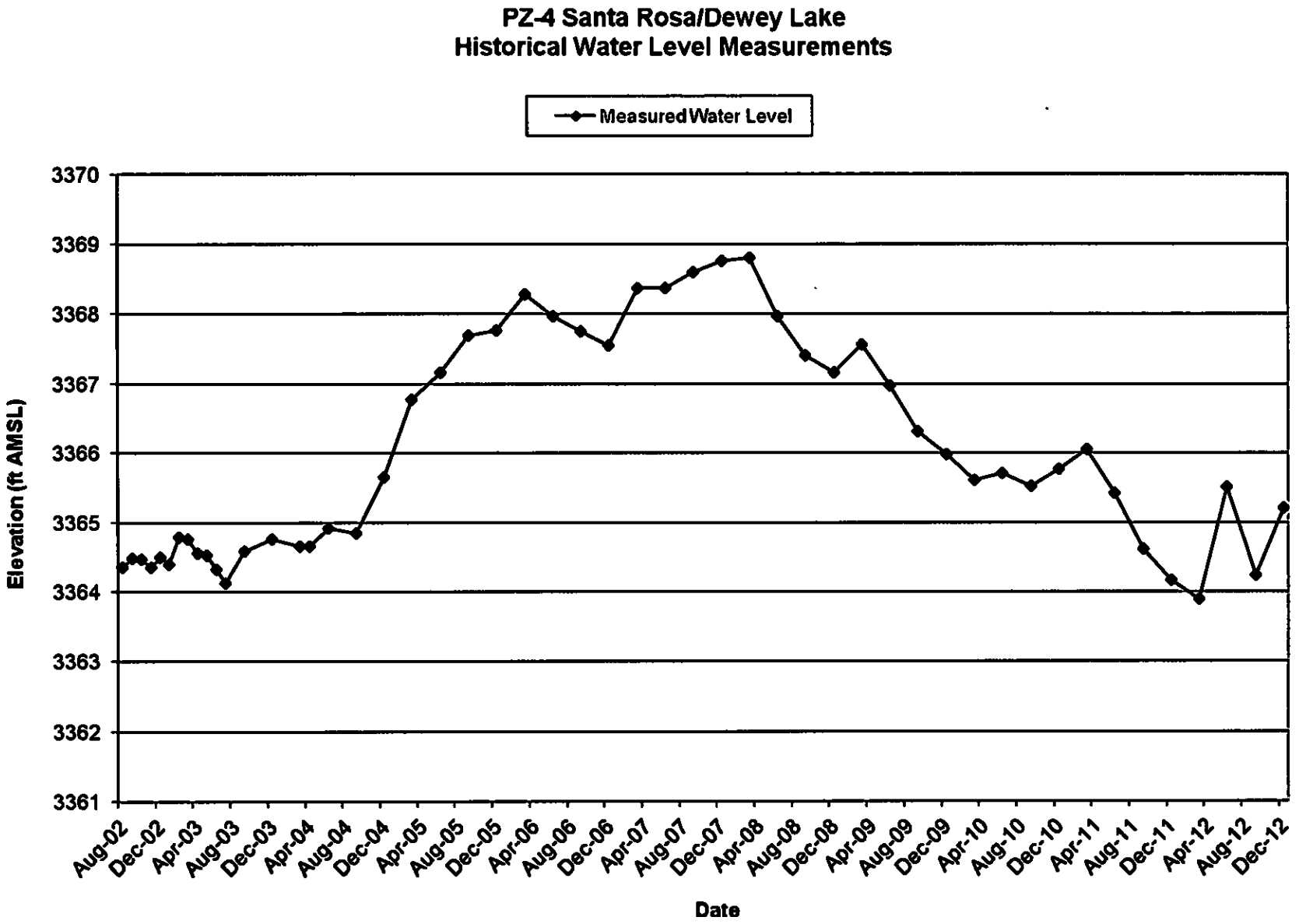
Appendix A

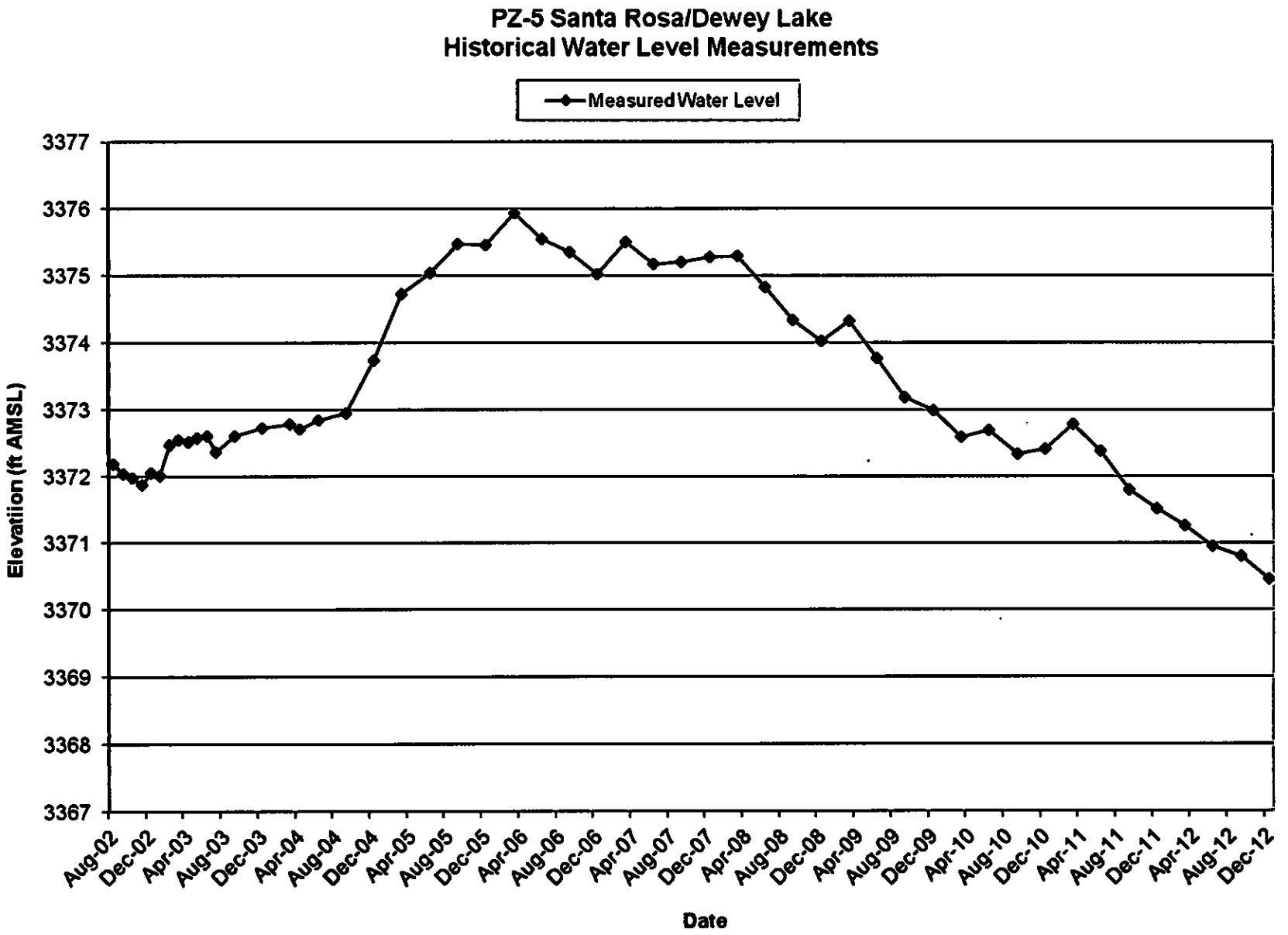
Historical Hydrographs for WQSP-6A and SSW Piezometers/Wells

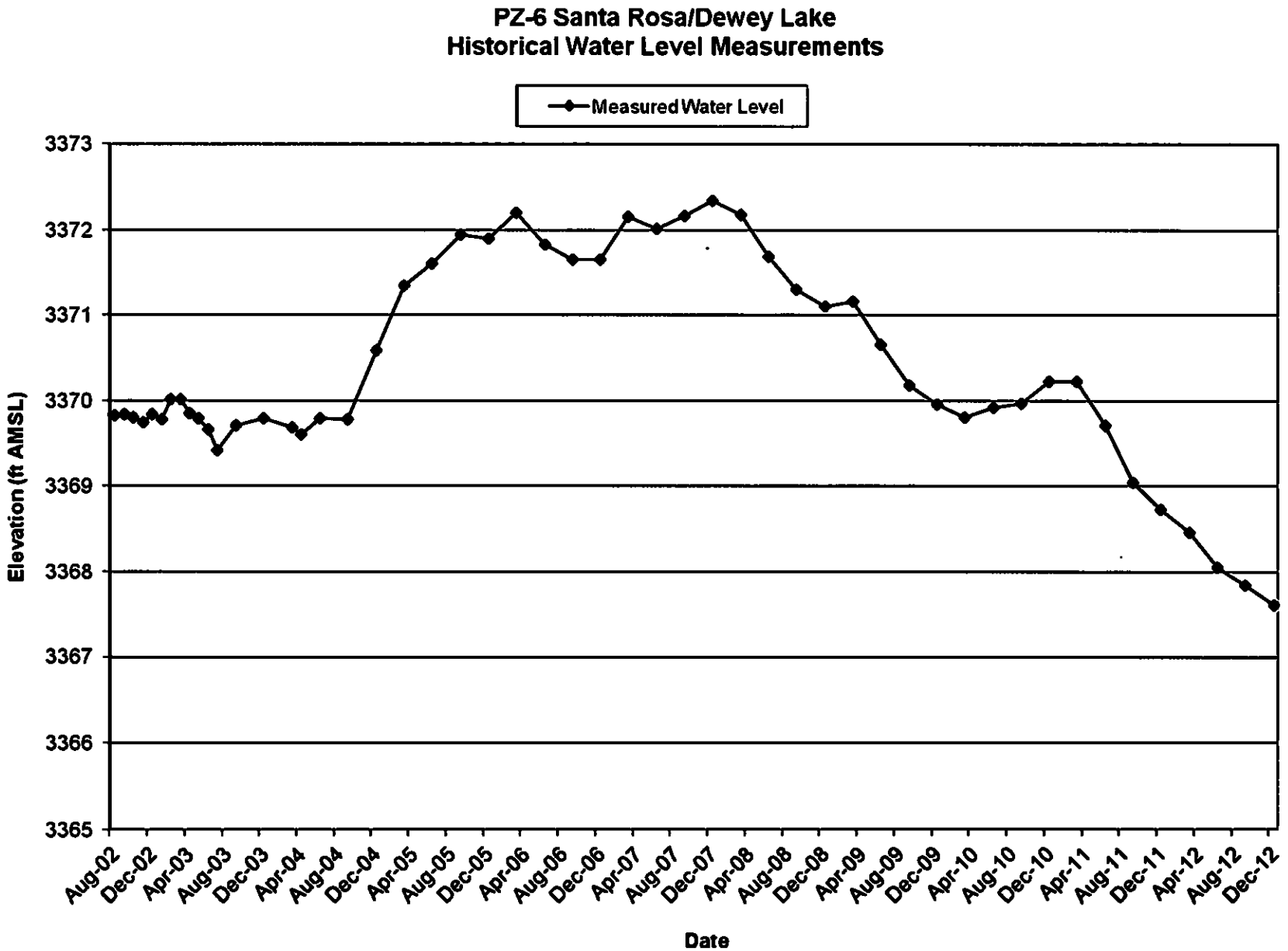

PZ-1, Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft AMSL)
3374
3373
3372
3371
3370
3369
3368
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Date

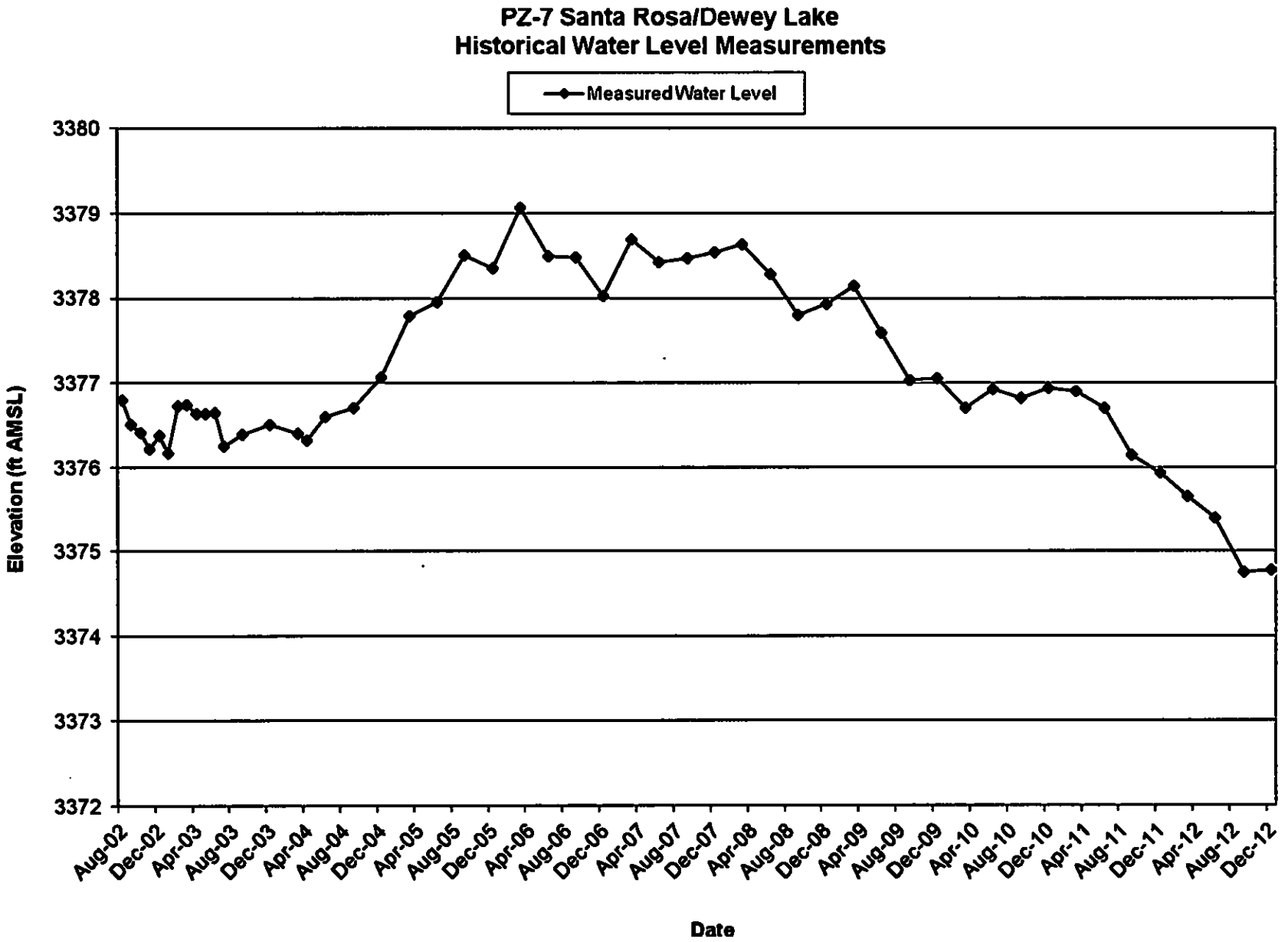

PZ-2, Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft AMSL)
3374
3373
3372
3371
3370
3369
3368
3367
3366
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Date

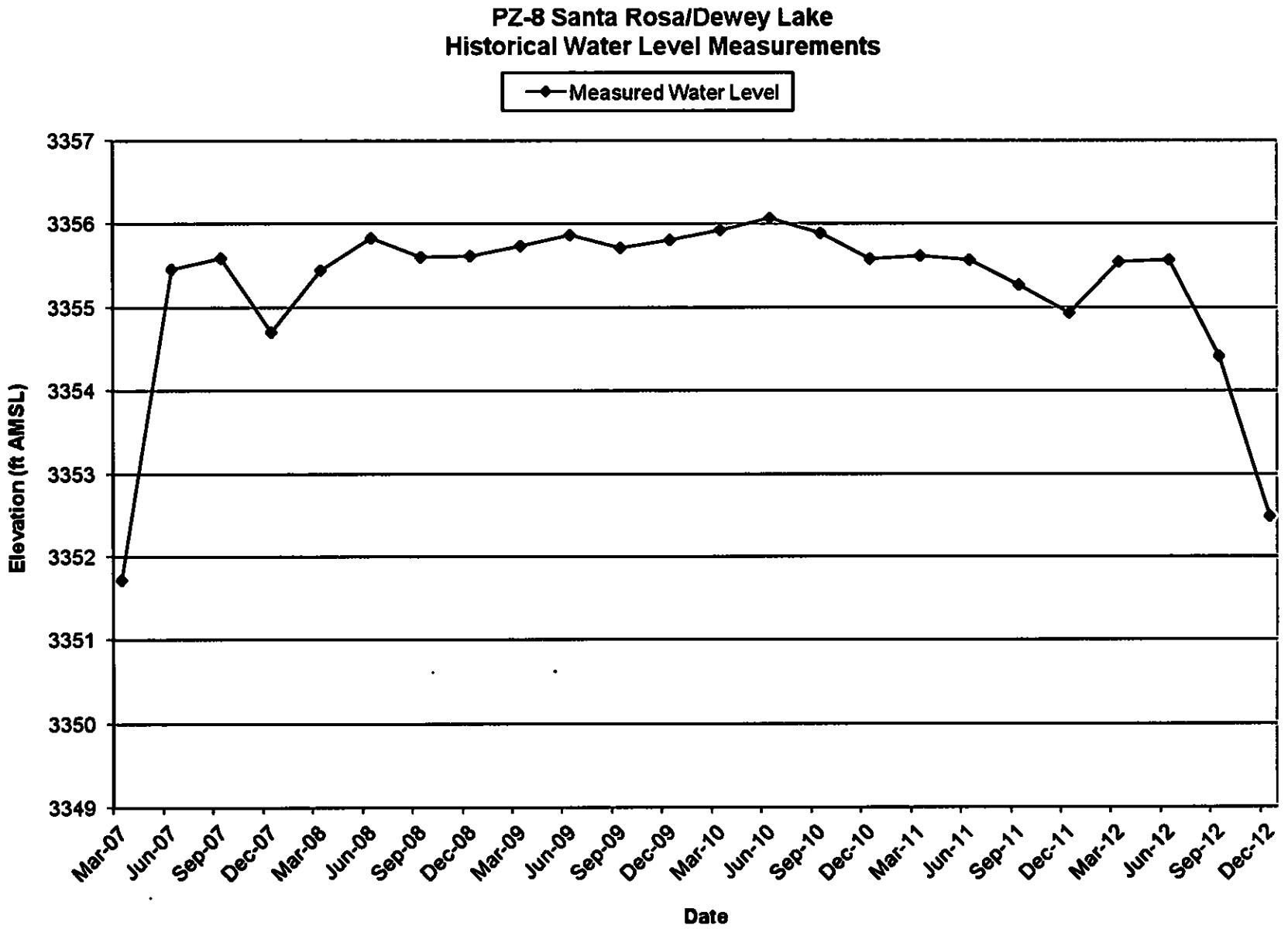

PZ-3 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft AMSL)
3375
3374
3373
3372
3371
3370
3369
3368
3367
Aug-02
Nov-02
Feb-03
May-03
Aug-03
Nov-03
Feb-04
May-04
Aug-04
Nov-04
Feb-05
May-05
Aug-05
Nov-05
Feb-06
May-06
Aug-06
Nov-06
Feb-07
May-07
Aug-07
Nov-07
Feb-08
May-08
Aug-08
Nov-08
Feb-09
May-09
Aug-09
Nov-09
Feb-10
May-10
Aug-10
Nov-10
Feb-11
May-11
Aug-11
Nov-11
Feb-12
May-12
Aug-12
Nov-12
Date

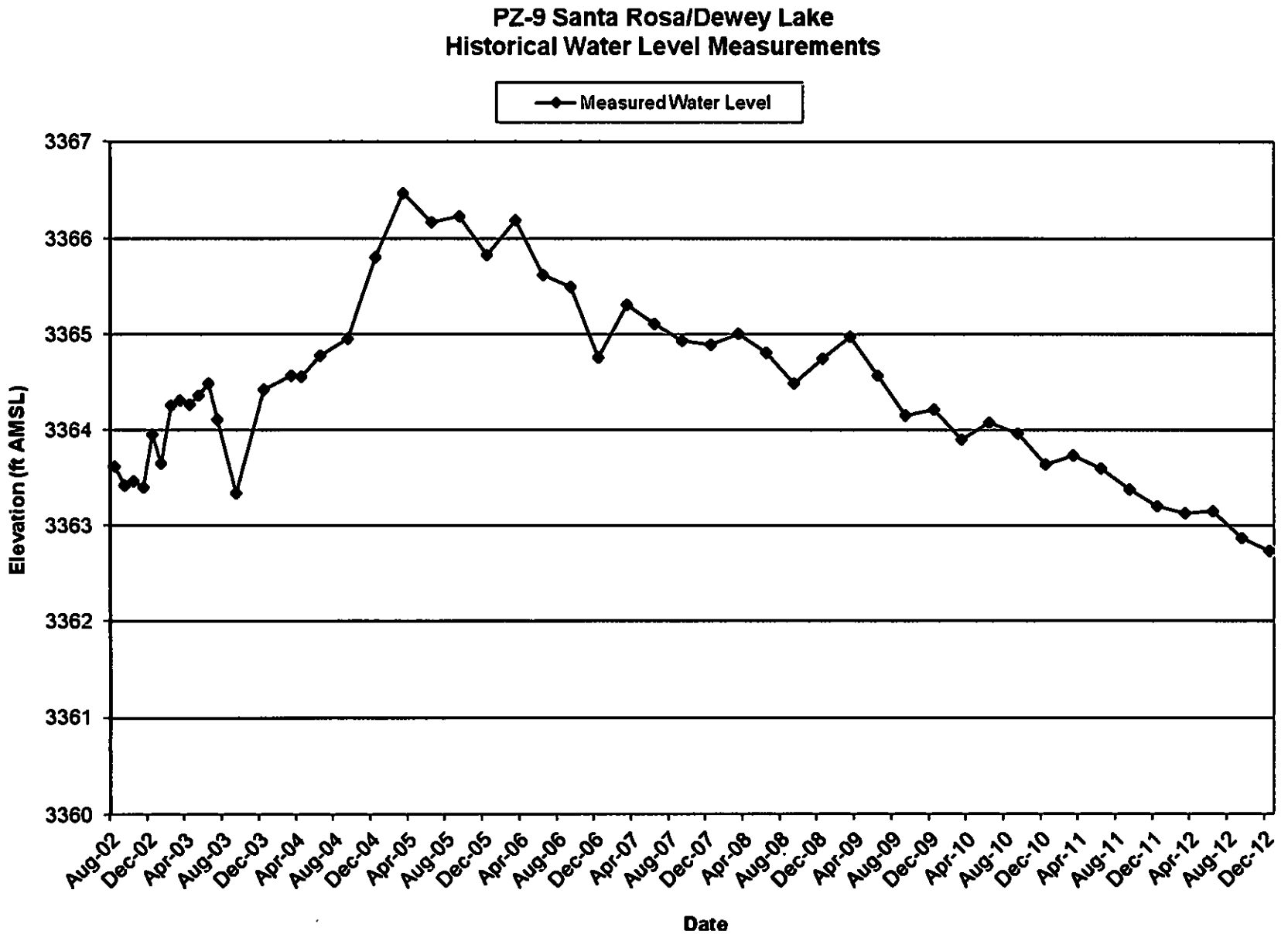

PZ-4 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft AMSL)
3370
3369
3368
3367
3366
3365
3364
3363
3362
3361
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Date


PZ-5 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft AMSL)
3377
3376
3375
3374
3373
3372
3371
3370
3369
3368
3367
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Date


PZ-6 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft AMSL)
3373
3372
3371
3370
3369
3368
3367
3366
3365
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Date


PZ-7 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft AMSL)
3380
3379
3378
3377
3376
3375
3374
3373
3372
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Date


PZ-8 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft AMSL)
3357
3356
3355
3354
3353
3352
3351
3350
3349
Mar-07
Jun-07
Sep-07
Dec-07
Mar-08
Jun-08
Sep-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Mar-10
Jun-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
Dec-11
Mar-12
Jun-12
Sep-12
Dec-12
Date


PZ-9 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft AMSL)
3367
3366
3365
3364
3363
3362
3361
3360
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Date

ENCLOSURE 2

Water Level Measurements and Water Quality Data
Total Pages: 1

Water Level Measurements and Water Quality Data

		Water Level Monitoring (Ft AMSL)									Other
Monitoring Site	Sample Date	11-17 Sept. 2012	3-6 Dec. 2012	pH @ 25° C (SU)	Temp. (°C)	Specific Conductivity @ 25 °C (µS/cm)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)
PZ-1	10/2/2012	3,370.13	3,370.67	6.4	23.4	103,800	NA	**2,110**	**48,100**	**84,200**	NA
PZ-2	NS	3,368.96	3,368.78	NS	NS	NS	NS	NS	NS	NS	NS
PZ-3	NS	3,370.37	3,370.01	NS	NS	NS	NS	NS	NS	NS	NS
PZ-4	NS	3,364.23	3,365.20	NS	NS	NS	NS	NS	NS	NS	NS
PZ-5	10/2/2012	3,370.80	3,370.45	6.92	23	27,580	NA	**1,340**	**9,870**	**18,600**	NA
PZ-6	10/2/2012	3,367.85	3,367.61	6.48	22.9	108,800	NA	**2,130**	**52,200**	**78,700**	NA
PZ-7	10/3/2012	3,374.75	3,374.78	6.21	21.8	134,300	NA	**4,380**	**67,500**	**106,000**	NA
PZ-8	NS	3,354.42	3,352.48	NS	NS	NS	NA	NS	NS	NS	NS
PZ-9	10/3/2012	3,362.87	3,362.74	6.15	21.5	155,400	NA	**4,440**	**99,700**	**141,000**	NA
PZ-10	10/1/2012	3,364.47	3,364.40	7.02	24.7	2,805	NA	480	414	**1,700**	NA
PZ-11	10/3/2012	3,372.16	3,371.93	6.35	23.3	122,100	NA	**2,220**	**53,000**	**95,600**	NA
PZ-12	10/1/2012	3,352.93	3,352.99	6.87	24	14,040	NA	503	**5,290**	**9,780**	NA
PZ-13	10/2/2012	3,355.62	3,355.59	Bailed			NA	**3,260**	**170,000**	**263,000**	NA
PZ-14	NS	3,353.01	3,352.95	NS	NS	NS	NA	NS	NS	NS	NS
PZ-15	NS	3,382.26	3,382.12	NS	NS	NS	NA	NS	NS	NS	NS
C-2811	10/1/2012	3,344.05	3,343.81	7.01	20.4	3,568	NA	337	**862**	**2,100**	NA
C-2505	NS	3,365.49	3,365.60	NS	NS	NS	NA	NS	NS	NS	NS
C-2506	NS	3,366.10	3,366.24	NS	NS	NS	NA	NS	NS	NS	NS
C-2507	10/2/2012	3,362.77	3,362.66	6.88	21	10,020	NA	774	**2,970**	**6,790**	NA
WQSP-6A	10/2/2012	3,196.23	3,195.40	7.04	23.5	3,842	5.1	**2,110**	**301**	**3,400**	<1.0

Explanation:
NA: Not Analyzed, parameter not required, per permit conditions.
NS: Not Sampled, not required per permit conditions
PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty using Low-Flow pumps
."Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

JUL 26 2012

GROUND WATER
JUL 27 2012
BUREAU

Mr. Clint Marshall
New Mexico Environment Department
Ground Water Quality Bureau
Mining and Environmental Compliance Section
P.O. Box 26110
Santa Fe, New Mexico 87502

Subject: Semi-Annual Discharge Monitoring Report for January 1 through June 30, 2012

Dear Mr. Marshall:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Discharge Monitoring Report, including Table 4 in Excel® format on CD, for the period of January 1 through June 30, 2012. This report is required by Discharge Permit DP-831.

If you have any questions about this report or require any additional information, please contact me at (575) 234-8128.

Sincerely,

Daniel J. Ferguson, Site Regulatory Specialist
Carlsbad Field Office

Enclosures (2)

cc: w/o enclosures
J. Kieling, NMED *ED
T. Kliphuis, NMED ED
M. Menetrey, NMED ED
CBFO M&RC
*ED denotes electronic distribution

04331

CBFO:OESH:DJF:ANC:12-0770:UFC 5486.00

GROUND WATER
JUL 27 2012
BUREAU

Enclosure 1

Waste Isolation Pilot Plant (WIPP) Semi-Annual Discharge Monitoring Report for Discharge Plan DP-831

Pages 5

GROUND WATER
JUL 27 2012
BUREAU

WASTE ISOLATION PILOT PLANT (WIPP)
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PLAN DP-831
January 1 through June 30, 2012

SPECIFIC REPORTING REQUIREMENTS OF DP-831

1.0 WIPP SEWAGE TREATMENT FACILITY AND H-19 EVAPORATION POND MONITORING AND REPORTING

Table 1
Monthly Discharge Volumes to Facultative Lagoon System

Month (2012)	Volume* (gallons)
January	380,331
February	530,560
March	368,002
April	388,336
May	338,631
June	504,358

*Based on total domestic water use

Facultative Lagoon System Evaporation Pond B: None
Facultative Lagoon System Evaporation Pond C: None

Table 2
Monthly Discharge Volumes to H-19 Evaporation Pond

Month (2012)	Volume (gallons)
January	None
February	70
March	1,000
April	4,840
May	4,122
June	54,170*

*A well pump test was performed on well H-11b4R that resulted in 52,920 gallons being discharged into H-19.

Table 3 contains a summary of the analytical results for the Sewage Treatment System and the H-19 Evaporation Pond. Miscellaneous non-hazardous water disposed of in the H-19 Evaporation Pond was purged water from groundwater monitoring activities and Waste Shaft sump water.

04333

Table 3 Sewage Treatment Facility and H-19 Analytical Data Summary					
Analyte	Sample Date	Influent Pond 2A	Pond B	Pond C	H-19
Nitrate (mg/L)	3/21/12	ND	NS	NS	NS
TKN (mg/L)	3/21/12	44	NS	NS	NS
TDS (mg/L)	3/21/12	444	NS	NS	NS
Sulfate (mg/L)	3/21/12	46	NS	NS	NS
Chloride (mg/L)	3/21/12	74	NS	NS	NS

ND: Not detected, analyte below the detection limit

NS: Not Sampled, pond was dry during the field sampling timeframe. To ensure adequate time for receipt and review of the analytical data prior to the July submittal of this report, the surface water sampling was conducted in March. Some brine water was disposed of into the H-19 ponds; however, there is enough sediment in the pond to absorb this water therefore not allowing for adequate "free water" to sample. The H-11b4R purged groundwater was not placed in the pond until June; therefore, the timeframe for receipt and review of the analytical data would have prohibited timely submittal of this report. This pond will be sampled during July and the analytical results will be presented in the next July-December 2012 semi-annual report.

INFILTRATION CONTROL ACTIVITIES

Due to extreme drought conditions, water levels have been low in all infiltration control ponds and maintenance has not been necessary due to no water erosion. The Salt Pile Evaporation Pond, Evaporation Pond A, and Pond 1 were dry.

2.0 SUMMARY OF ACTIVITIES RELATED TO THE SHALLOW SUBSURFACE WATER (SSW) MONITORING AND SAMPLING PROGRAM

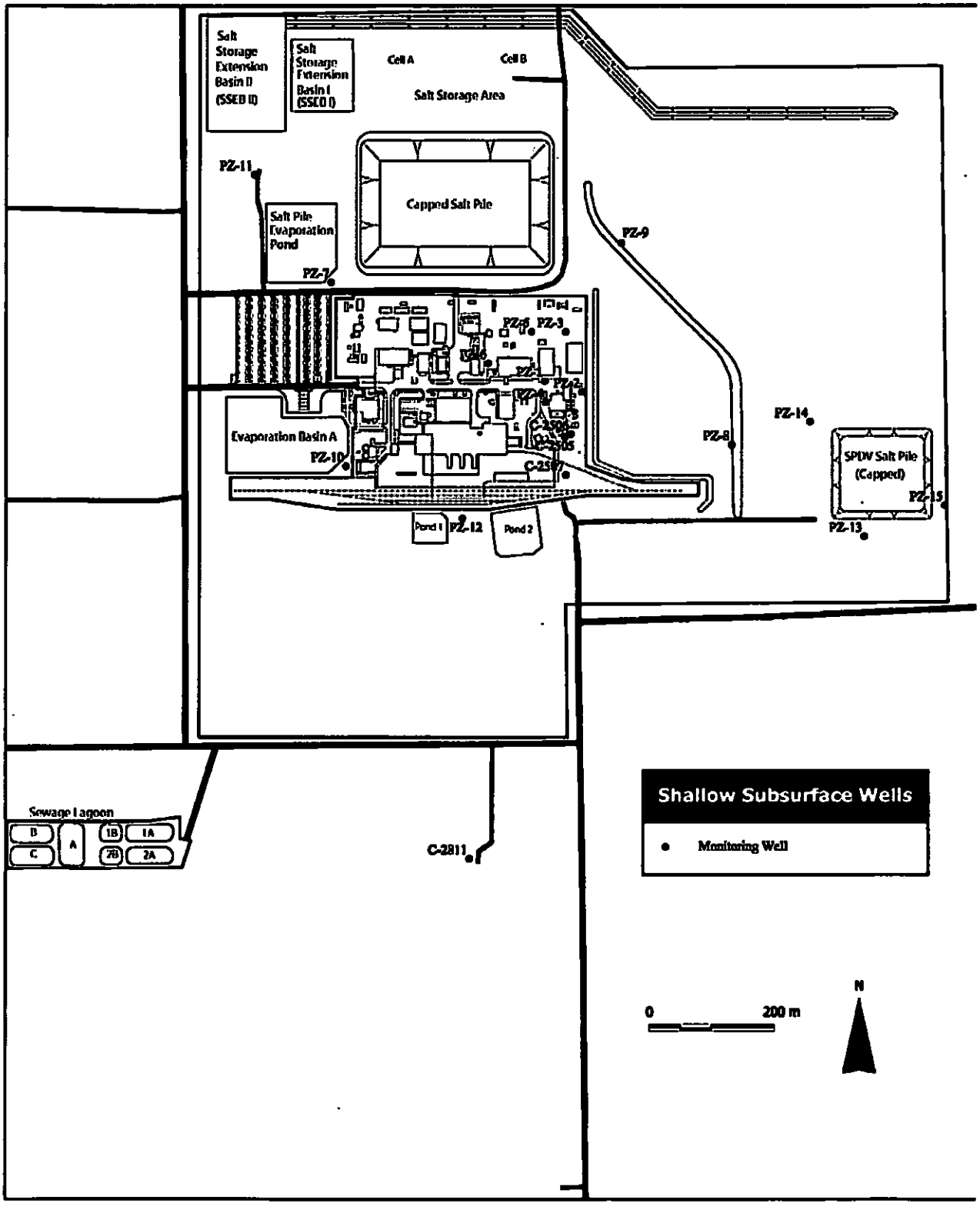
Water levels in the shallow wells (PZ-1 through PZ-15, C-2811, C-2505, C-2506, and C-2507), Figure 1, were obtained March 12-15, 2012, and June 5-7, 2012, and are included in Table 4. These were taken on the quarterly milestones outlined in the Ground Water Monitoring Schedule, in the September 9, 2008, DP-831 Modification. Total rainfall in the area of WIPP for this reporting period was 2.98 inches compared to 0.17 inches for the same time period in 2011, a difference of 2.81 inches more in 2012. Total rainfall in 2011 was considerably less than the average annual rainfall for the region of 12.92 inches reported by the National Oceanic and Atmospheric Administration.

During the reporting period, the general water level trend for the shallow subsurface water (SSW) monitoring points was an average decrease in elevation of 0.28 feet. Overall water level elevation trends indicate that, in combination with lower rainfall since 2008, the liners are reducing infiltration enough to see an effect.

WQSP-6A was sampled on May 16, 2012. WQSP-6A sampling results are provided in Table 4. Sulfate, chloride, and total dissolved solids were detected in WQSP-6A samples at concentrations exceeding standards of 20.6.2.3103 NMAC, Standards for Ground Water of 10,000 mg/L TDS Concentration or Less for Human Health and Domestic Water Supply. Although the concentrations were higher than the standards, they are less than background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285). Nitrate was also detected but did not exceed the standards. Total Kjeldahl nitrogen was below the detection limit of one mg/L. The shallow subsurface water (SSW) identified at the WIPP site has not impacted the Dewey Lake groundwater in WQSP-6A based on the consistency of analyzed parameters in WQSP-6A.

The SSW piezometers were sampled for field and general chemistry parameters in May 2012, as required by the September 9, 2008, modification to DP-831. One piezometer was sampled on May 14, 2012, five on May 15, 2012, and five on May 16, 2012. Results for the field sampling parameters and laboratory analyses are presented in Table 4. Chloride concentrations exceeded values listed in 20.6.2.3103 NMAC in all shallow piezometers sampled. The maximum chloride concentration was 160,000 mg/L in PZ-13, while the minimum concentration was 410 mg/L in PZ-10. Total dissolved solids concentrations exceeded 20.6.2.3103 NMAC values in all shallow piezometers sampled, with the maximum concentration of 252,000 mg/L in PZ-13 and a minimum concentration of 1,650 mg/L in PZ-10. Sulfate concentrations exceeded 20.6.2.3103 NMAC values in 9 of 11 piezometers sampled with a maximum concentration of 4,900 mg/L in PZ-9 and a minimum concentration of 320 mg/L in C-2811.

Figure 1 Central Portion of the WIPP Site



04336

Table 4 Shallow Subsurface Water Monitoring Program											
	Water Level Monitoring (Ft AMSL)		Field Parameters			General Chemistry Parameters					Other
Monitoring Well	3/12-3/15/12	6/5-6/7/12	pH (SU)	Temp. (°C)	Specific Conductivity @25 °C (µS/cm)	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)
PZ-1	3370.14	3370.60	6.35	24.4	107,600	05/16/12	NA	**2,100**	**54,000**	**82,100**	NA
PZ-2	3369.45	3369.21	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-3	3370.86	3370.66	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-4	3363.89	3365.51	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-5	3371.26	3370.95	6.85	23.0	32,900	05/16/12	NA	**1,500**	**12,000**	**21,400**	NA
PZ-6	3368.46	3368.06	6.47	23.7	92,900	05/16/12	NA	**1,800**	**41,000**	**67,200**	NA
PZ-7	3375.65	3375.40	6.22	24.4	127,700	05/15/12	NA	**3,000**	**64,000**	**96,600**	NA
PZ-8	3355.54	3355.56	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-9	3363.13	3363.15	6.18	22.5	166,600	05/16/12	NA	**4,900**	**98,000**	**152,000**	NA
PZ-10	3366.10	3364.91	7.08	21.9	2,635	05/15/12	NA	450	**410**	**1,650**	NA
PZ-11	3372.86	3372.63	6.32	22.4	120,800	05/15/12	NA	**2,400**	**59,000**	**93,200**	NA
PZ-12	3355.04	3354.15	6.78	21.6	15,880	05/15/12	NA	**620**	**6,400**	**9,400**	NA
PZ-13	3355.83	3355.67	Bailed			05/15/12	NA	**3,300**	**160,000**	**252,000**	NA
PZ-14	3353.03	3353.02	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-15	3382.53	3382.31	NS	NS	NS	NS	NS	NS	NS	NS	NS
C-2811	3345.04	3344.57	7.14	20.3	3,474	05/14/12	NA	320	**810**	**1,870**	NA
C-2505	3365.96	3365.89	NS	NS	NS	NS	NS	NS	NS	NS	NS
C-2506	3366.53	3366.49	NS	NS	NS	NS	NS	NS	NS	NS	NS
C-2507	3363.31	3363.07	6.86	22.3	10,230	05/16/12	NA	**800**	**2,800**	**5,720**	NA
WQSP-6a	3196.39	3196.35	7.01	22.5	3,800	05/16/12	5.4	**2,200**	**310**	**3,340**	<1.0

Explanation: **NA: Not Analyzed, parameter not required, per permit conditions**

NS: Not Sampled, not required per permit conditions

PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty using low-flow pumps

"Bold" concentrations exceed values listed in 20.6.2.3103 NMAC Standards Human Health and Domestic Water Supply

Enclosure 2

Table 4 Shallow Subsurface Water Monitoring Program

Pages: 1

Table 4
Shallow Subsurface Water Monitoring Program

	Water Level Monitoring (Ft AMSL)		Field Parameters			General Chemistry Parameters					Other
Monitoring Well	3/12-3/15/12	6/5-6/7/11	pH (SU)	Temp. (°C)	Specific Conductivity @25 °C (µS/cm)	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)
PZ-1	3370.14	3370.6	6.35	24.4	107,600	5/16/2012	NA	**2,100**	**54,000**	**82,100**	NA
PZ-2	3369.45	3369.21	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-3	3370.86	3370.66	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-4	3363.89	3365.51	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-5	3371.26	3370.95	6.85	23	32,900	5/16/2012	NA	**1,500**	**12,000**	**21,400**	NA
PZ-6	3368.46	3368.06	6.47	23.7	92,900	5/16/2012	NA	**1,800**	**41,000**	**67,200**	NA
PZ-7	3375.65	3375.4	6.22	24.4	127,700	5/15/2012	NA	**3,000**	**64,000**	**96,600**	NA
PZ-8	3355.54	3355.56	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-9	3363.13	3363.15	6.18	22.5	166,600	5/16/2012	NA	**4,900**	**98,000**	**152,000**	NA
PZ-10	3366.1	3364.91	7.08	21.9	2,635	5/15/2012	NA	450	**410**	**1,650**	NA
PZ-11	3372.86	3372.63	6.32	22.4	120,800	5/15/2012	NA	**2,400**	**59,000**	**93,200**	NA
PZ-12	3355.04	3354.15	6.78	21.6	15,880	5/15/2012	NA	**620**	**6,400**	**9,400**	NA
PZ-13	3355.83	3355.67	Bailed			5/15/2011	NA	**3,300**	**160,000**	**252,000**	NA
PZ-14	3353.03	3353.02	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-15	3382.53	3382.31	NS	NS	NS	NS	NS	NS	NS	NS	NS
C-2811	3345.04	3344.57	7.14	20.3	3,474	5/14/2012	NA	320	**810**	**1,870**	NA
C-2505	3365.96	3365.89	NS	NS	NS	NS	NS	NS	NS	NS	NS
C-2506	3366.53	3366.49	NS	NS	NS	NS	NS	NS	NS	NS	NS
C-2507	3363.31	3363.07	6.86	22.3	10,230	5/16/2012	NA	**800**	**2,800**	**5,720**	NA
WQSP-6a	3196.39	3196.35	7.01	22.5	3,800	5/16/2012	5.4	**2,200**	**310**	**3,340**	<1.0

Explanation: **NA: Not Analyzed, parameter not required, per permit conditions**

NS: Not Sampled, not required per permit conditions

PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty using Low-Flow pumps

"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

JAN 2 6 2012

GROUND WATER

JAN 2 7 2012

BUREAU

Mr. Clint Marshall
New Mexico Environment Department
Ground Water Quality Bureau
Mining and Environmental Compliance Section
P.O. Box 26110
Santa Fe, NM 87502

Subject: Semi-Annual Discharge Monitoring Report for July 1, 2011, through December 31, 2011

Dear Mr. Marshall:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Discharge Monitoring Report for the period of July 1, 2011, through December 31, 2011. This report is required by Discharge Permit 831.

If you have any questions about this report or require any additional information, please contact me at (575) 234-8128.

Sincerely,

Daniel J. Ferguson, Site Regulatory Specialist
Carlsbad Field Office

Enclosure

cc: w/o enclosure
J. Kieling, NMED *ED
T. Kliphuis, NMED ED
M. Menetrey, NMED ED
CBFO M&RC
*ED denotes electronic distribution

04340

CBFO:OESH:DJF:ANC:12-0706:UFC 5487.00

WASTE ISOLATION PILOT PLANT (WIPP)
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT PLAN DP-831
July 1 through December 31, 2011

SPECIFIC REPORTING REQUIREMENTS OF DP-831

1.0 WIPP FACULTATIVE LAGOON SYSTEM AND H-19 EVAPORATION POND MONITORING AND REPORTING

Table 1 contains a summary of the volume of "sewage water" discharged to the Facultative Lagoon System for this reporting period.

Table 1
Monthly Discharge Volumes to Facultative Lagoon System

Month	Volume (gallons)
July	117,010
August	198,130
September	71,800
October	35,600
November	336,081*
December	501,996*

*Monthly value based on total domestic water use. The flow meter was obstructed thus providing erroneous readings during these months. To determine the source and identify corrective measures to prevent reoccurrence, the WIPP facility operations organization is evaluating an alternative preventive maintenance schedule for the Facultative Lagoon System water flow meter.

Facultative Lagoon System Evaporation Pond B: No discharge
Facultative Lagoon System Evaporation Pond C: No discharge

Table 2 contains a summary of the volume of miscellaneous non-hazardous water discharged to the H-19 Evaporation Pond for this reporting period. This water was generated from groundwater well purging and removal of Waste Shaft sump water.

Table 2
Monthly Discharge Volumes to H-19 Evaporation Pond

Month	Volume (gallons)
July	1,350
August	895
September	3,500
October	1,825
November	1,200
December	1,000

Table 3 contains a summary of the analytical results for the Facultative Lagoon System and the H-19 Evaporation Pond.

Table 3
Facultative Lagoon System and H-19 Analytical Data Summary

Analyte	Sample Date	Influent Pond 2A	Pond B	Pond C	H-19
Nitrate (mg/L)	11/15/2011	ND	NA	NA	NA
TKN (mg/L)	11/15/2011	100	NA	NA	NA
TDS (mg/L)	11/15/2011	478	**400,000**	NS	NS
Sulfate (mg/L)	11/15/2011	54	**61,000**	NS	NS
Chloride (mg/L)	11/15/2011	96	**310,000**	NS	NS

ND: Not detected, analyte below the detection limit
NA: Not analyzed, parameters not required
NS: Not sampled, pond was dry
Bold: Concentration exceeds the standards listed in 20.6.2.3103 NMAC for human health and domestic water supply

2.0 INFILTRATION CONTROL ACTIVITIES

Table 4 contains the analytical results for samples collected from the infiltration control ponds. Due to extreme drought conditions, water levels have been low in all infiltration control ponds. The Salt Pile Evaporation Pond was dry and Pond 1 was at an extreme low level, therefore, no samples were taken.

Table 4
Infiltration Controls Analytical Data Summary

Analyte	Sample Date	Salt Pile Evaporation Pond	Salt Storage Extension Basin I	Salt Storage Extension Basin II	Evaporation Basin A	Pond 1	Pond 2
TDS (mg/L)	11/15/2011	NS	**359,000**	**423,000**	**3,090**	NS	**14,200**
Sulfate (mg/L)	11/15/2011	NS	**19,000**	**110,000**	330	NS	270
Chloride (mg/L)	11/15/2011	NS	**230,000**	**430,000**	**1,800**	NS	**8,100**
Water Depth (ft)/Volume (cubic feet)	Depth Measured 12/7/2011	0.0 (0)	2.6 (967,719)	1.4 (600,000)	1.2 (620,479)	0.1 (10,166)	0.6 (148,681)

NS: Not sampled, pond was dry or water depth was extremely low
Bold: Concentration exceeds the standards listed in 20.6.2.3103 NMAC for human health and domestic water supply

3.0 SUMMARY OF ACTIVITIES RELATED TO THE SHALLOW SUBSURFACE WATER MONITORING AND SAMPLING PROGRAM

Water levels in the shallow wells (PZ-1 through PZ-15, C-2811, C-2505, C-2506, and C-2507), Figure 1, were obtained September 14-15, 2011, and December 1-7, 2011, and are included in Table 5. These were taken on the quarterly milestones outlined in the ground water monitoring schedule, in DP-831. Total rainfall at the WIPP facility for this reporting period was 4.10 inches compared to 7.25 inches for the same time period in 2010. The annual rainfall for 2011 was 4.27 inches compared to 13.06 inches in 2010.

In 2011, the general water level trend for the shallow subsurface water (SSW) monitoring points was an average decrease in elevation of 1.01 feet. Overall water level elevation trends indicate that, in combination with lower rainfall since 2008, the liners are reducing infiltration enough to see an effect.

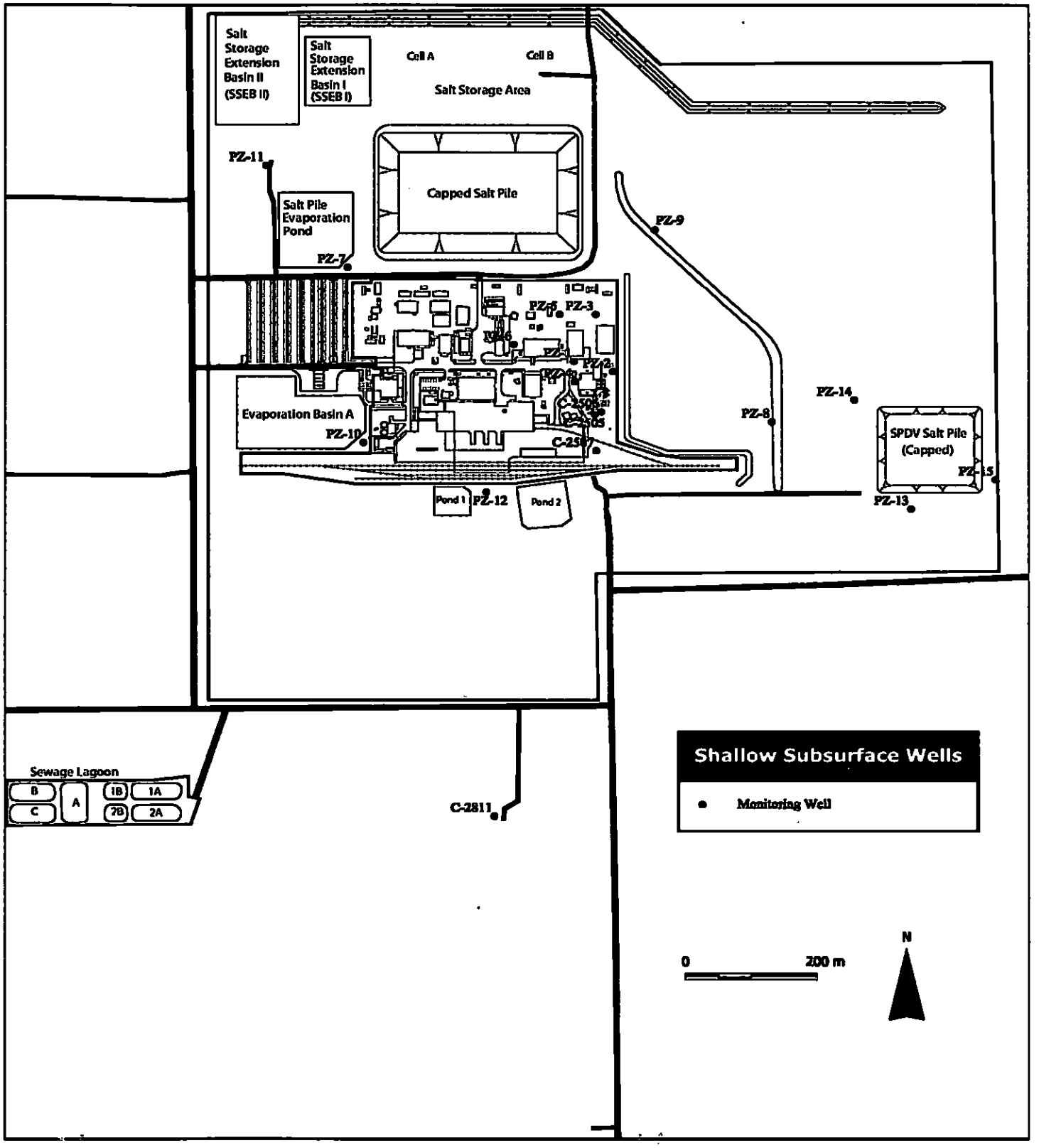
Figure 2 presents a potentiometric surface map of water level elevations recorded in the SSW monitoring points for December 2011. Appendix A presents historical hydrographs of SSW monitoring points since installation.

WQSP-6A was sampled during October 2011. WQSP-6A data are provided in Table 5. Sulfate, chloride, and total dissolved solids (TDS) concentrations were detected in WQSP-6A samples at concentrations exceeding standards of 20.6.2.3103 NMAC, *Standards for Ground Water of 10,000 mg/L TDS Concentration or Less for Human Health and Domestic Water Supply*. Although the concentrations were higher than the standards, they are less than background concentrations established in the *Addendum of Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285), November 2000. Total Kjeldahl nitrogen (TKN) was below the detection limit of 1 mg/L. The shallow subsurface water identified at the WIPP site has not impacted the Dewey Lake groundwater in WQSP-6A based on the consistency of analyzed parameters in WQSP-6A.

The SSW piezometers were sampled for field and general chemistry parameters in October 2011, as required by DP-831. Three were sampled on October 3rd, five on October 4th, and three on October 5th. Results for the field sampling parameters and laboratory analyses are presented in Table 5. Chloride concentrations exceeded values listed in 20.6.2.3103 NMAC for human health and domestic water supply in all shallow piezometers sampled. The maximum chloride concentration was 170,000 mg/L in PZ-13, while the minimum concentration was 370 mg/L in PZ-10. Total dissolved solids concentrations exceeded 20.6.2.3103 NMAC values for human health and domestic water supply in all shallow piezometers sampled, with the maximum concentration of 259,000 mg/L in PZ-13. Sulfate concentrations exceeded 20.6.2.3103 NMAC values for human health and domestic water supply in 9 of 11 piezometers sampled with a maximum concentration of 4,600 mg/L in PZ-9.

Appendix B presents historical chemical analysis results for the SSW monitoring points obtained since incorporation into the DP-831 permit.

Figure 1 WIPP Site Map



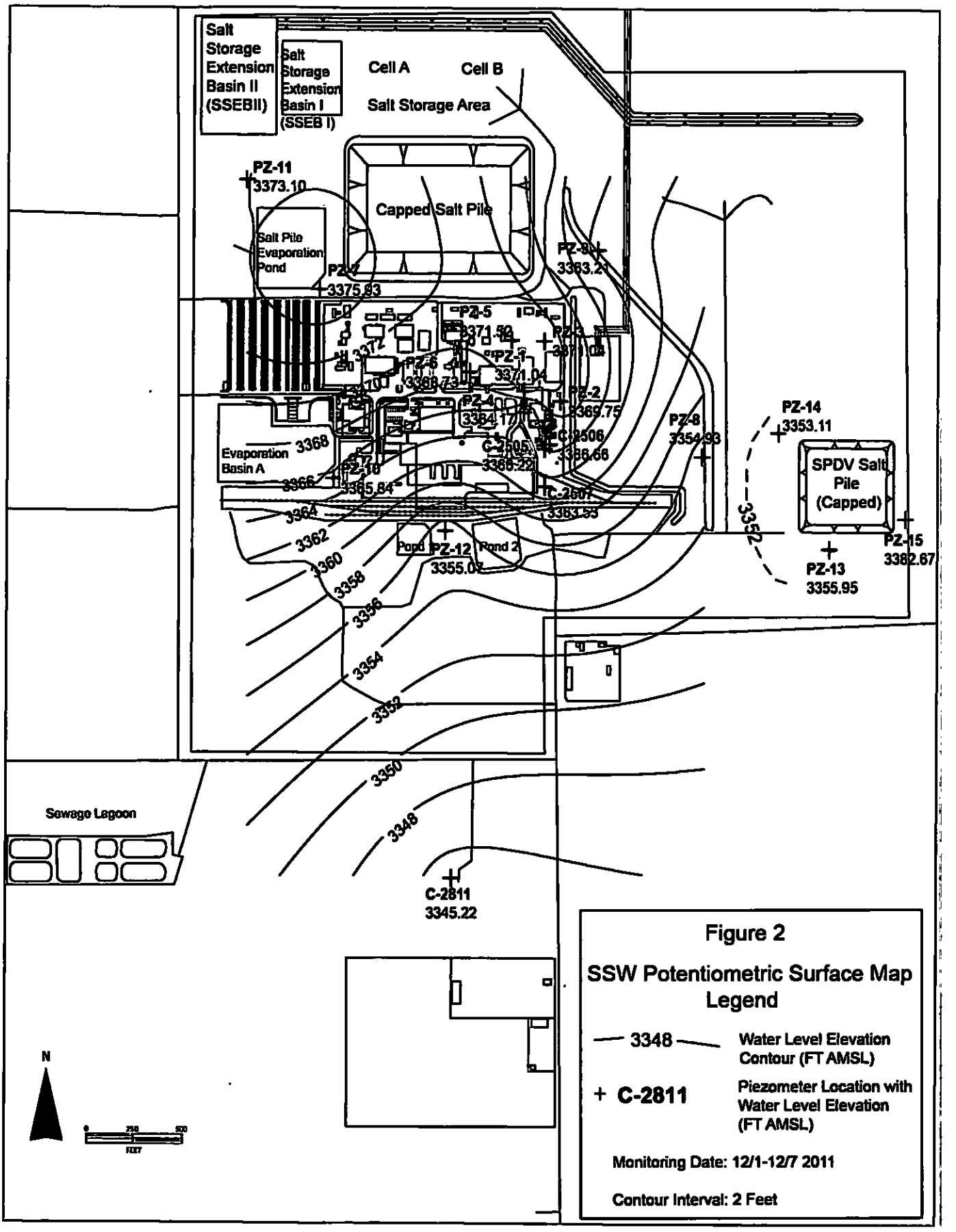

Salt Storage Extension Basin II (SSEBII)
Salt Storage Extension Basin I (SSEB I)
Cell A
Cell B
Salt Storage Area
PZ-11
3373.10
Capped Salt Pile
Salt Pile Evaporation Pond
PZ-7
3375.93
PZ-9
3363.21
PZ-5
3371.50
PZ-3
3371.02
PZ-6
3368.73
PZ-1
3371.04
PZ-2
3369.75
PZ-4
3364.17
C-2506
3366.66
C-2505
3366.22
PZ-8
3354.93
PZ-14
3353.11
SPDV Salt Pile (Capped)
PZ-15
3382.67
PZ-13
3355.95
Evaporation Basin A
PZ-10
3365.84
C-2507
3363.93
Pond
PZ-12
3355.02
Pond 2
3372
3368
3366
3364
3362
3360
3358
3356
3354
3352
3350
3348
Sewage Lagoon
C-2811
3345.22
N
0
250
500
FEET
Figure 2
SSW Potentiometric Surface Map Legend
3348
Water Level Elevation Contour (FT AMSL)
C-2811
Piezometer Location with Water Level Elevation (FT AMSL)
Monitoring Date: 12/1-12/7 2011
Contour Interval: 2 Feet

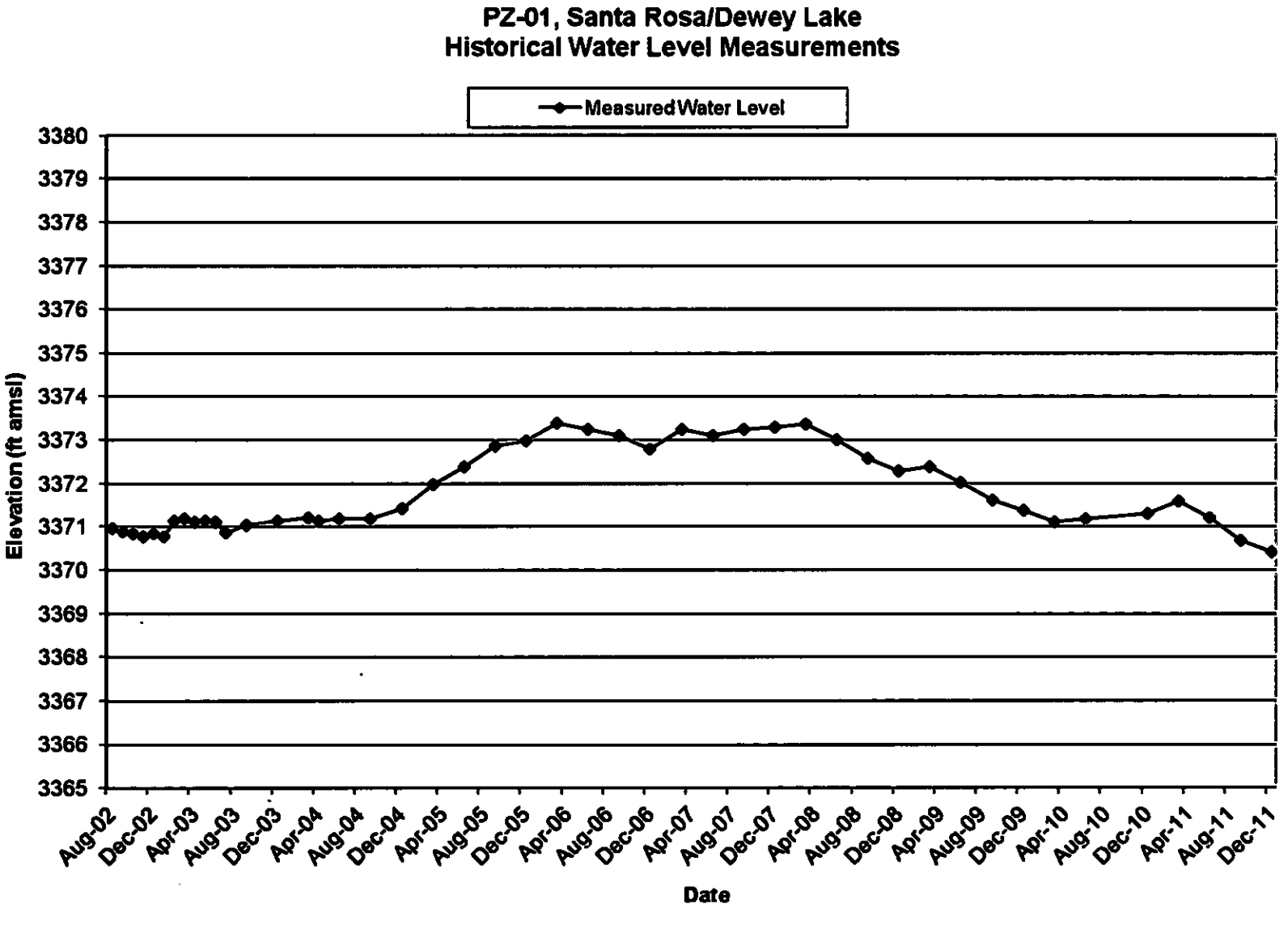
Table 5
Shallow Subsurface Water Monitoring Program

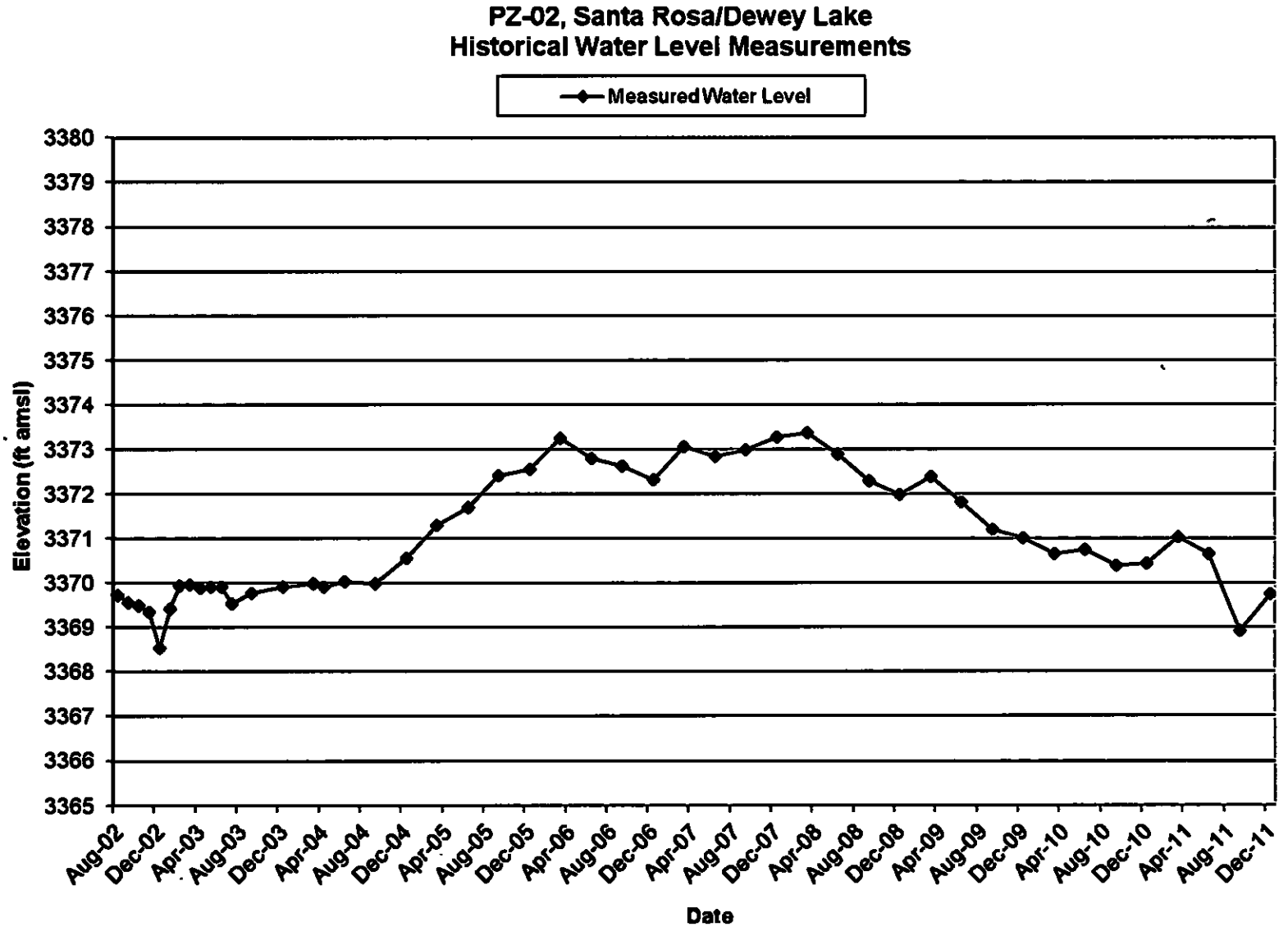
	Water Level (Ft AMSL)		Field Parameters			General Chemistry Parameters					Other
Monitoring Site	September 14-15, 2011	December 1-7, 2011	pH (SU)	Temp. (°C)	Specific Conductivity @25 °C (µS/cm)	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)
PZ-1	3,370.68	3,370.41	6.26	24.6	101,900	10/05/11	NA	**2,000**	**50,000**	**84,600**	NA
PZ-2	3,368.93	3,369.75	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-3	3,371.43	3,371.04	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-4	3,364.61	3,364.17	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-5	3,371.80	3,371.52	6.76	23.4	29,330	10/04/11	NA	**1,300**	**13,000**	**19,800**	NA
PZ-6	3,369.05	3,368.73	6.41	21.8	94,500	10/05/11	NA	**1,900**	**41,000**	**69,800**	NA
PZ-7	3,376.14	3,375.93	6.16	22.9	128,100	10/04/11	NA	**3,100**	**81,000**	**116,000**	NA
PZ-8	3,355.27	3,354.93	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-9	3,363.38	3,363.21	6.14	27.2	167,900	10/04/11	NA	**4,600**	**99,000**	**153,000**	NA
PZ-10	3,367.13	3,365.84	7.11	21.1	2,408	10/04/11	NA	440	**370**	**1,640**	NA
PZ-11	3,373.42	3,373.10	6.17	25.1	111,900	10/03/11	NA	**2,300**	**65,000**	**92,200**	NA
PZ-12	3,355.67	3,355.07	6.50	27.8	19,670	10/03/11	NA	**900**	**6,800**	**13,100**	NA
PZ-13	3,356.03	3,355.95	Bailed			10/04/11	NA	**3,000**	**170,000**	**259,000**	NA
PZ-14	3,353.11	3,353.11	NS	NS	NS	NS	NA	NS	NS	NS	NS
PZ-15	3,382.85	3,382.67	NS	NS	NS	NS	NA	NS	NS	NS	NS
C-2505	3,366.34	3,366.22	NS	NS	NS	NS	NA	NS	NS	NS	NS
C-2506	3,366.87	3,366.66	NS	NS	NS	NS	NA	NS	NS	NS	NS
C-2507	3,363.71	3,363.53	6.75	20.9	10,170	10/05/11	NA	**810**	**3,400**	**6,660**	NA
C-2811	3,345.44	3,345.22	6.81	25.8	3,565	10/03/11	NA	340	**910**	**2,330**	NA
WQSP-6a	3,196.71	3,196.50	6.93	23.6	3,818	10/06/11	5.9	**2,100**	**280**	**3,450**	<1.0

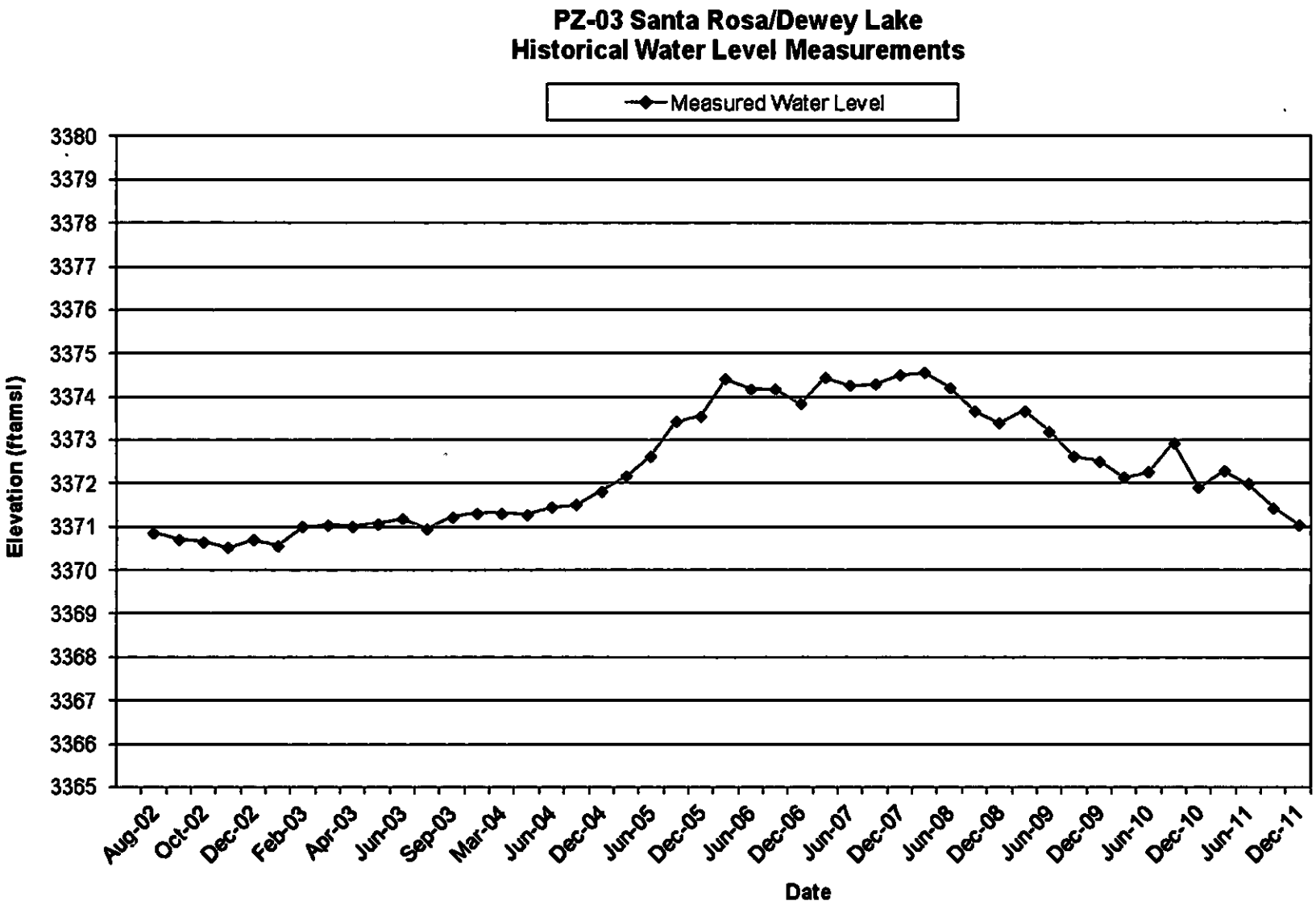
Explanation: NA: Not analyzed, parameter not required, per permit conditions
NS: Not sampled, not required per permit conditions
PZ-13 Field parameters were not measured since a bailer was used to collect the sample due to difficulty using low-flow pumps
"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for human health and domestic water supply

Appendix A

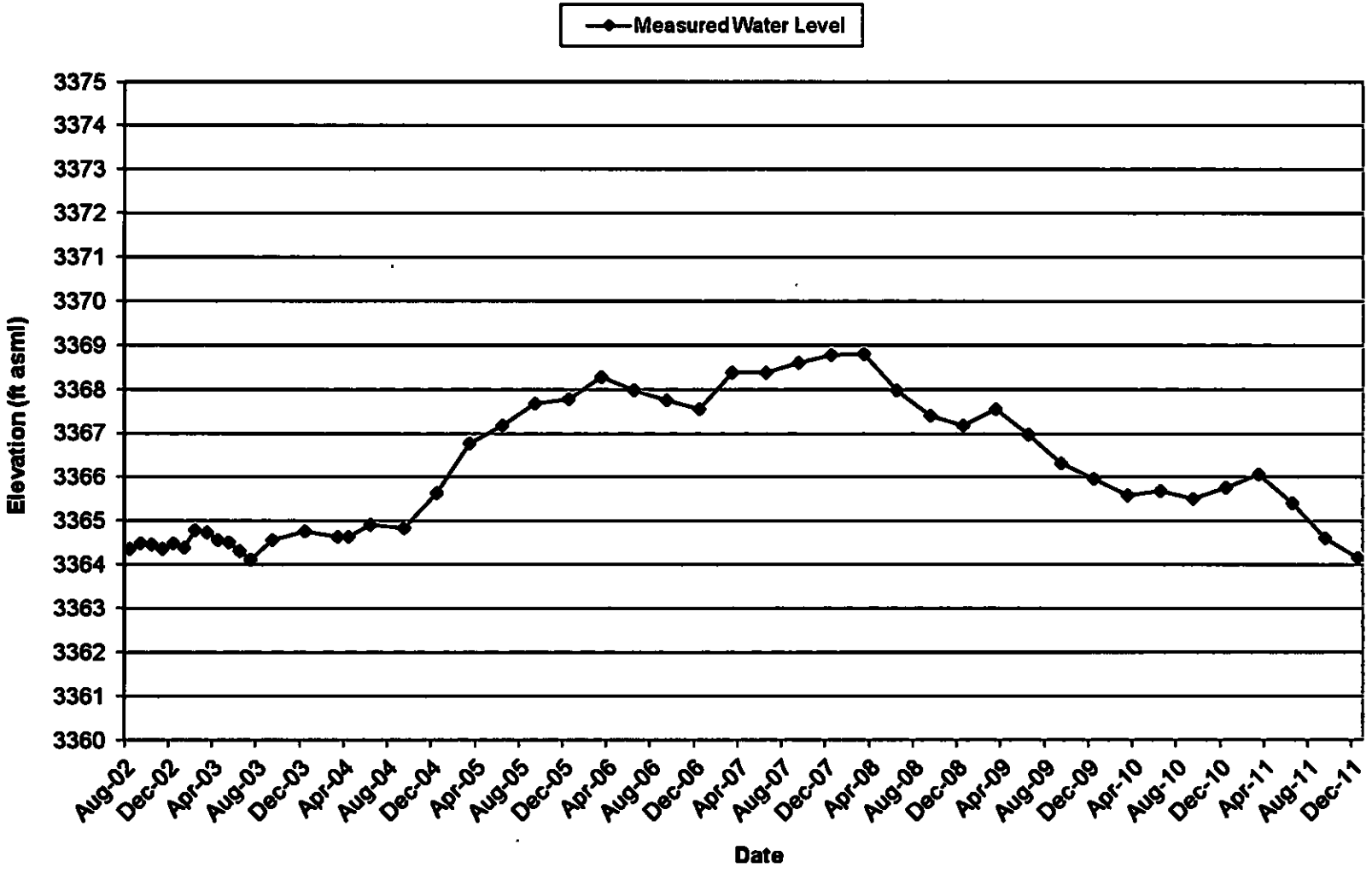
Historical Hydrographs for SSW Piezometers/Wells

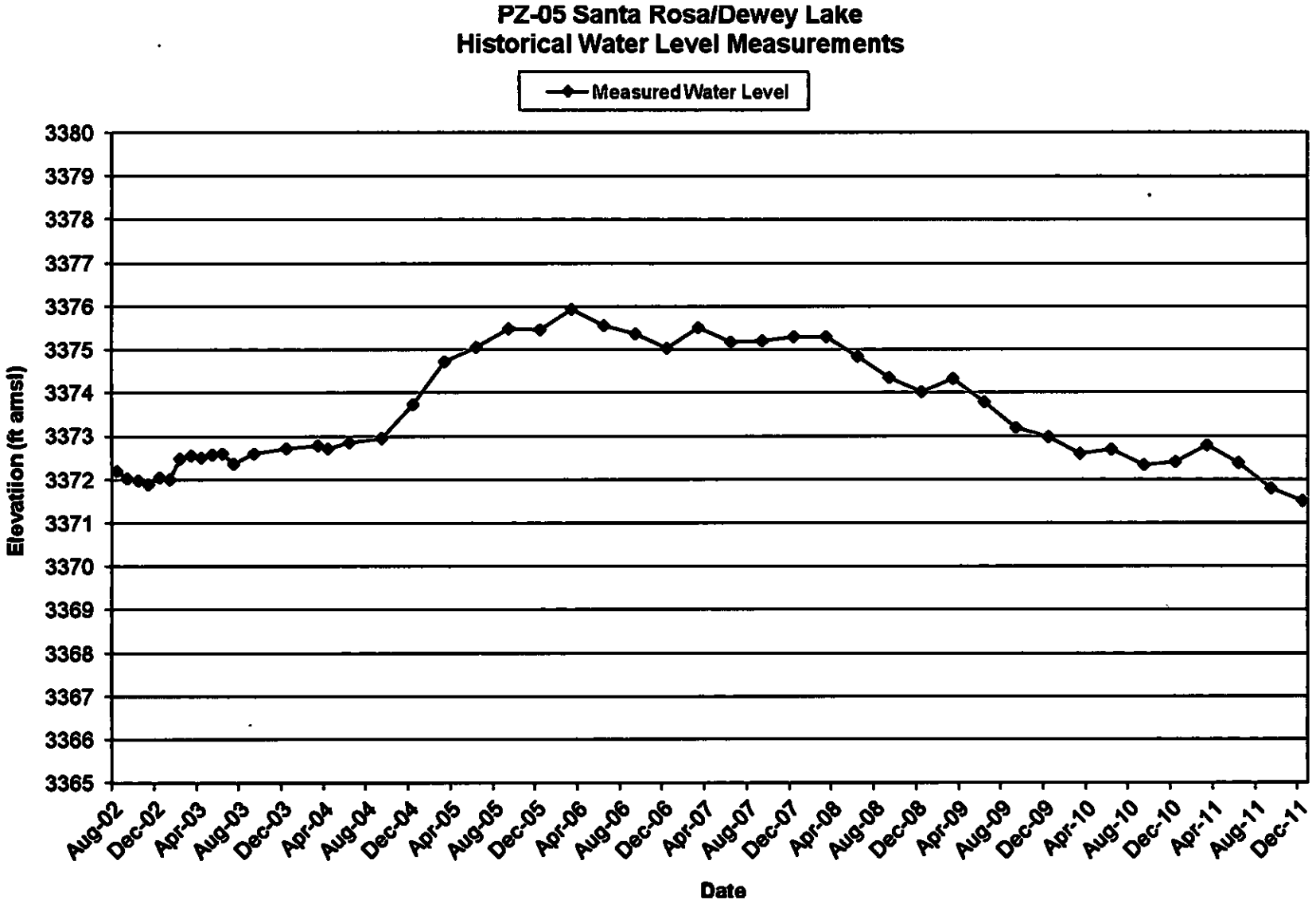

PZ-01, Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3380
3379
3378
3377
3376
3375
3374
3373
3372
3371
3370
3369
3368
3367
3366
3365
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Date

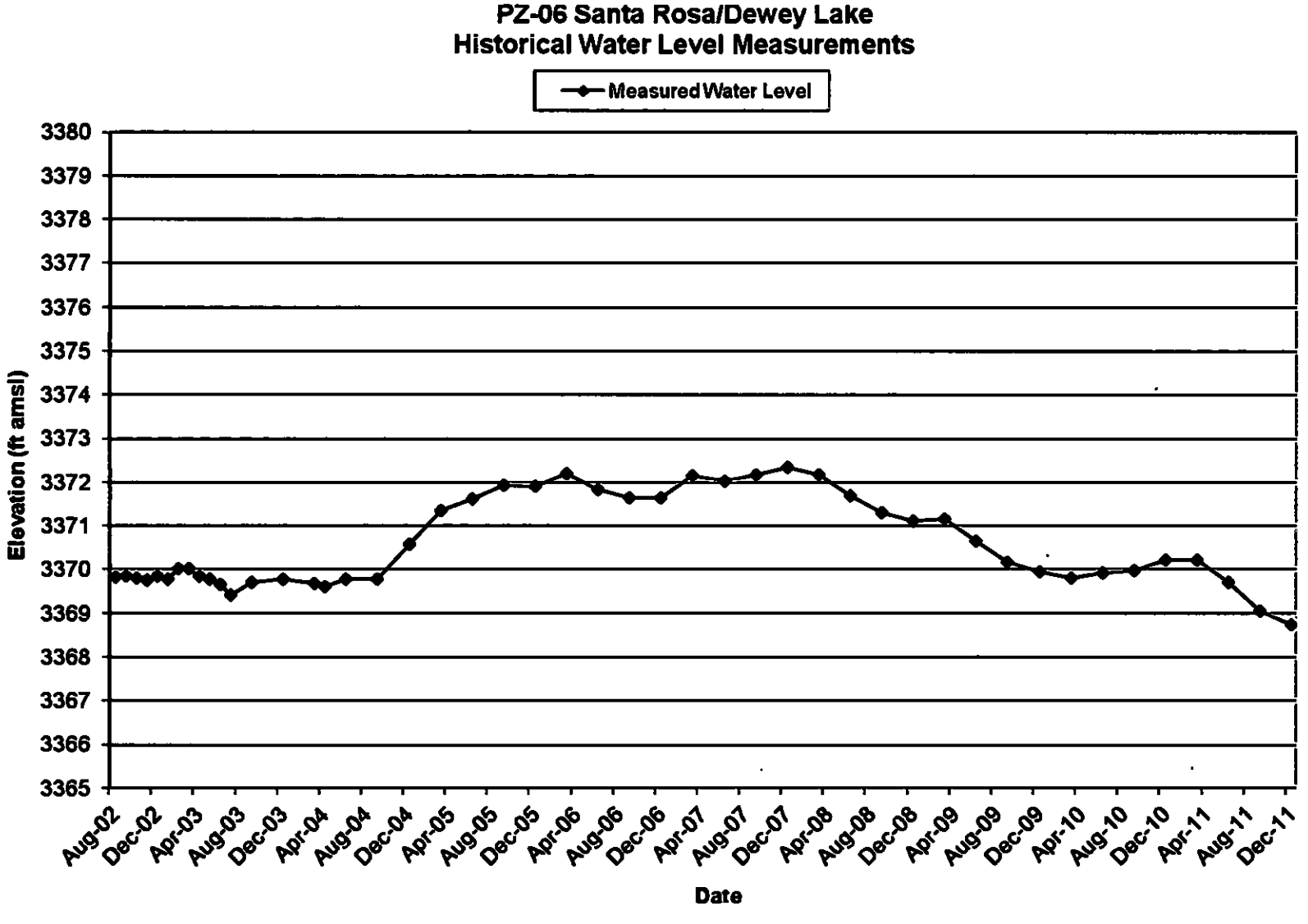

PZ-02, Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3380
3379
3378
3377
3376
3375
3374
3373
3372
3371
3370
3369
3368
3367
3366
3365
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Date

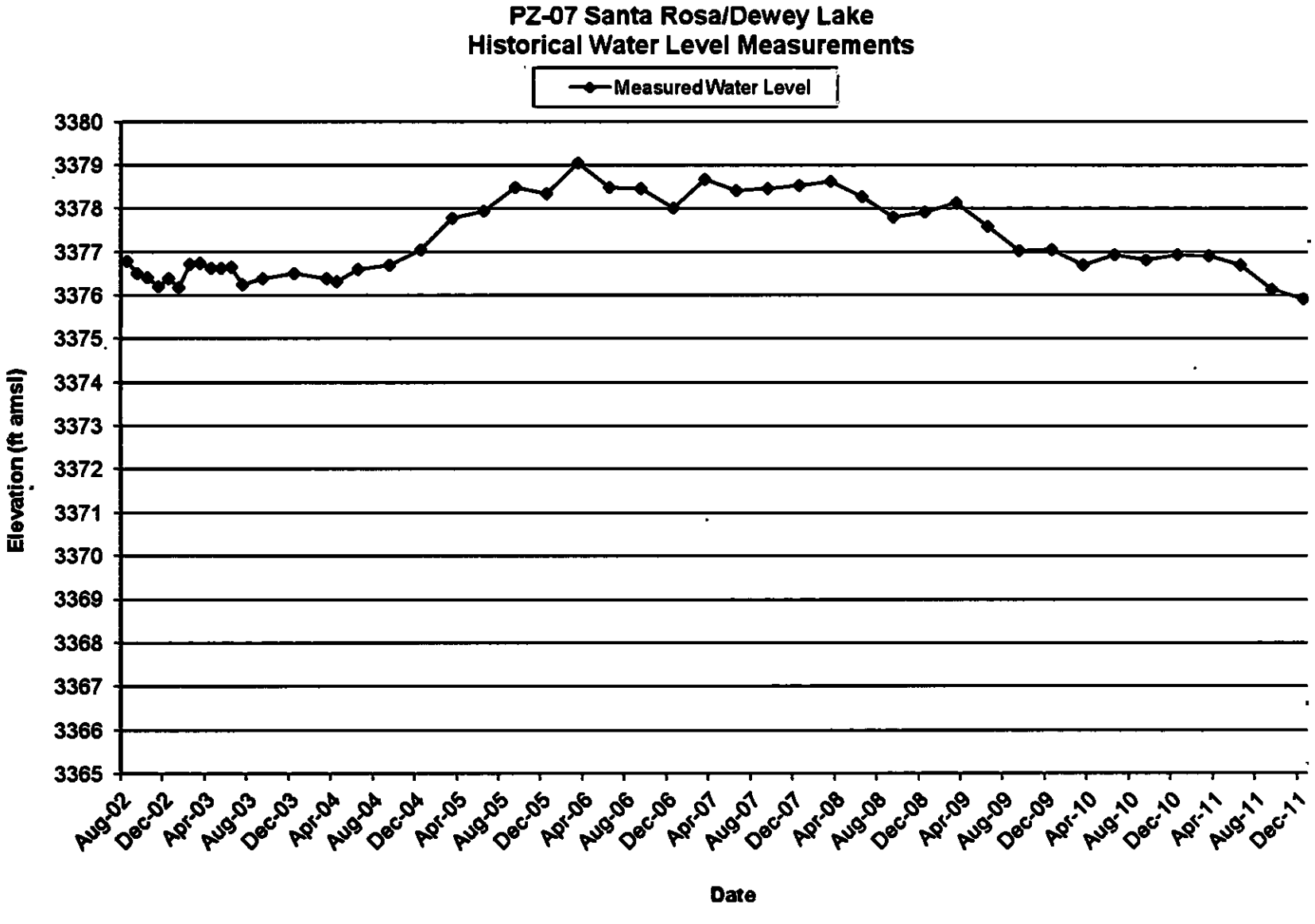

PZ-03 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ftamsl)
3380
3379
3378
3377
3376
3375
3374
3373
3372
3371
3370
3369
3368
3367
3366
3365
Aug-02
Oct-02
Dec-02
Feb-03
Apr-03
Jun-03
Sep-03
Mar-04
Jun-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Dec-10
Jun-11
Dec-11
Date

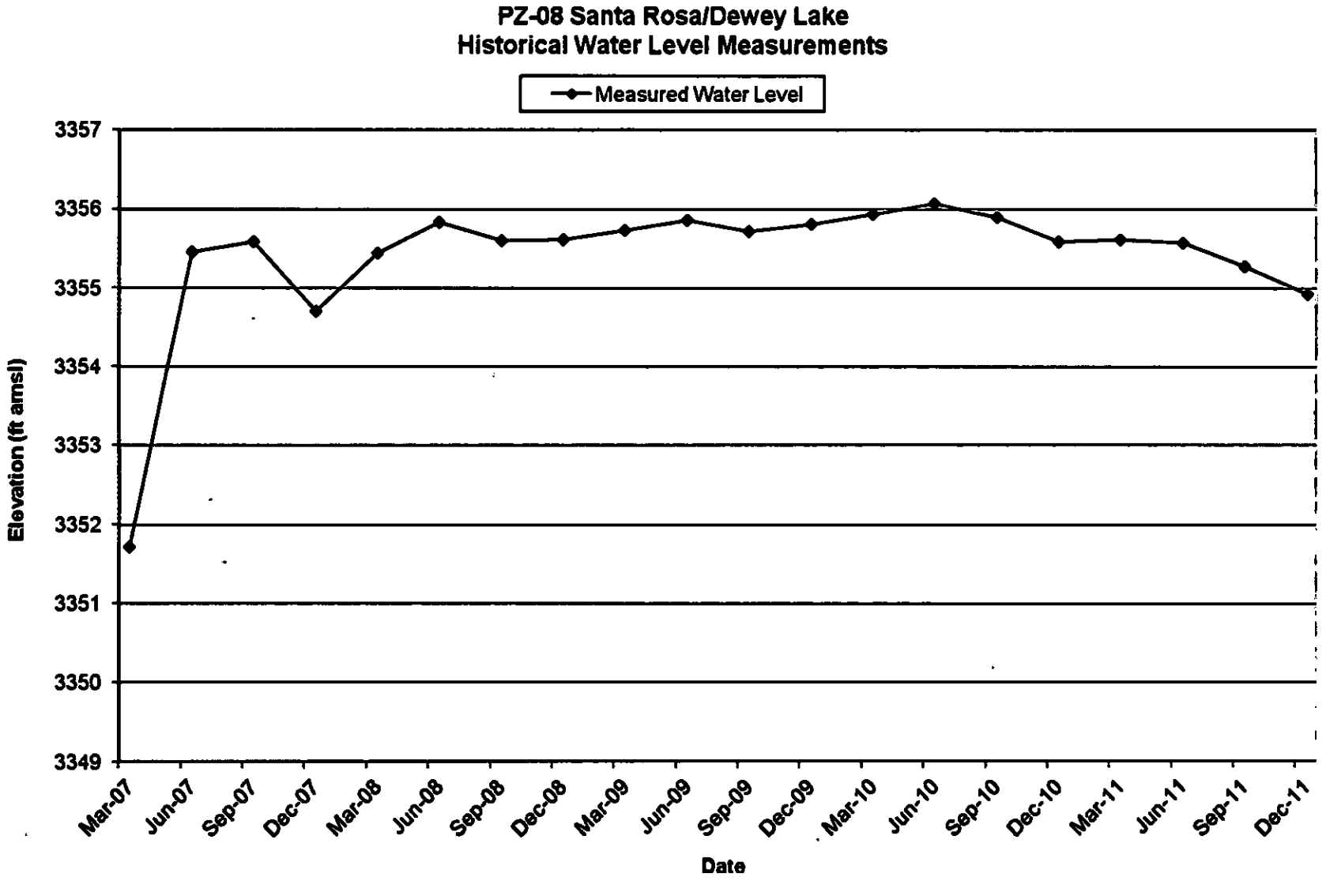
PZ-04 Santa Rosa/Dewey Lake
Historical Water Level Measurements

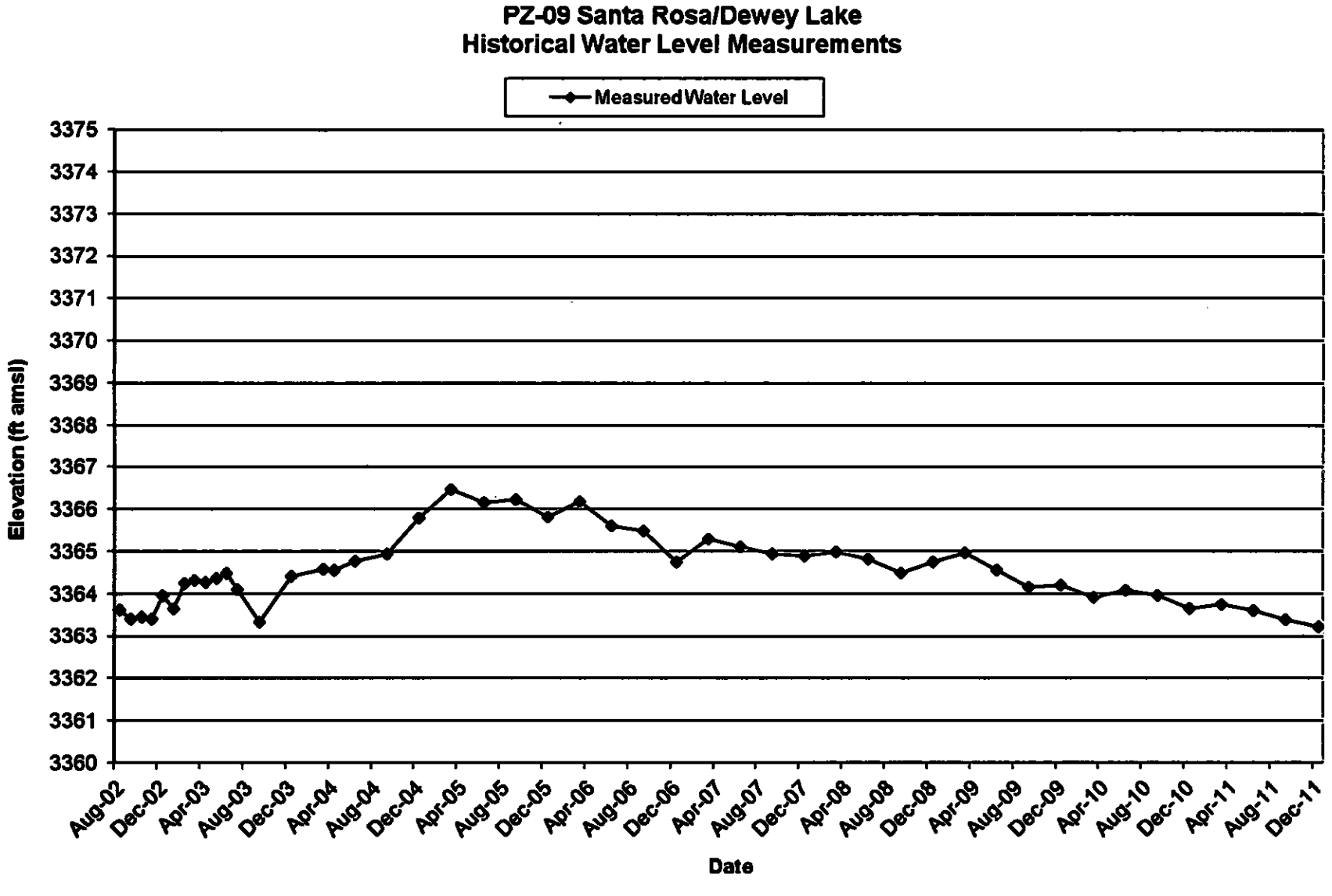


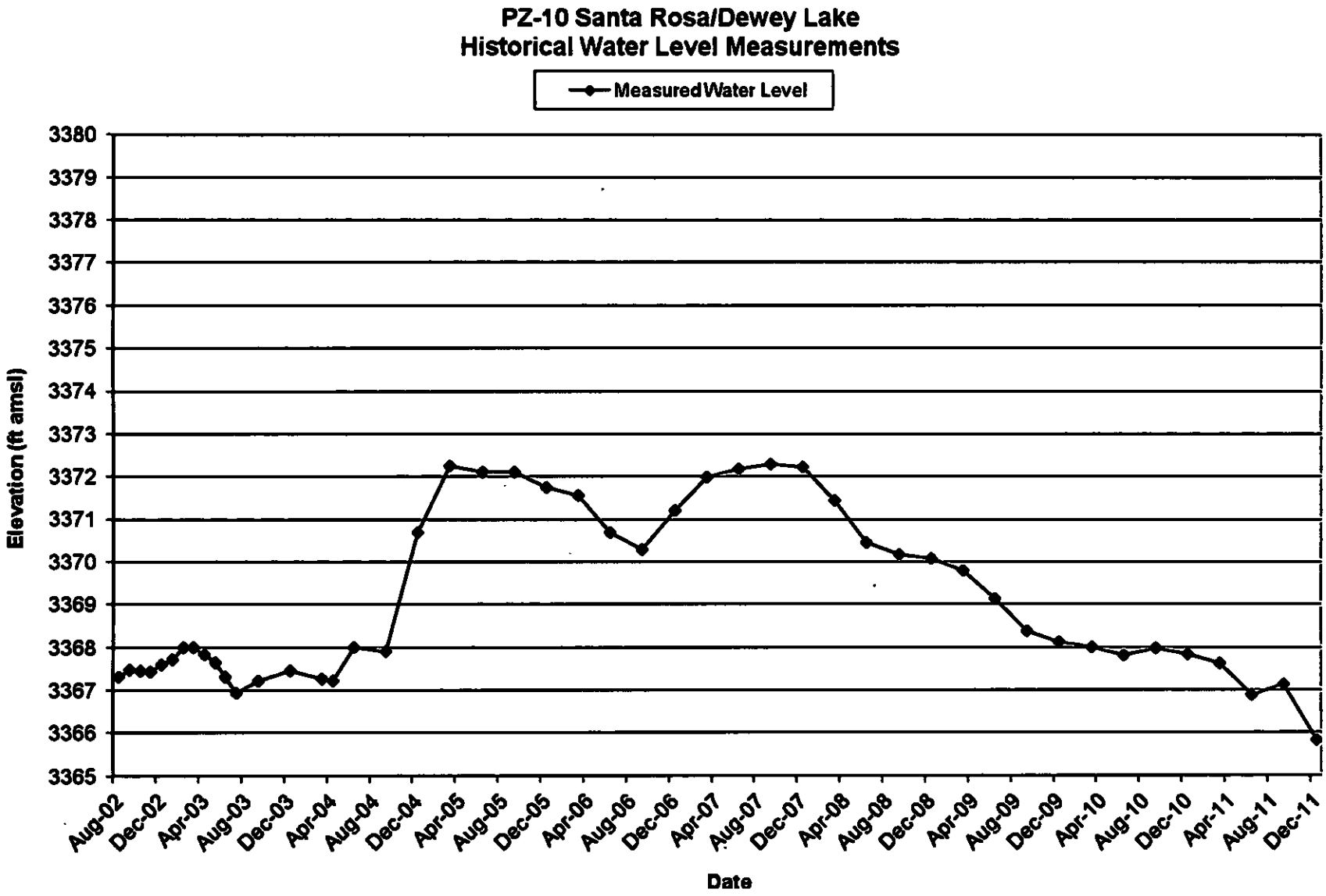

PZ-05 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3380
3379
3378
3377
3376
3375
3374
3373
3372
3371
3370
3369
3368
3367
3366
3365
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Date

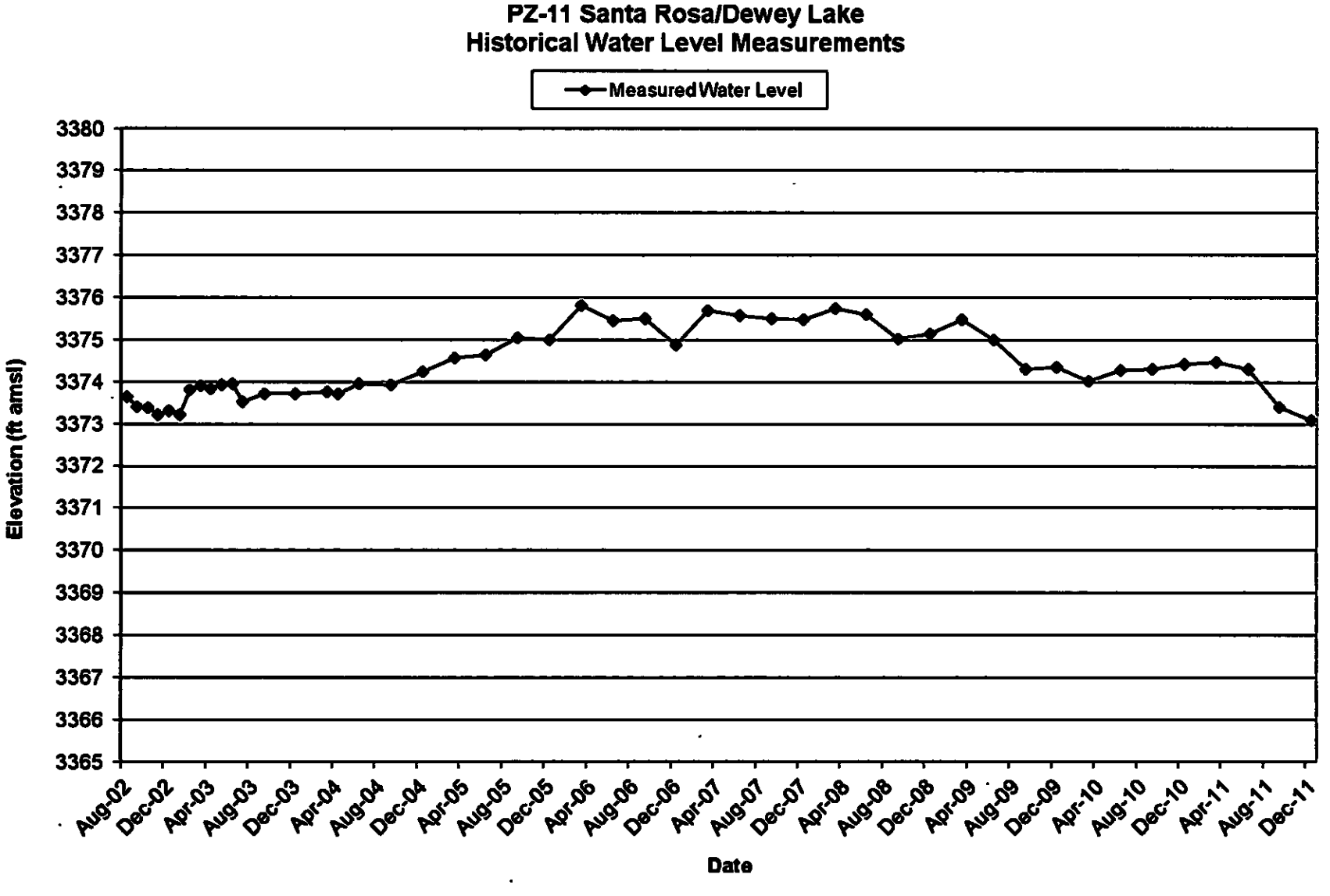

PZ-06 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3380
3379
3378
3377
3376
3375
3374
3373
3372
3371
3370
3369
3368
3367
3366
3365
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Date

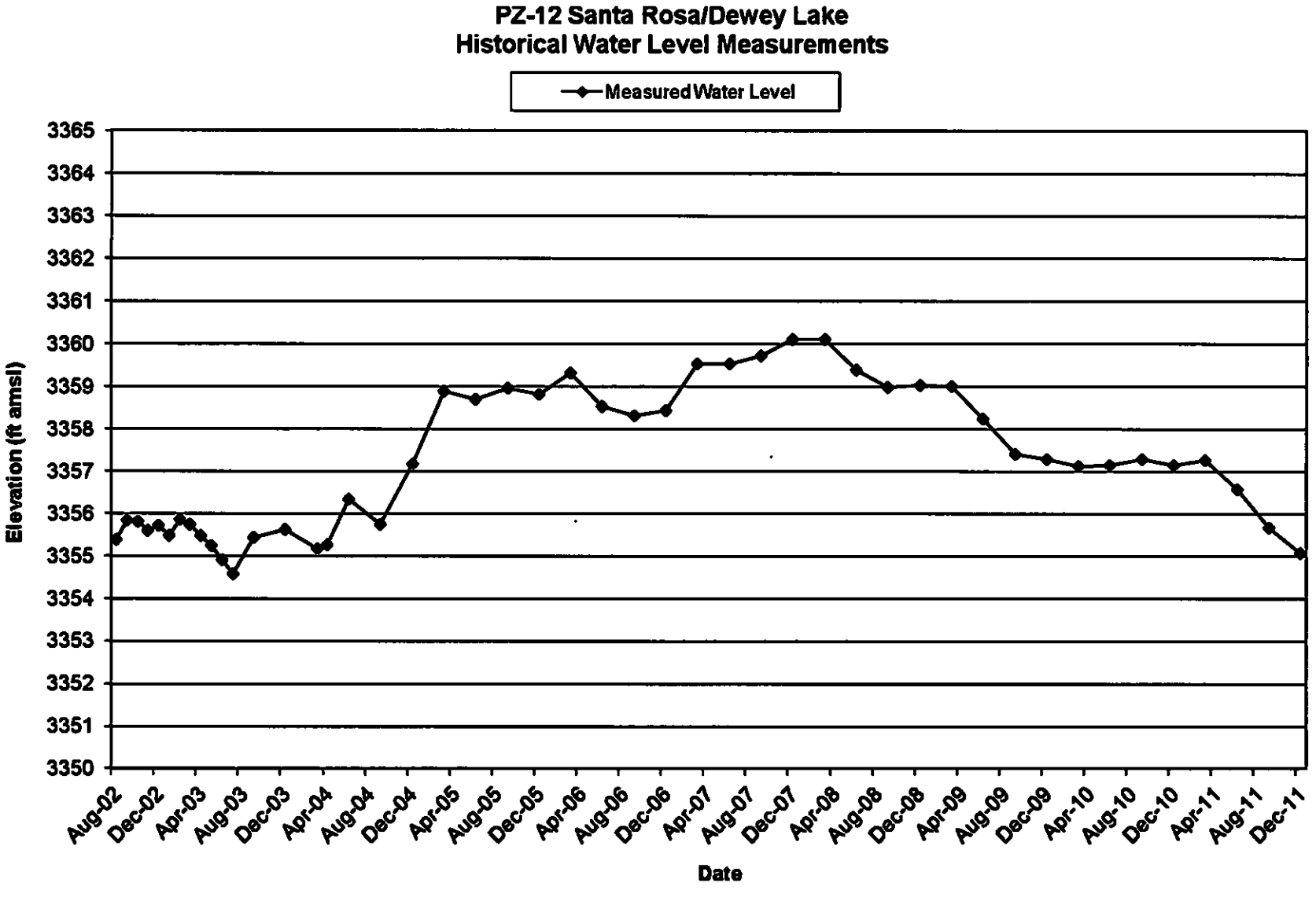

PZ-07 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3380
3379
3378
3377
3376
3375
3374
3373
3372
3371
3370
3369
3368
3367
3366
3365
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Date

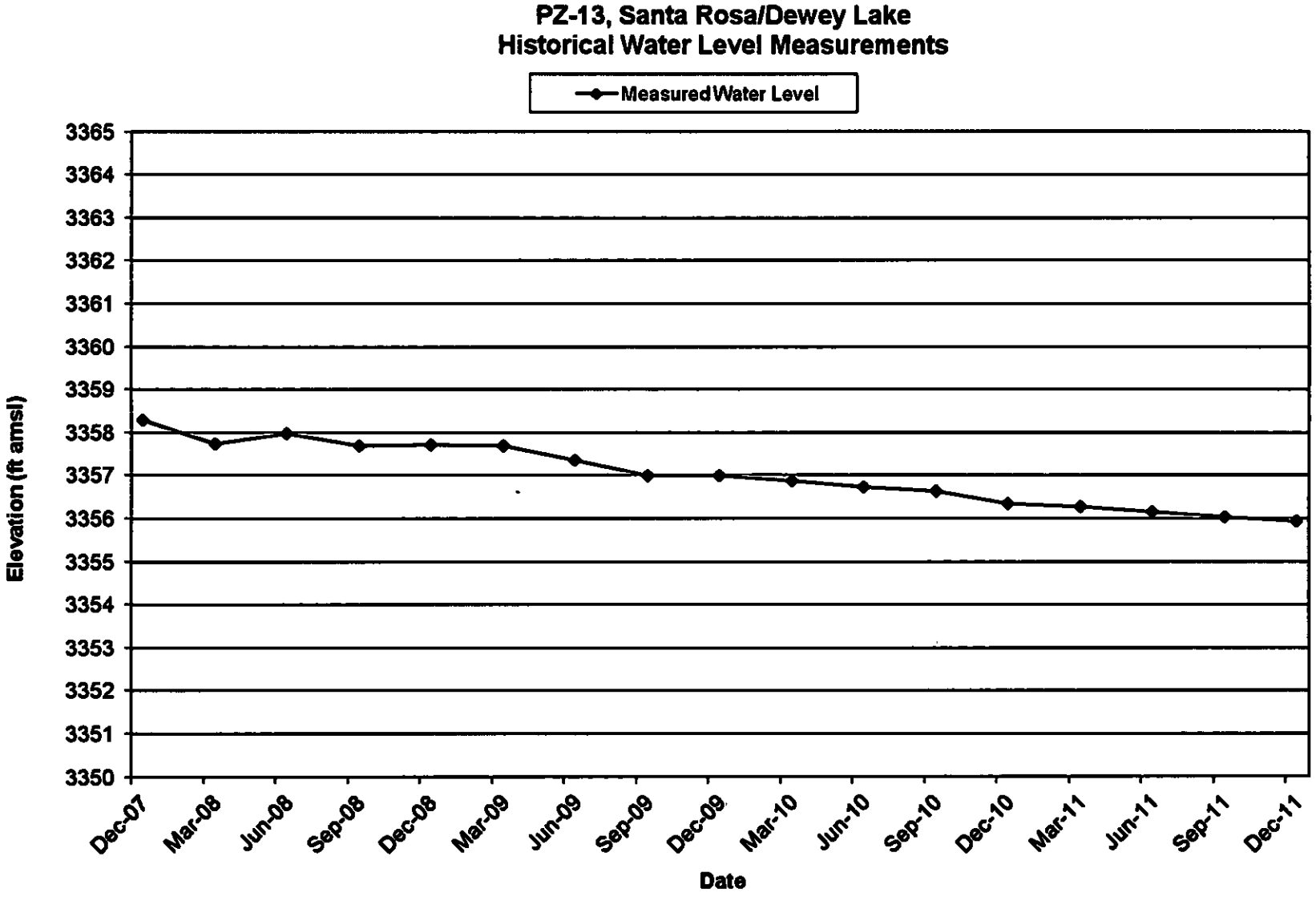

PZ-08 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3357
3356
3355
3354
3353
3352
3351
3350
3349
Mar-07
Jun-07
Sep-07
Dec-07
Mar-08
Jun-08
Sep-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Mar-10
Jun-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
Dec-11
Date

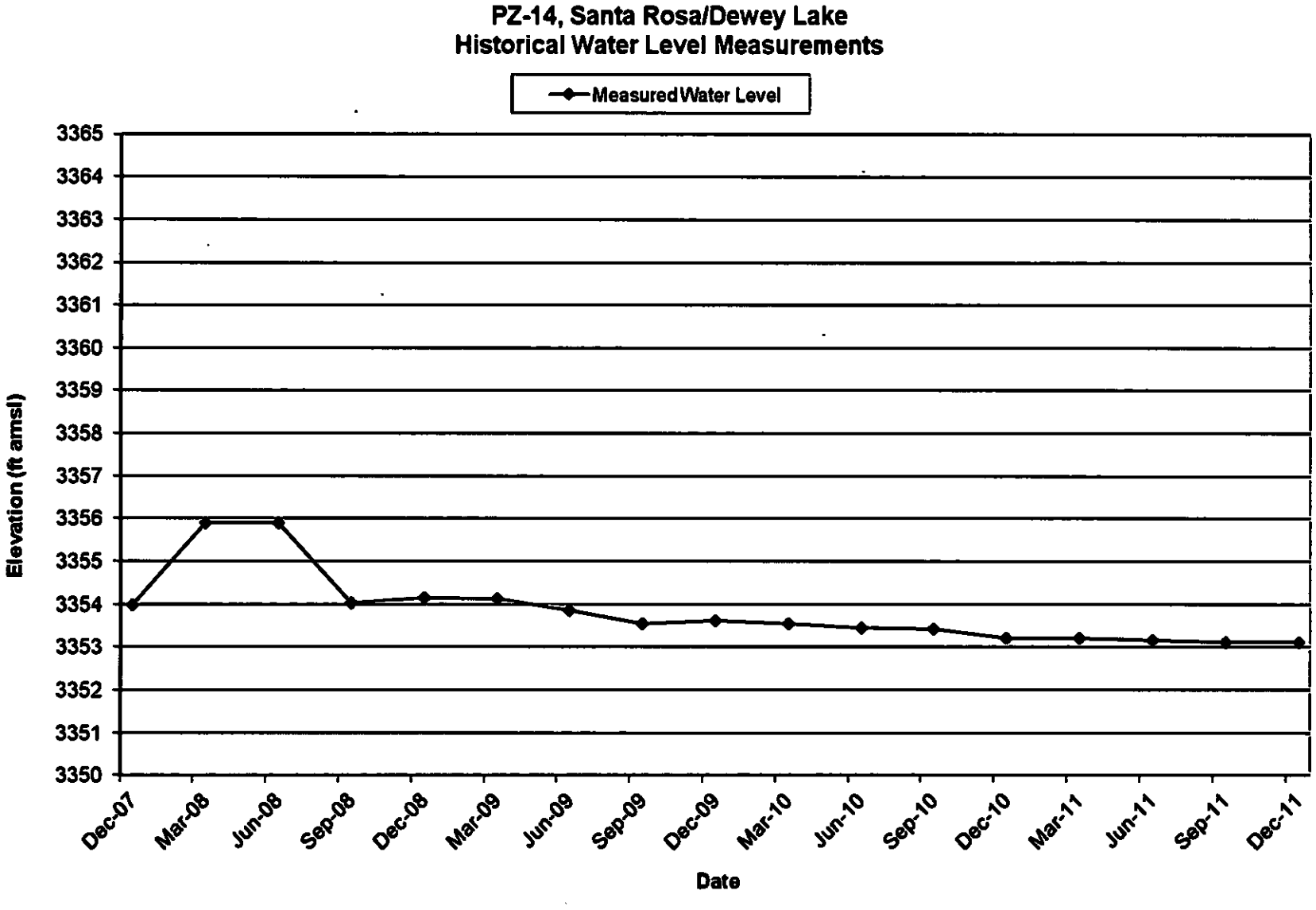

PZ-09 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3375
3374
3373
3372
3371
3370
3369
3368
3367
3366
3365
3364
3363
3362
3361
3360
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Date

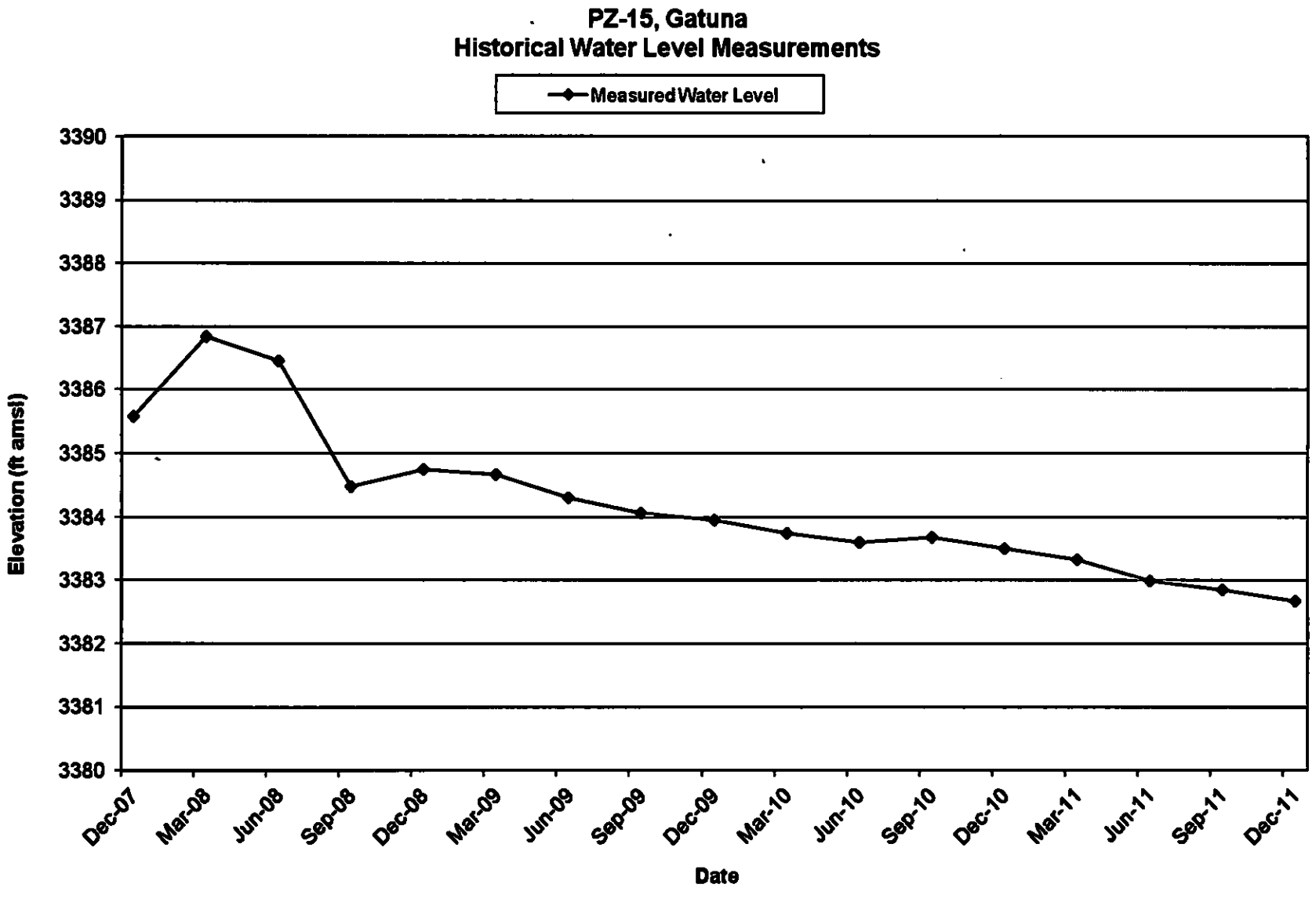

PZ-10 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3380
3379
3378
3377
3376
3375
3374
3373
3372
3371
3370
3369
3368
3367
3366
3365
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Date

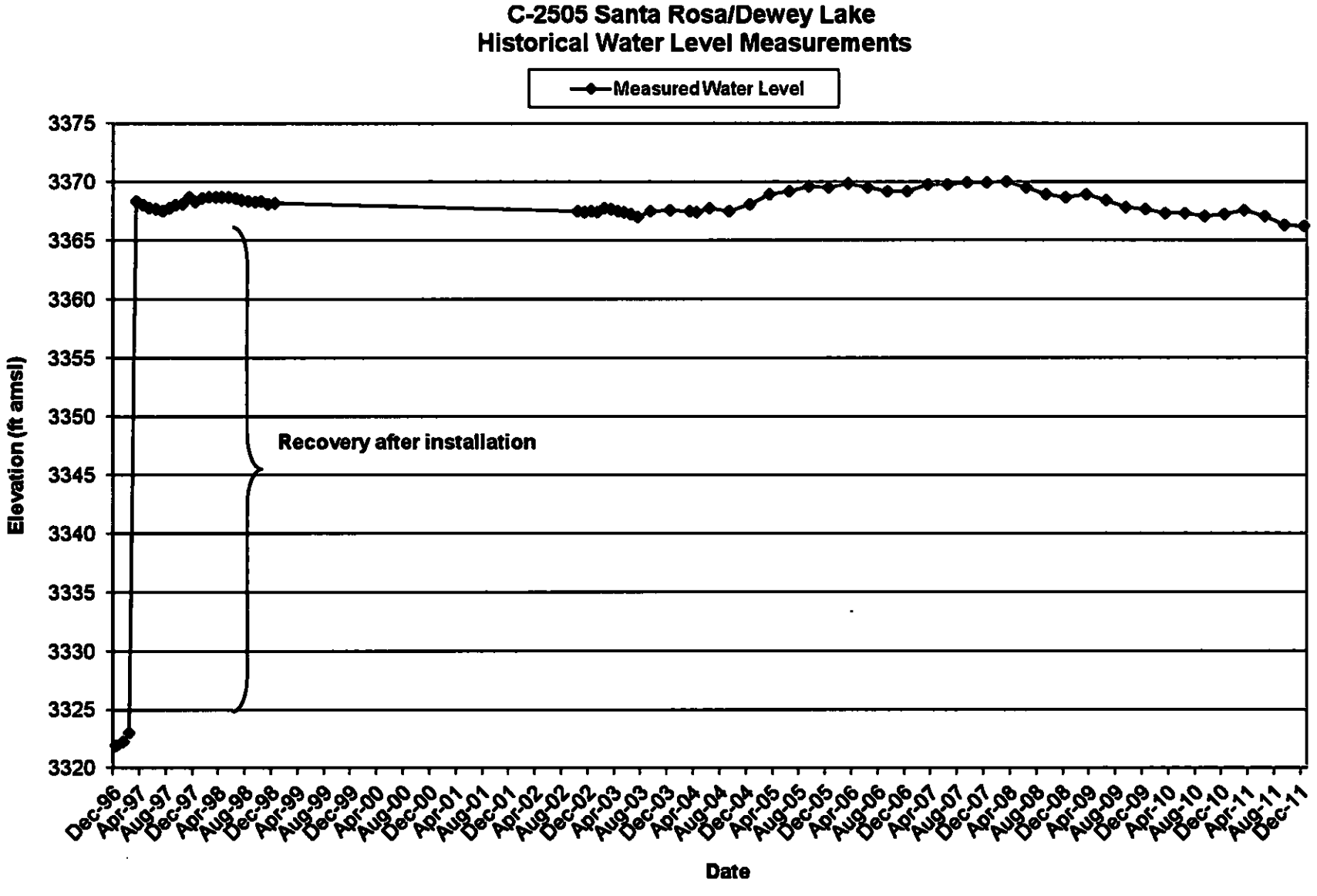

PZ-11 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3380
3379
3378
3377
3376
3375
3374
3373
3372
3371
3370
3369
3368
3367
3366
3365
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Date

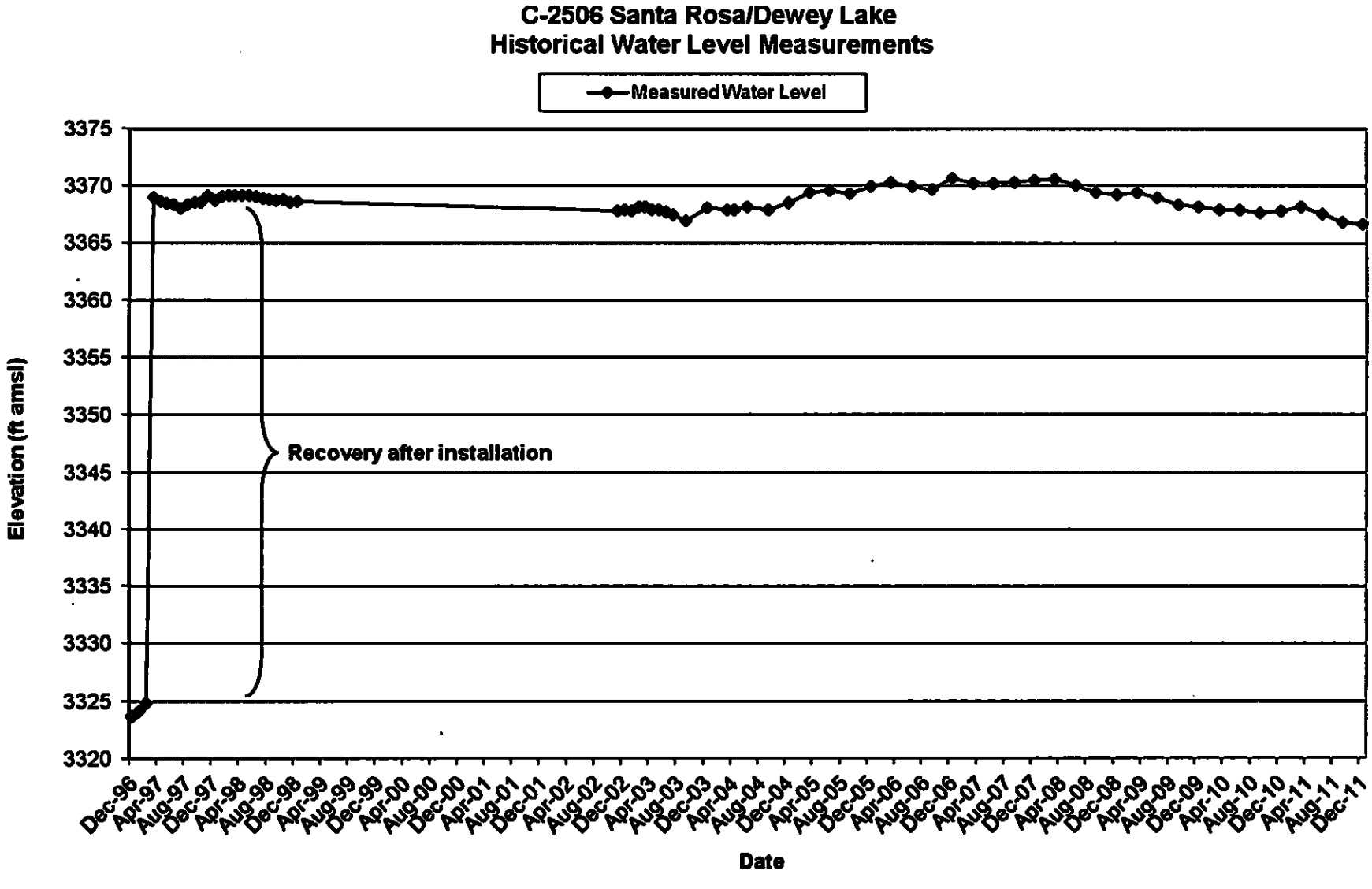

PZ-12 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3365
3364
3363
3362
3361
3360
3359
3358
3357
3356
3355
3354
3353
3352
3351
3350
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Date

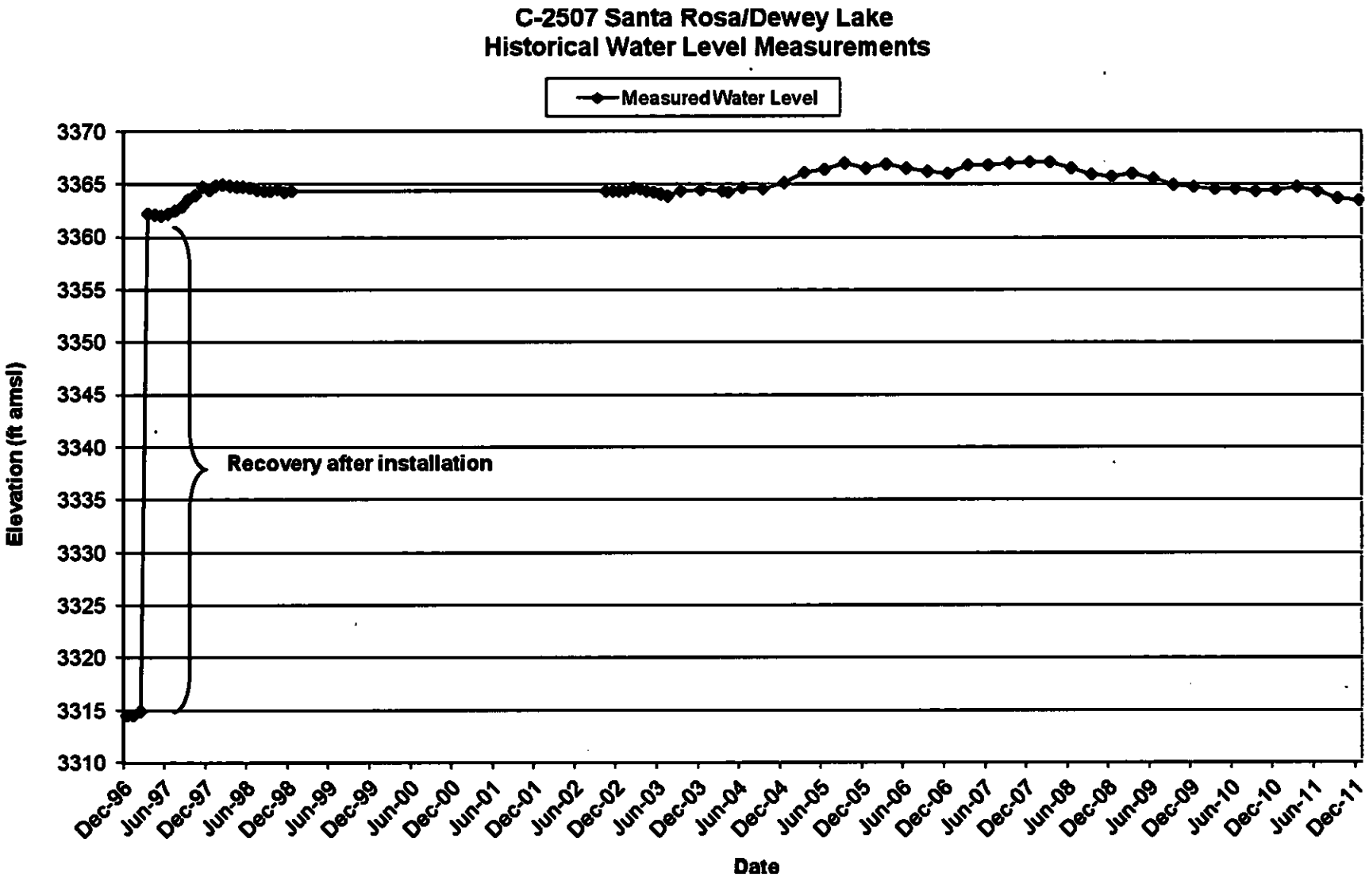

PZ-13, Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3365
3364
3363
3362
3361
3360
3359
3358
3357
3356
3355
3354
3353
3352
3351
3350
Dec-07
Mar-08
Jun-08
Sep-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Mar-10
Jun-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
Dec-11
Date

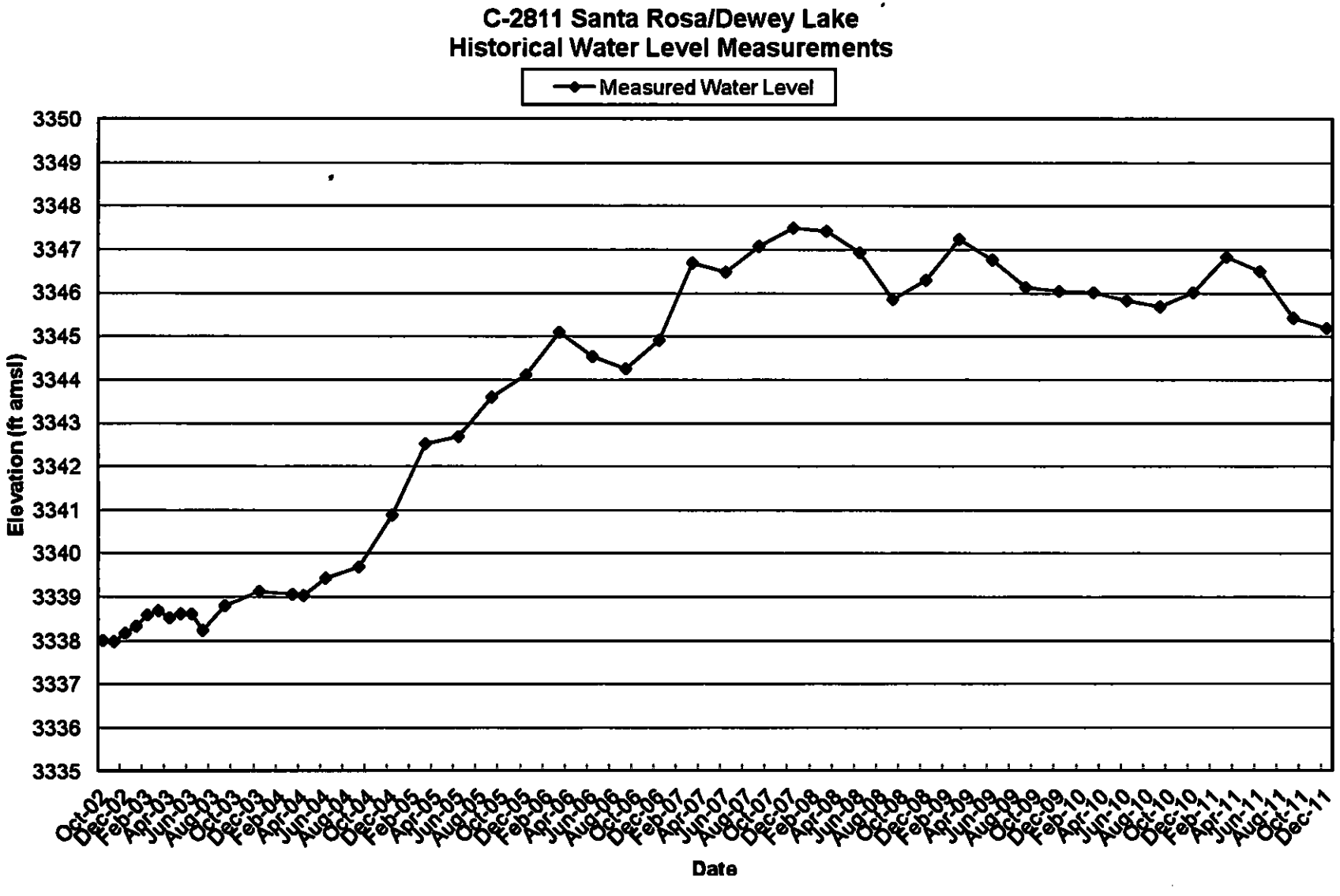

PZ-14, Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3365
3364
3363
3362
3361
3360
3359
3358
3357
3356
3355
3354
3353
3352
3351
3350
Dec-07
Mar-08
Jun-08
Sep-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Mar-10
Jun-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
Dec-11
Date

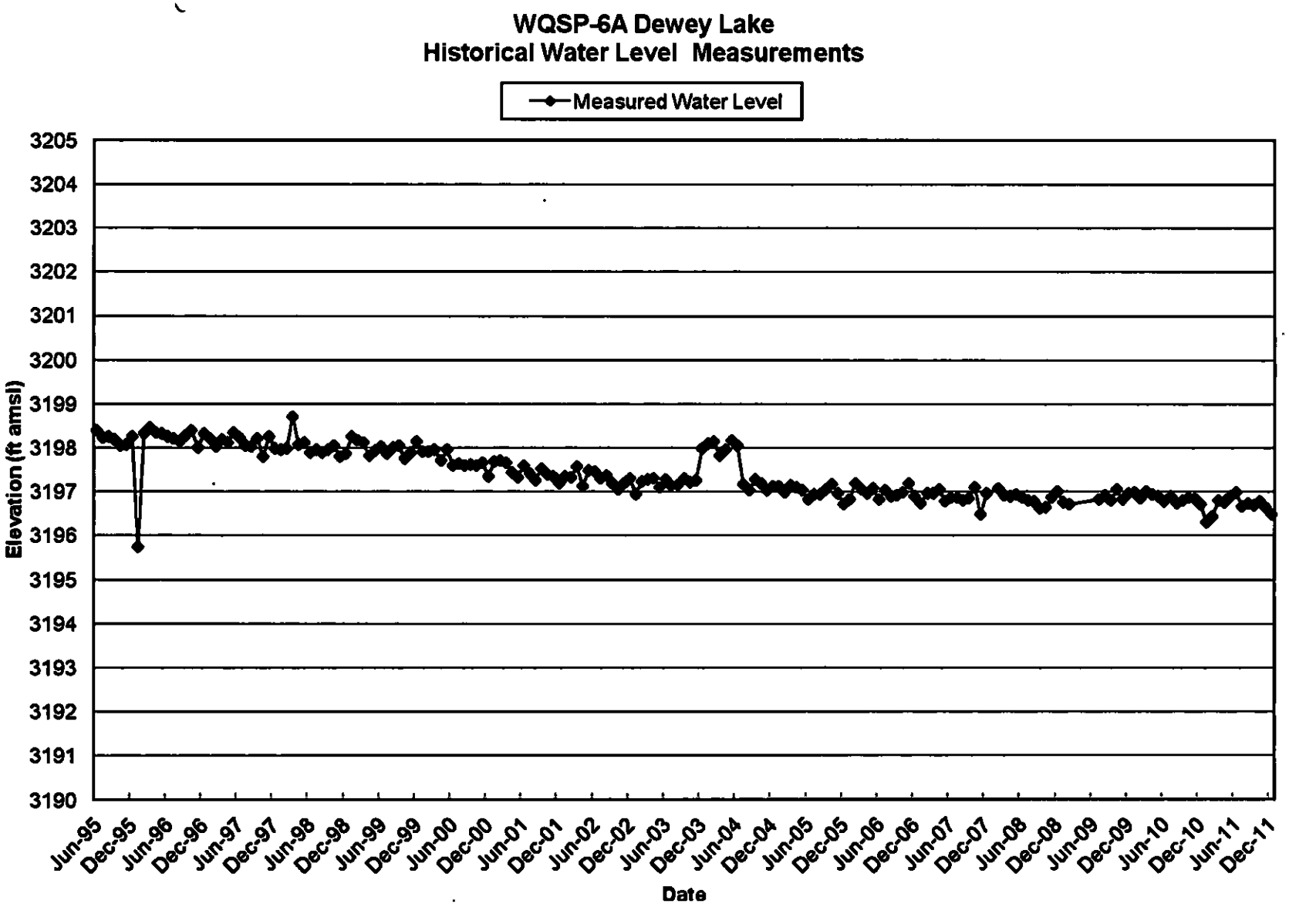

PZ-15, Gatuna
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3390
3389
3388
3387
3386
3385
3384
3383
3382
3381
3380
Dec-07
Mar-08
Jun-08
Sep-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Mar-10
Jun-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
Dec-11
Date


C-2505 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3375
3370
3365
3360
3355
3350
3345
3340
3335
3330
3325
3320
Recovery after installation
Dec-96
Apr-97
Aug-97
Dec-97
Apr-98
Aug-98
Dec-98
Apr-99
Aug-99
Dec-99
Apr-00
Aug-00
Dec-00
Apr-01
Aug-01
Dec-01
Apr-02
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Date


C-2506 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3375
3370
3365
3360
3355
3350
3345
3340
3335
3330
3325
3320
Recovery after installation
Dec-96
Apr-97
Aug-97
Dec-97
Apr-98
Aug-98
Dec-98
Apr-99
Aug-99
Dec-99
Apr-00
Aug-00
Dec-00
Apr-01
Aug-01
Dec-01
Apr-02
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Date


C-2507 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3370
3365
3360
3355
3350
3345
3340
3335
3330
3325
3320
3315
3310
Recovery after installation
Dec-96
Jun-97
Dec-97
Jun-98
Dec-98
Jun-99
Dec-99
Jun-00
Dec-00
Jun-01
Dec-01
Jun-02
Dec-02
Jun-03
Dec-03
Jun-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Dec-10
Jun-11
Dec-11
Date


C-2811 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3350
3349
3348
3347
3346
3345
3344
3343
3342
3341
3340
3339
3338
3337
3336
3335
Oct-02
Dec-02
Feb-03
Apr-03
Jun-03
Aug-03
Oct-03
Dec-03
Feb-04
Apr-04
Jun-04
Aug-04
Oct-04
Dec-04
Feb-05
Apr-05
Jun-05
Aug-05
Oct-05
Dec-05
Feb-06
Apr-06
Jun-06
Aug-06
Oct-06
Dec-06
Feb-07
Apr-07
Jun-07
Aug-07
Oct-07
Dec-07
Feb-08
Apr-08
Jun-08
Aug-08
Oct-08
Dec-08
Feb-09
Apr-09
Jun-09
Aug-09
Oct-09
Dec-09
Feb-10
Apr-10
Jun-10
Aug-10
Oct-10
Dec-10
Feb-11
Apr-11
Jun-11
Aug-11
Oct-11
Dec-11
Date


WQSP-6A Dewey Lake
Historical Water Level Measurements
Measured Water Level
Elevation (ft amsl)
3205
3204
3203
3202
3201
3200
3199
3198
3197
3196
3195
3194
3193
3192
3191
3190
Jun-95
Dec-95
Jun-96
Dec-96
Jun-97
Dec-97
Jun-98
Dec-98
Jun-99
Dec-99
Jun-00
Dec-00
Jun-01
Dec-01
Jun-02
Dec-02
Jun-03
Dec-03
Jun-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Dec-10
Jun-11
Dec-11
Date

Appendix B

Historical Chemistry Data for SSW Piezometers/Wells

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-1	6/21/04	<10	1,530	36,300	79,600	0.0440	<0.00500
PZ-1	11/09/04	1.30	6,530	45,700	85,800	0.106	<0.0100
PZ-1	5/17/05	1.47	2,640	62,300	100,500	0.0600	0.0770
PZ-1	10/11/05	2.59	1,950	54,900	74,800	0.0430	<0.0100
PZ-1	5/16/06	<2.5	2,490	62,400	113,000	0.0510	<0.0100
PZ-1	10/10/06	<1.00	1,390	55,300	70,200	<0.0500	<0.0250
PZ-1	5/09/07	2.70	2,220	63,000	107,000	<0.0500	<0.0250
PZ-1	10/09/07	<1.00	2,820	83,200	99,500	<0.1000	<0.0250
PZ-1	6/5/08	<2.0	2,100	57,000	98,000	0.667	0.00218
PZ-1	10/14/08	NA	2,200	59,000	94,000	NA	NA
PZ-1	05/19/09	NA	2,200	54,000	96,000	NA	NA
PZ-1	10/19/09	NA	2,300	66,000	101,000	NA	NA
PZ-1	5/25/10	NA	2,200	53,000	92,800	NA	NA
PZ-1	10/26/10	NA	1,800	62,000	96,100	NA	NA
PZ-1	05/24/11	NA	2,000	51,000	85,200	NA	NA
PZ-1	10/05/11	NA	2,000	50,000	84,600	NA	NA
PZ-5	6/21/04	20.7	1,340	28,800	55,200	0.0670	<0.00500
PZ-5	11/09/04	<2.50	1,820	47800	86,000	0.0940	<0.0100
PZ-5	5/17/05	2.96	3,260	46,000	65,400	0.0930	0.0670
PZ-5	10/11/05	5.14	769	14,000	32,800	0.0620	<0.0100
PZ-5	5/16/06	2.56	1,520	18,300	32,600	0.0710	<0.0100
PZ-5	10/10/06	5.04	1,330	28,800	47,400	<0.0500	<0.0250
PZ-5	5/09/07	4.60	1,640	17,300	32,400	<0.0500	<0.0250
PZ-5	10/09/07	<1.00	1,880	19,400	28,700	0.0710	<0.005
PZ-5	6/5/08	5.7	1,500	19,000	33,000	0.0801	0.00317
PZ-5	10/14/08	NA	1,400	13,000	25,000	NA	NA
PZ-5	05/19/09	NA	1,500	13,000	24,000	NA	NA
PZ-5	10/19/09	NA	1,600	14,000	20,200	NA	NA
PZ-5	5/25/10	NA	1,400	13,000	21,900	NA	NA
PZ-5	10/26/10	NA	1,400	13,000	20,800	NA	NA
PZ-5	5/24/11	NA	1,200	10,000	18,400	NA	NA
PZ-5	10/4/11	NA	1,300	13,000	19,800	NA	NA
PZ-6	6/21/04	21.2	2,860	70,500	134,000	0.0170	<0.00500
PZ-6	11/09/04	4.89	13,000	75,400	113,000	0.0600	<0.0100
PZ-6	5/17/05	4.25	3,610	109,000	160,500	0.0500	0.0540
PZ-6	10/11/05	<20.0	2,850	83,800	106,000	0.0210	<0.0100
PZ-6	5/16/06	7.69	3,050	68,800	115,000	<0.0100	<0.0100
PZ-6	10/10/06	252	2,790	79,800	134,000	<0.0500	<0.0250
PZ-6	5/09/07	6.65	2,840	73,500	122,500	<0.0500	<0.0250
PZ-6	10/09/07	<1.00	3,080	81,000	105,000	<0.1000	<0.0250

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-6	6/5/08	6.1	2,100	47,000	81,000	0.0412	0.00259
PZ-6	10/14/08	NA	2,500	58,000	87,000	NA	NA
PZ-6	05/19/09	NA	2,700	61,000	89,000	NA	NA
PZ-6	10/19/09	NA	2,300	50,000	83,600	NA	NA
PZ-6	5/25/10	NA	2,300	47,000	82,100	NA	NA
PZ-6	10/26/10	NA	1,900	47,000	72,300	NA	NA
PZ-6	5/24/11	NA	1,700	37,000	67,700	NA	NA
PZ-6	10/5/11	NA	1,900	41,000	69,800	NA	NA
PZ-7	6/21/04	20.7	2,620	53,000	109,000	0.041	<0.00500
PZ-7	11/08/04	2.89	7,460	43,600	80,400	0.0880	<0.0100
PZ-7	5/16/05	4.02	2,530	42,100	65,900	0.0820	0.0940
PZ-7	10/10/05	6.37	2,770	61,000	88,000	0.0470	<0.0100
PZ-7	5/15/06	<5.3	3,190	54,100	139,000	0.0680	<0.0100
PZ-7	10/9/06	<1.00	2,890	66,800	81,500	<0.00100	<0.0500
PZ-7	5/07/07	5.15	3,190	64,800	119,000	<0.0200	0.0200
PZ-7	10/08/07	<1.00	2,660	45,600	65,000	0.0640	<0.00500
PZ-7	6/4/08	5.0	2,300	49,000	86,000	0.0635	0.00257
PZ-7	10/13/08	NA	1,700	27,000	42,000	NA	NA
PZ-7	05/18/09	NA	3,700	76,000	120,000	NA	NA
PZ-7	10/20/09	NA	4,200	67,000	106,000	NA	NA
PZ-7	5/24/10	NA	3,000	68,000	103,000	NA	NA
PZ-7	10/25/10	NA	3,000	75,000	103,000	NA	NA
PZ-7	05/23/11	NA	2,700	60,000	101,000	NA	NA
PZ-7	10/04/11	NA	3,100	81,000	116,000	NA	NA
PZ-8	10/15/07	0.677	500	7,440	15,000	0.039	<0.00500
PZ-8	6/6/08	1.8	630	11,000	16,000	0.0655	<0.001
PZ-9	6/21/04	<20.0	3,740	80,200	140,000	<0.0100	<0.00500
PZ-9	11/09/04	1.40	14,500	92,400	144,000	0.0660	<0.0100
PZ-9	5/17/05	2.82	5,090	182,000	164,000	0.0500	0.0710
PZ-9	10/11/05	<20.0	3,930	85,500	107,000	0.0220	<0.0100
PZ-9	5/16/06	3.01	4,350	84,700	153,000	0.0230	<0.0100
PZ-9	10/10/06	<20.0	3,370	102,000	135,000	<0.0500	<0.0250
PZ-9	5/09/07	3.28	4,320	89,600	164,000	<0.0500	<0.0250
PZ-9	10/09/07	<200	4,720	116,000	144,000	<0.0200	<0.0050
PZ-9	6/5/08	2.2	4,400	87,000	150,000	0.0351	0.00492
PZ-9	10/14/08	NA	4,100	96,000	140,000	NA	NA
PZ-9	05/19/09	NA	3,600	94,000	130,000	NA	NA
PZ-9	10/19/09	NA	4,000	77,000	139,000	NA	NA
PZ-9	5/25/10	NA	4,400	94,000	144,000	NA	NA
PZ-9	10/26/10	NA	4,300	95,000	149,000	NA	NA

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-9	05/24/11	NA	4,300	83,000	147,000	NA	NA
PZ-9	10/04/11	NA	4,600	99,000	153,000	NA	NA
PZ-10	6/14/04	3.81	469	368	1,714	0.0200	<0.00500
PZ-10	11/08/04	3.69	431	353	1,576	<0.0500	<0.0100
PZ-10	5/16/05	3.63	572	416	1,756	0.0440	0.0370
PZ-10	10/10/05	3.34	515	318	1,720	0.0150	<0.0100
PZ-10	5/15/06	3.42	539	460	1,830	0.0140	<0.0100
PZ-10	10/9/06	5.5	549	350	1,600	<0.00100	<0.0500
PZ-10	5/07/07	14.8	407	274	1,504	<0.0200	0.0200
PZ-10	10/08/07	<1.00	211	186	968	0.0260	<0.0050
PZ-10	6/4/08	4.5	390	300	1,500	0.0144	0.00119
PZ-10	10/13/08	NA	380	290	1,400	NA	NA
PZ-10	05/18/09	NA	530	460	1,800	NA	NA
PZ-10	10/20/09	NA	500	440	1,730	NA	NA
PZ-10	5/24/10	NA	500	370	1,680	NA	NA
PZ-10	10/25/10	NA	410	360	1,530	NA	NA
PZ-10	05/23/11	NA	400	310	1,620	NA	NA
PZ-10	10/04/11	NA	440	370	1,640	NA	NA
PZ-11	6/21/04	20.8	2,220	58,100	123,000	<0.0100	<0.00500
PZ-11	11/08/04	3.15	13,000	84,100	119,000	<0.0500	<0.0100
PZ-11	5/16/05	4.63	2,890	66,000	100,000	<0.0100	<0.0100
PZ-11	10/10/05	<20.0	2,950	84,300	129,000	0.0130	<0.0100
PZ-11	5/15/06	<5.3	3,090	71,000	133,000	<0.0100	<0.0100
PZ-11	10/9/06	<1.00	2,550	85,800	123,000	<0.00100	<0.0500
PZ-11	5/07/07	3.84	2,620	68,700	135,000	<0.0200	<0.0100
PZ-11	10/08/07	<1.00	2,970	94,400	108,000	<0.0200	<0.0050
PZ-11	6/4/08	3.9	2,100	65,000	110,000	0.0149	0.00216
PZ-11	10/13/08	NA	3,000	79,000	110,000	NA	NA
PZ-11	05/18/09	NA	2,500	72,000	110,000	NA	NA
PZ-11	10/20/09	NA	3,200	64,000	112,000	NA	NA
PZ-11	5/24/10	NA	2,500	69,000	107,000	NA	NA
PZ-11	10/25/10	NA	2,300	77,000	100,000	NA	NA
PZ-11	05/23/11	NA	2,000	45,000	80,500	NA	NA
PZ-11	10/03/11	NA	2,300	65,000	92,200	NA	NA
PZ-12	6/14/04	11.2	773	5,320	9,700	0.0770	<0.00500
PZ-12	11/08/04	19.8	879	7,170	9,540	0.0660	<0.0100
PZ-12	5/16/05	8.85	679	3,730	5,890	0.0510	0.0540
PZ-12	10/10/05	426	805	3,790	7,740	0.0200	<0.0100
PZ-12	5/15/06	20.6	866	4,510	8,790	0.0190	<0.0100
PZ-12	10/9/06	13.2	795	5,340	9,150	<0.00100	<0.0500

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-12	5/07/07	10.8	831	3,780	7,010	<0.0200	0.0240
PZ-12	10/08/07	<1.00	958	4,310	6,200	0.0260	<0.0050
PZ-12	6/4/08	11	760	3,300	6,800	0.0291	0.00132
PZ-12	10/13/08	NA	850	3,300	7,000	NA	NA
PZ-12	05/18/09	NA	870	4,600	8,300	NA	NA
PZ-12	10/20/09	NA	980	6,500	10,100	NA	NA
PZ-12	5/24/10	NA	990	5,500	10,100	NA	NA
PZ-12	10/25/10	NA	990	5,800	10,300	NA	NA
PZ-12	05/23/11	NA	900	5,600	10,900	NA	NA
PZ-12	10/03/11	NA	900	6,800	13,100	NA	NA
PZ-13	10/10/07	12.4	2,670	150,000	245,500	<0.100	<0.00500
PZ-13	6/6/08	<200	2,600	170,000	240,000	0.0118	0.00316
PZ-13	10/13/08	NA	2,900	160,000	230,000	NA	NA
PZ-13	05/18/09	NA	3,300	180,000	240,000	NA	NA
PZ-13	10/20/09	NA	3,300	170,000	255,000	NA	NA
PZ-13	5/24/10	NA	3,000	170,000	240,000	NA	NA
PZ-13	10/26/10	NA	2,900	190,000	246,000	NA	NA
PZ-13	5/24/11	NA	2,700	150,000	248,000	NA	NA
PZ-13	10/4/11	NA	3,000	170,000	259,000	NA	NA
PZ-14	10/15/07	1.41	2,140	71,500	106,000	<0.0100	<0.00500
PZ-14	6/6/08	<100	3,300	130,000	180,000	0.0201	0.00168
PZ-15	10/15/07	2.97	169	764	2,060	0.022	<0.00500
PZ-15	6/6/08	12	160	460	1,600	0.00372	<0.001
C-2811	6/14/04	6.06	299	769	2,022	0.0470	<0.00500
C-2811	11/08/04	7.63	305	1,030	1,996	0.0540	<0.0100
C-2811	5/16/05	6.02	524	1,930	3,740	0.0580	0.0530
C-2811	10/10/05	7.48	584	2,250	4,410	0.0340	<0.0100
C-2811	5/15/06	6.94	511	1,760	3,740	0.0310	<0.0100
C-2811	10/9/06	6.05	402	1,310	2,100	<0.00100	<0.0500
C-2811	5/07/07	5.31	516	1,760	4,205	<0.0200	0.0310
C-2811	10/08/07	<1.00	635	2,980	3,860	0.0510	<0.0050
C-2811	6/4/08	5.7	390	1,300	2,800	0.00170	0.0350
C-2811	10/13/08	NA	320	1,000	2,100	NA	NA
C-2811	05/18/09	NA	360	1,200	2,300	NA	NA
C-2811	10/20/09	NA	320	1,000	2,120	NA	NA
C-2811	5/24/10	NA	340	920	2,090	NA	NA
C-2811	10/25/10	NA	370	1,100	2,470	NA	NA
C-2811	05/23/11	NA	350	960	2,370	NA	NA
C-2811	10/03/11	NA	340	910	2,330	NA	NA
C-2507	6/21/04	7.55	717	1,300	3,830	0.029	0.028

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
C-2507	11/09/04	7.58	824	1,380	3,350	0.0800	0.0140
C-2507	5/17/05	7.94	860	1,370	3,340	0.0780	0.0630
C-2507	10/11/05	6.13	920	1,630	3,240	0.0470	<0.0100
C-2507	5/16/06	7.37	1,040	1,930	5,300	0.0510	<0.0100
C-2507	10/10/06	2.9	943	3,640	1,740	<0.0500	<0.0250
C-2507	5/9/07	6.62	1,110	3,060	5,485	<0.0500	<0.0250
C-2507	10/9/07	<1.00	1,220	3,500	5,540	0.0550	0.007
C-2507	6/5/08	6.9	990	2,800	5,800	0.0637	0.00493
C-2507	10/14/08	NA	940	2,200	5,100	NA	NA
C-2507	5/19/09	NA	950	2,600	5,200	NA	NA
C-2507	10/19/09	NA	930	3,400	5,710	NA	NA
C-2507	5/25/10	NA	910	3,500	6,640	NA	NA
C-2507	10/26/10	NA	980	3,500	7,120	NA	NA
C-2507	5/24/11	NA	790	3,200	6,190	NA	NA
C-2507	10/5/11	NA	810	3,400	6,660	NA	NA
WQSP-6A	7/13/95	7.62	1,905	1,040	11,000	<0.006	<0.025
WQSP-6A	3/28/96	3.98	1,810	507	3,920	<0.013	<0.025
WQSP-6A	7/11/96	2.75	1,971	6,748	4,500	0.020	<0.025
WQSP-6A	4/10/97	4.64	2,240	675	3,960	0.017	<0.025
WQSP-6A	7/10/97	4.04	2,560	660	3,840	<0.050	<0.1000
WQSP-6A	6/10/98	6.19	1,950	644	4,120	0.016	0.0015
WQSP-6A	11/3/98	11.00	2,100	770	4,100	0.220	<0.500
WQSP-6A	5/26/99	7.00	1,900	540	3,800	<0.100	<0.050
WQSP-6A	11/10/99	9.40	1,900	540	3,800	<0.050	<0.050
WQSP-6A	5/24/00	7.50	2,100	530	3,800	0.0129	<0.020
WQSP-6A	11/30/00	6.70	1,900	480	3,700	<0.0130	<0.025
WQSP-6A	6/6/01	6.37	1,900	536	3,680	0.0385	<0.025
WQSP-6A	11/14/01	3.67	1,900	414	4,600	<0.050	<0.010
WQSP-6A	5/22/02	5.52	1,930	487	3,540	<0.050	<0.010
WQSP-6A	11/20/02	5.61	2,090	419	3,685	<0.050	<0.010
WQSP-6A	5/21/03	4.74	1,950	384	3,650	<0.123	<0.050
WQSP-6A	11/19/03	<0.01	1,950	391	3,955	<0.219	<0.025
WQSP-6A	5/26/04	9.61	1,970	416	3,646	<0.025	<0.025
WQSP-6A	11/17/04	6.72	1,960	491	3,655	<0.025	<0.025
WQSP-6A	4/20/05	5.98	1,920	432	3,700	0.057	<0.025
WQSP-6A	10/19/05	<0.01	1,940	360	3,430	<0.025	<0.025
WQSP-6A	5/3/06	2.5	2,210	450	3,200	<0.025	<0.025
WQSP-6A	9/20/06	6.00	2,120	360	3,515	<0.025	<0.025
WQSP-6A	3/7/07	5.78	2,170	484	3,355	<0.025	<0.025
WQSP-6A	9/12/07	5.47	1,950	350	3,400	<0.025	<0.025

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
WQSP-6A	3/12/08	4.67	2,090	378	3,400	<0.025	<0.025
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)	
WQSP-6A	9/10/08	5.69	2,030	348	3,150	< 5	
WQSP-6A	3/4/09	5.90	2,100	350	3,500	<1.0	
WQSP-6A	9/10/09	6.30	2,100	350	3,640	<1.0	
WQSP-6A	3/03/10	6.55	2,145	330	3,545	<1.0	
WQSP-6A	9/23/10	6.34	2,090	321	3,500	<1.0	
WQSP-6A	05/26/11	6.5	2,100	270	3,480	<1.0	
WQSP-6A	10/06/11	5.9	2,100	280	3,450	<1.0	

NA: Not analyzed, parameter not required, per permit conditions.

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

JUL 2 1 2011

GROUND WATER
JUL 2 5 2011
BUREAU

Mr. Clint Marshall
New Mexico Environment Department
Ground Water Quality Bureau
Mining and Environmental Compliance Section
P.O. Box 26110
Santa Fe, NM 87502

Subject: Semi-Annual Discharge Monitoring Report for January 1 through June 30, 2011

Dear Mr. Marshall:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Discharge Monitoring Report for the period of January 1 through June 30, 2011. This report is required by Discharge Permit 831.

If you have any questions about this report or require any additional information, please contact me at (575) 234-8128.

Sincerely,

Daniel J. Ferguson, Site Regulatory Specialist
Carlsbad Field Office

Enclosure

cc: w/o enclosure
J. Kieling, NMED *ED
M. Menetrey, NMED ED
CBFO M&RC
*ED denotes electronic distribution

CBFO:OESH:DJF:ANC:11-0800:UFC 5487.00

WASTE ISOLATION PILOT PLANT (WIPP)
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PLAN DP-831
January 1 through June 30, 2011

SPECIFIC REPORTING REQUIREMENTS OF DP-831

1.0 WIPP SEWAGE TREATMENT FACILITY AND H-19 EVAPORATION POND MONITORING AND REPORTING

Table 1
Monthly Discharge Volumes to Facultative Lagoon System

Month	Volume* (gallons)
January	283,377
February	280,135
March	280,819
April	266,722
May	339,634
June	340,466

*Based on total domestic water use

Facultative Lagoon System Evaporation Pond B: None
Facultative Lagoon System Evaporation Pond C: None

Table 2
Monthly Discharge Volumes to H-19 Evaporation Pond

Month	Volume (gallons)
January	None
February	None
March	1,050
April	1,200
May	1,275
June	None

Table 3 contains a summary of the analytical results for the Sewage Treatment System and the H-19 Evaporation Pond. Miscellaneous non-hazardous water disposed of in the H-19 Evaporation Pond was purged water from groundwater monitoring activities and Waste Shaft sump water.

Table 3
Sewage Treatment Facility and H-19 Analytical Data Summary

Analyte	Sample Date	Influent Pond 2A	Pond B	Pond C	H-19
Nitrate (mg/L)	4/19/11	ND	NA	NA	NA
TKN (mg/L)	4/19/11	92	NA	NA	NA
TDS (mg/L)	4/19/11	490	**609,000**	NS	NS
Sulfate (mg/L)	4/19/11	60	**63,000**	NS	NS
Chloride (mg/L)	4/19/11	540	**280,000**	NS	NS

ND: Not detected, analyte below the detection limit
NA: Not analyzed, parameters not required
NS: Not Sampled, pond was dry.
Bold: Concentration exceeds the standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply

2.0 INFILTRATION CONTROL ACTIVITIES

Due to extreme drought conditions, water levels have been low in all infiltration control ponds and no maintenance has been necessary due to the lack of water erosion. The Salt Pile Evaporation Pond, Evaporation Basin A, and Pond 1 are all dry.

3.0 SUMMARY OF ACTIVITIES RELATED TO THE SHALLOW SUBSURFACE WATER (SSW) MONITORING AND SAMPLING PROGRAM

Water levels in the shallow wells (PZ-1 through PZ-15, C-2811, C-2505, C-2506, and C-2507), Figure 1, were obtained March 2-3, 2011, and June 8, 2011, and are included in Table 4. These were taken on the quarterly milestones outlined in the Ground Water Monitoring Schedule, in the September 9, 2008, DP-831 Modification. Total rainfall in the area of WIPP for this reporting period was 0.17 inches compared to 5.81 inches for the same time period in 2010, a difference of 5.64 inches more in 2010. Total rainfall in 2010 was slightly more than the average annual rainfall for the region of 12.92 inches reported by the National Oceanic and Atmospheric Administration.

In the shallow wells monitored 16 of 19 showed decreasing water levels during the reporting period. The largest decrease in water level over this time was 0.94 feet identified in PZ-10, next to Evaporation Basin A. An increase was shown in C-2811, PZ-2, and PZ-3 (average of +0.27 feet); this may be attributed to the lag time from rainfall in 2010. The average groundwater decrease around the lined ponds (PZ-7, PZ-10, PZ-11, and PZ-12) was 0.46 feet for this reporting period.

WQSP-6A was sampled during May 2011. WQSP-6A sampling results are provided in Table 4. Sulfate, nitrate, chloride, and total dissolved solids were detected in WQSP-6A samples at concentrations exceeding standards of 20.6.2.3103 NMAC, *Standards for Ground Water of 10,000 mg/L TDS Concentration or Less for Human Health and Domestic Water Supply*. Although the concentrations were higher than the standards, they are less than background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285). Total Kjeldahl nitrogen was below the detection limit of one mg/L. The shallow subsurface water (SSW) identified at the WIPP site has not impacted the Dewey Lake groundwater in WQSP-6A based on the consistency of analyzed parameters in WQSP-6A.

The SSW piezometers were sampled for field and general chemistry parameters in May 2011, as required by the September 9, 2008, modification to DP-831. Five piezometers were sampled on May 23, 2011, and six on May 24, 2011. Results for the field sampling parameters and laboratory analyses are presented in Table 4. Chloride concentrations exceeded values listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply in all shallow piezometers sampled. The maximum chloride concentration was 150,000 mg/L in PZ-13, while the minimum concentration was 310 mg/L in PZ-10. Total dissolved solids concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in all shallow piezometers sampled, with the maximum concentration of 248,000 mg/L in PZ-13. Sulfate concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in 9 of 11 piezometers sampled with a maximum concentration of 4,300 mg/L in PZ-9 and a minimum concentration of 350 mg/L in C-2811.

Figure 1 WIPP Site Map

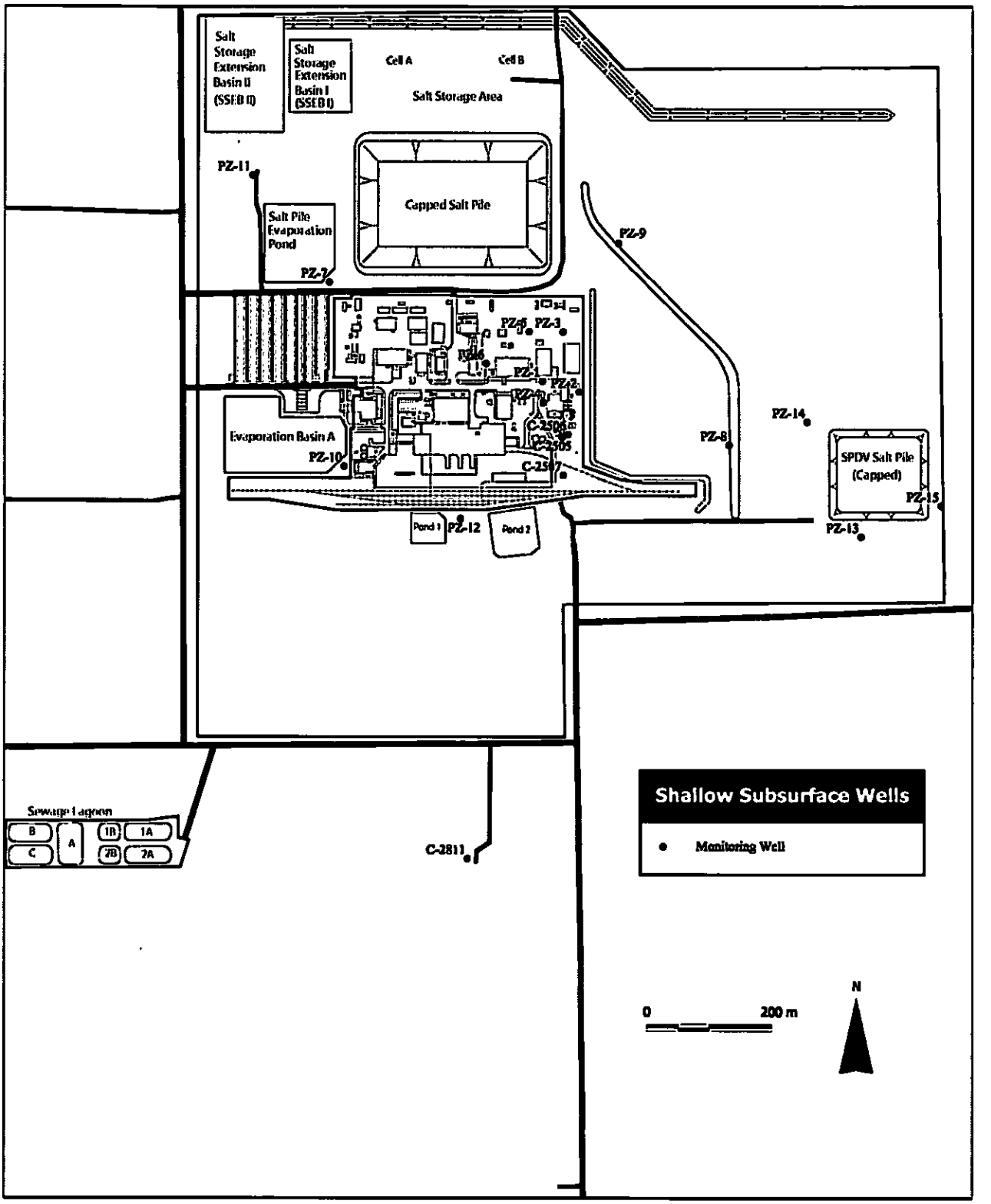


Table 4
Shallow Subsurface Water Monitoring Program

	Water Level Monitoring (Ft AMSL)		Field Parameters			General Chemistry Parameters					Other
Monitoring Site	3/2-3/3/11	6/8/11	pH (SU)	Temp. (°C)	Specific Conductivity @25 °C (µS/cm)	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)
PZ-1	3,371.60	3,371.22	6.22	29.6	111,000	05/24/11	NA	**2,000**	**51,000**	**85,200**	NA
PZ-2	3,371.04	3,370.67	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-3	3,372.29	3,371.99	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-4	3,366.06	3,365.42	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-5	3,372.79	3,372.38	6.67	28.1	30,330	05/24/11	NA	**1,200**	**10,000**	**18,400**	NA
PZ-6	3,370.23	3,369.72	6.33	29.9	92,400	05/24/11	NA	**1,700**	**37,000**	**67,700**	NA
PZ-7	3,376.91	3,376.71	6.26	29.6	127,000	05/23/11	NA	**2,700**	**60,000**	**101,000**	NA
PZ-8	3,355.61	3,355.57	NA	NA	NA	NS	NA	NS	NS	NS	NS
PZ-9	3,363.74	3,363.60	6.08	26.4	169,900	05/24/11	NA	**4,300**	**83,000**	**147,000**	NA
PZ-10	3,367.62	3,366.90	7.19	27.2	2,464	05/23/11	NA	400	**310**	**1,620**	NA
PZ-11	3,374.48	3,374.33	6.44	26.9	104,400	05/23/11	NA	**2,000**	**45,000**	**80,500**	NA
PZ-12	3,357.27	3,356.59	6.80	25.6	17,640	05/23/11	NA	**900**	**5,600**	**10,900**	NA
PZ-13	3,356.28	3,356.16	Bailed			05/24/11	NA	**2,700**	**150,000**	**248,000**	NA
PZ-14	3,353.22	3,353.17	NS	NS	NS	NS	NA	NS	NS	NS	NS
PZ-15	3,383.33	3,382.99	NS	NS	NS	NS	NA	NS	NS	NS	NS
C-2811	3,346.85	3346.52	7.24	23.7	3,958	05/23/11	NA	350	**960**	**2,370**	NA
C-2505	3,367.63	3,367.08	NS	NS	NS	NS	NA	NS	NS	NS	NS
C-2506	3,368.18	3,367.62	NS	NS	NS	NS	NA	NS	NS	NS	NS
C-2507	3,364.73	3,364.34	6.75	25.7	10,820	05/24/11	NA	**790**	**3,200**	**6,190**	NA
WQSP-6a	3,196.81	3,196.99	7.48	23.2	3,838	05/26/11	6.5	**2,100**	**270**	**3,480**	<1.0

Explanation: **NA: Not Analyzed, parameter not required, per permit conditions**

NS: Not Sampled, not required per permit conditions

PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty using Low-Flow pumps

"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

January 28, 2011

GROUND WATER
JAN 31 2011
BUREAU

Mr. Clint Marshall
New Mexico Environment Department
Ground Water Quality Bureau
Mining and Environmental Compliance Section
P.O. Box 26110
Santa Fe, NM 87502

Subject: Semi-Annual Discharge Monitoring Report for July 1, 2010, through December 31, 2010

Dear Mr. Marshall:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Discharge Monitoring Report for the period of July 01, 2010, through December 31, 2010. This report is required by Discharge Permit 831.

If you have any questions about this report or require any additional information, please contact me at (575) 234-8128.

Sincerely,

Daniel J. Ferguson
Site Regulatory Specialist

Enclosure

cc: w/o enclosure
J. Bearzi, NMED *ED
M. Menetrey, NMED ED
*ED denotes electronic distribution

CBFO:OESH:DJF:ANC:11-0709:UFC 5487.00

04380

WASTE ISOLATION PILOT PLANT (WIPP) SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PLAN DP-831

July 1, 2010 through December 31, 2010

1.0 WIPP SEWAGE TREATMENT FACILITY AND H-19 EVAPORATION POND MONITORING AND REPORTING

Table 1
2010 Monthly Discharge Volumes to the Sewage Treatment System

Month	Volume (gallons)
July	429,300
August	203,600
September	232,910
October	195,300
November	93,500
December	173,500

Facultative Lagoon System Evaporation Pond B: None
Facultative Lagoon System Evaporation Pond C: None

Table 2
2010 Monthly Discharge Volumes to the H-19 Evaporation Pond

Month	Volume (gallons)
July	26,580
August	7,434
September	5,930
October	6,015
November	2,700
December	0

Table 3 contains a summary of the analytical results for the Sewage Treatment System and the H-19 Evaporation Pond. Miscellaneous non-hazardous water disposed of in the H-19 Evaporation Pond (Table 2) was 700-Fan condensate water, Exhaust Shaft Interception Borehole water, brine removed from the Exhaust Shaft Sump, and purged water from groundwater monitoring activities.

Table 3
Sewage Treatment Facility and H-19 Analytical Data Summary

Analyte	Sample Date	Influent Pond 2A	Pond B	Pond C	H-19
Nitrate (mg/L)	8/24/10	ND	NA	NA	NA
TKN (mg/L)	8/24/10	86	NA	NA	NA
TDS (mg/L)	8/24/10	575	**388,000**	NS	**351,000**
Sulfate (mg/L)	8/24/10	60	**63,000**	NS	**1,300**
Chloride (mg/L)	8/24/10	70	**140,000**	NS	**250,000**

ND: Not detected, analyte below the detection limit
NA: Not analyzed, parameters not required
NS: Not sampled, the pond was out of service for liner replacement.
Bold: Concentration exceeds the standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply

04381

During this reporting period the liner was replaced in the Evaporation Pond C at the Sewage Treatment Facility which completed the commitments by DOE that were approved by the Ground Water Quality Bureau in a letter dated December 22, 2005, *Conditional Approval of the Corrective Action Plan based on the Sewage Lagoon Leak Testing Results and Liner Integrity Evaluation.*

2.0 INFILTRATION CONTROL MONITORING AND ACTIVITIES

Table 4 contains the analytical results for the WIPP Site Infiltration Controls (Salt Pile Evaporation Pond, Salt Storage Extension Evaporation Basin and Ponds 1, 2, and A).

Table 4
Infiltration Controls Analytical Data Summary

Evaporation Pond Location	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	Water Depth (ft)/Volume (cubic feet)
Salt Pile Evaporation Pond	**220,000**	**17,000**	**338,000**	0.3 / (309,000)
Salt Storage Extension Evaporation Basin	**57,000**	270	**85,300**	5.9 / (500,000)
Pond 1	140	44	397	2.5 / (279,756)
Pond 2	**580**	7.1	1,000	5.9 / (1,757,662)
Pond A	200	11	394	4.2 / (4,047,306)

Bold: Concentration exceeds the standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply

During this reporting period, only minor maintenance to repair small incidental liner tears discovered during routine monthly inspections has been necessary to maintain components of the infiltration controls, primarily the covered Salt Storage Area and associated run-off ditches.

3.0 SUMMARY OF ACTIVITIES RELATED TO THE SHALLOW SUBSURFACE WATER MONITORING AND SAMPLING PROGRAM

Water levels in the shallow wells (PZ-1 through PZ-15, C-2811, C-2505, C-2506, and C-2507), Figure 1, were obtained September 9-14, 2010, and December 3-6, 2010, and are included in Table 5. These were taken on the quarterly milestones outlined in the Ground Water Monitoring Schedule, in the September 9, 2008, DP-831 Modification. Total rainfall in the area of WIPP for this reporting period was 7.25 inches compared to 8.71 inches for the same time period in 2009. The annual rainfall for 2010 was 13.06 inches compared to 12.53 inches in 2009. Total rainfall in 2010 was slightly more than the average annual rainfall for the region of 12.92 inches reported by the National Oceanic and Atmospheric Administration.

In 2010, the general water level trend for the Shallow Subsurface Water (SSW) monitoring points was an average decrease in elevation of 0.30 feet; a decrease of 0.26 feet excluding the Site and Preliminary Design Validation monitoring points. The largest water level elevation decreases were measured in PZ-13 and PZ-3. In 2010 PZ-13 decreased in elevation 0.64 feet and PZ-3 decreased 0.62 feet. Wells located near lined ponds also experienced decreases in water level elevation, varying from 0.28 feet in PZ-10 to 0.12 feet in PZ-12 for 2010. Although the rainfall for 2010 was slightly above average annual rates, water level elevations have been decreasing in the years since the liners were installed on the salt pile and the evaporation ponds. Overall water level elevation trends indicate that, in combination with lower rainfall since 2008, the liners are reducing infiltration enough to see an effect.

Figure 2 presents a potentiometric surface map of water level elevations recorded in the SSW monitoring points for December 2010. Appendix A presents historical hydrographs of all SSW monitoring points since installation.

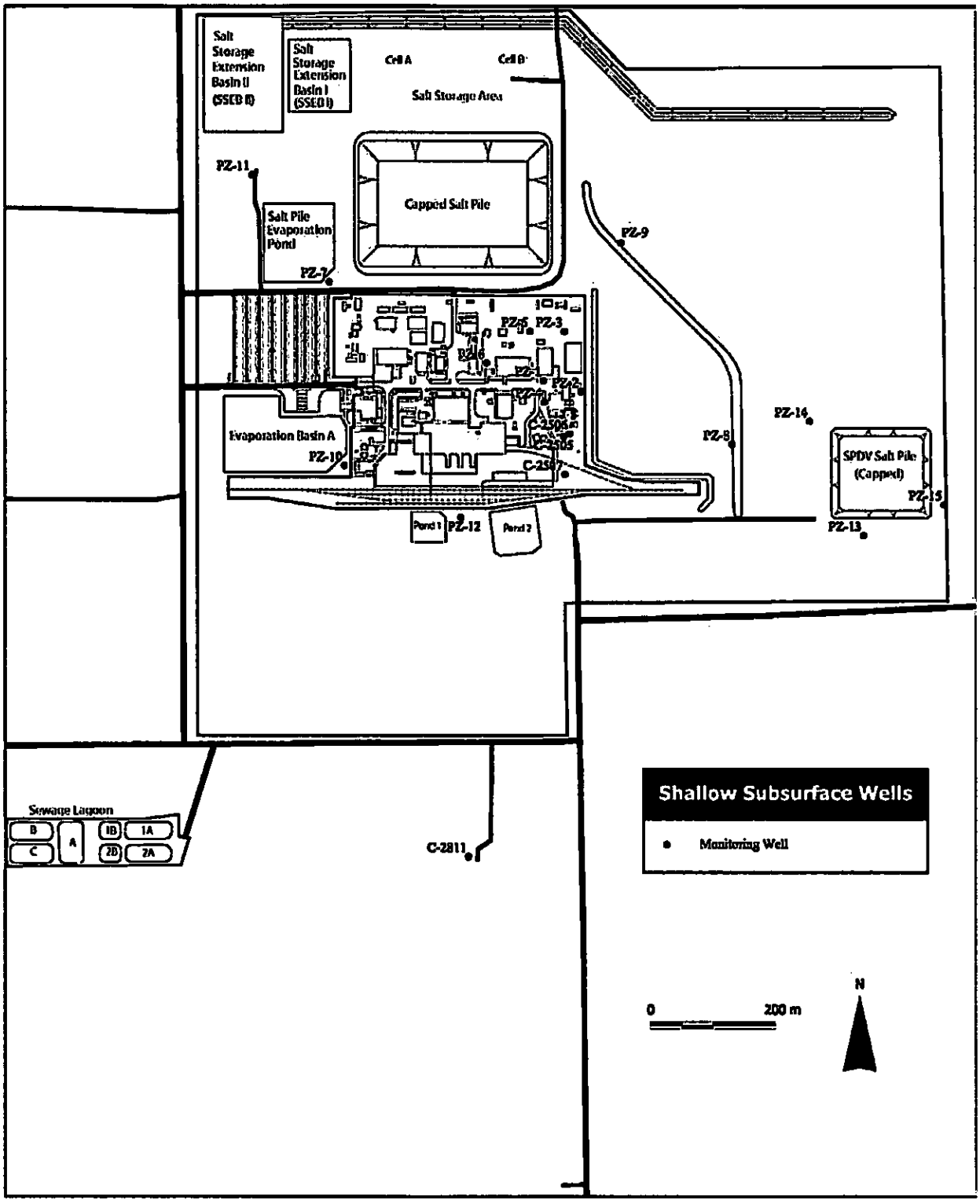
WQSP-6A was sampled during September 2010. WQSP-6A data are provided in Table 5. Sulfate, nitrate, chloride, and total dissolved solids (TDS) concentrations were detected in WQSP-6A samples at concentrations exceeding standards of 20.6.2.3103 NMAC, *Standards for Ground Water of 10,000 mg/L TDS Concentration or*

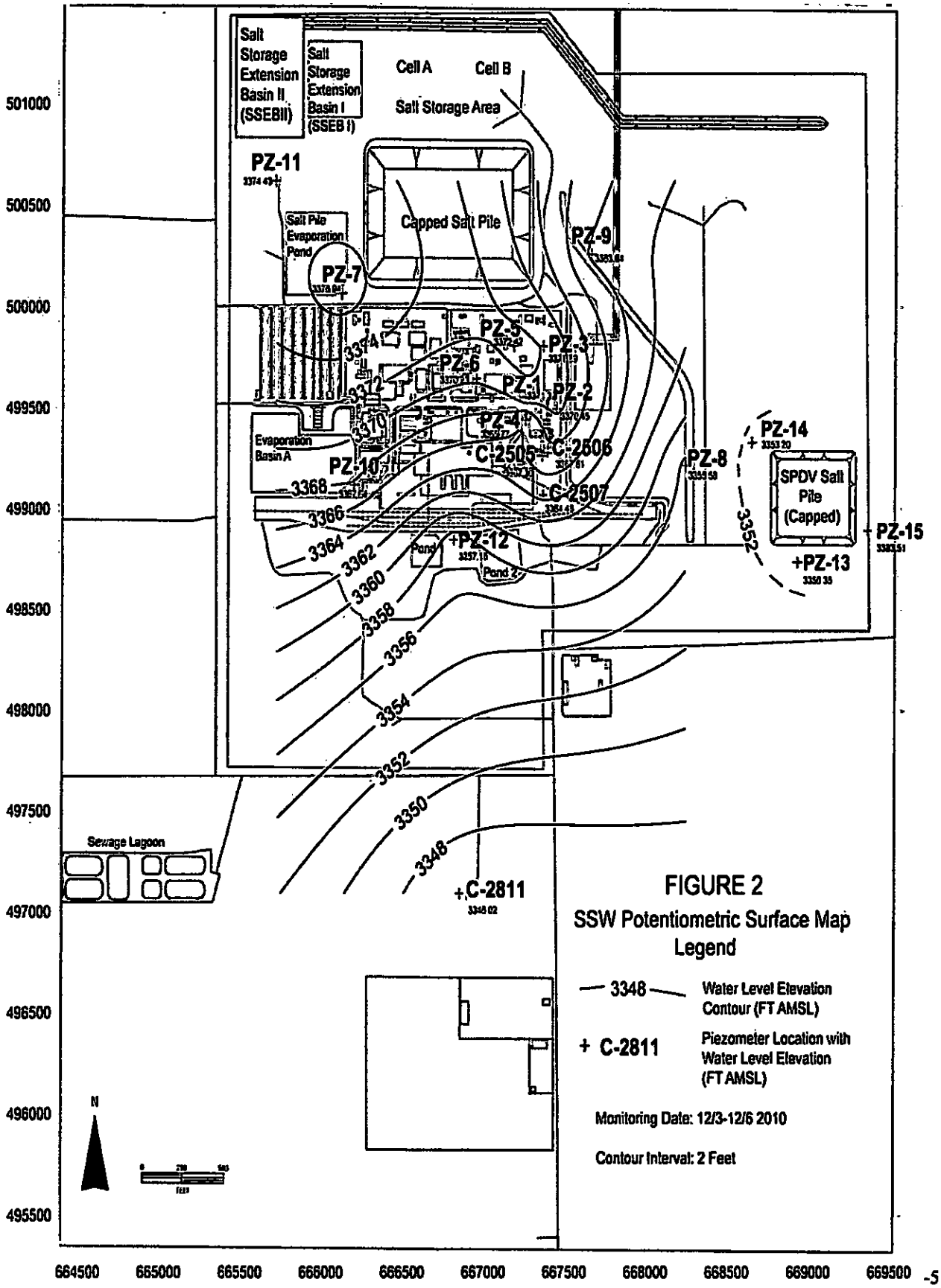
Less for Human Health and Domestic Water Supply. Although the concentrations were higher than the standards, they are less than background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285). Total Kjeldahl nitrogen (TKN) was below the detection limit of 1 mg/L. The shallow subsurface water identified at the WIPP site has not impacted the Dewey Lake groundwater in WQSP-6A based on the consistency of analyzed parameters in WQSP-6A.

The SSW piezometers were sampled for field and general chemistry parameters in October 2010, as required by the September 9, 2008, modification to DP-831. Five piezometers were sampled on October 25, 2010, and six on October 26, 2010. Results for the field sampling parameters and laboratory analyses are presented in Table 5. Chloride concentrations exceeded values listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply in all shallow piezometers sampled. The maximum chloride concentration was 190,000 mg/L in PZ-13, while the minimum concentration was 360 mg/L in PZ-10. Total dissolved solids concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in all shallow piezometers sampled, with the maximum concentration of 246,000 mg/L in PZ-13. Sulfate concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in 9 of 11 piezometers sampled with a maximum concentration of 4,300 mg/L in PZ-9.

Appendix B presents historical chemical analysis results for the SSW monitoring points obtained since incorporation into the DP-831 permit.

Figure 1 WIPP Site Map




Salt Storage Extension Basin II (SSEBII)
Salt Storage Extension Basin I (SSEB I)
Cell A
Cell B
Salt Storage Area
PZ-11
Capped Salt Pile
Salt Pile Evaporation Pond
PZ-7
PZ-9
PZ-5
PZ-3
PZ-6
PZ-1
PZ-2
PZ-4
Evaporation Basin A
PZ-10
C-2505
C-2506
C-2507
PZ-8
PZ-14
SPDV Salt Pile (Capped)
PZ-15
PZ-13
PZ-12
Pond 1
Pond 2
Sewage Lagoon
C-2811
3374
3372
3370
3368
3366
3364
3362
3360
3358
3356
3354
3352
3350
3348
501000
500500
500000
499500
499000
498500
498000
497500
497000
496500
496000
495500
664500
665000
665500
666000
666500
667000
667500
668000
668500
669000
669500
N
FIGURE 2
SSW Potentiometric Surface Map
Legend
3348 Water Level Elevation Contour (FT AMSL)
+ C-2811 Piezometer Location with Water Level Elevation (FT AMSL)
Monitoring Date: 12/3-12/6 2010
Contour Interval: 2 Feet

-5

Table 5
SUMMARY OF SHALLOW SUBSURFACE WATER LEVELS, FIELD PARAMETERS, AND ANALYTICAL RESULTS

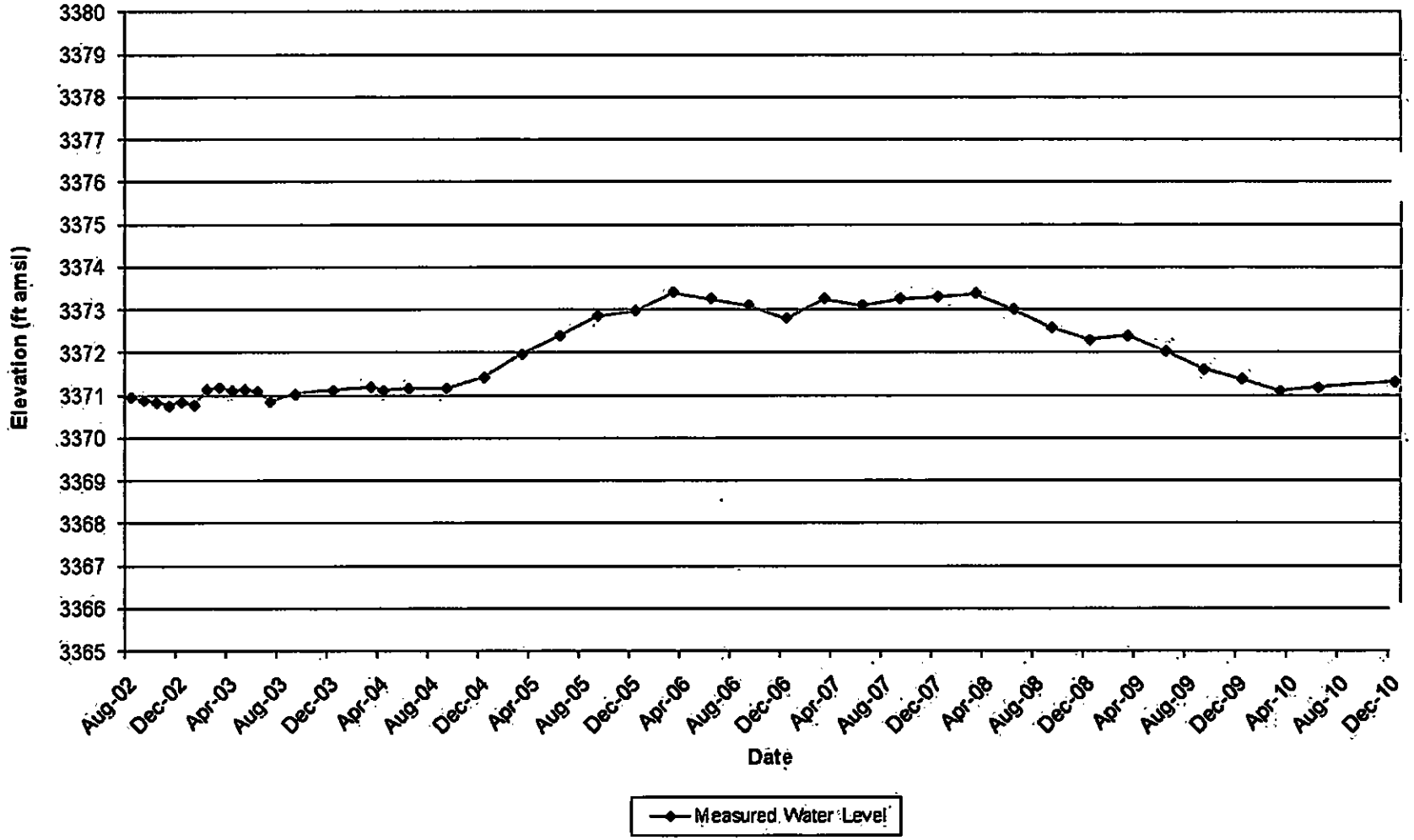
	Water Level Monitoring (Ft AMSL)		Field Parameters			General Chemistry Parameters					Other
Monitoring Site	9/9-14/10	12/3-6/10	pH (SU)	Temp. (^{0}C)	Specific Conductivity @25 ^{0}C (µS/cm)	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)
PZ-1	NM	3,371.32	6.38	24.0	114,900	10/26/10	NA	**1,800**	**62,000**	**96,100**	NA
PZ-2	3,370.39	3,370.45	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-3	3,372.93	3,371.89	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-4	3,365.52	3,365.77	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-5	3,372.34	3,372.42	6.86	23.8	31,840	10/26/10	NA	**1,400**	**13,000**	**20,800**	NA
PZ-6	3,369.97	3,370.23	6.48	24.2	96,400	10/26/10	NA	**1,900**	**47,000**	**72,300**	NA
PZ-7	3,376.82	3,376.94	6.25	24.3	130,700	10/25/10	NA	**3,000**	**75,000**	**103,000**	NA
PZ-8	3,355.89	3,355.58	NA	NA	NA	NS	NA	NS	NS	NS	NS
PZ-9	3,363.96	3,363.64	6.26	19.9	165,900	10/26/10	NA	**4,300**	**95,000**	**149,000**	NA
PZ-10	3,367.99	3,367.84	7.15	23.6	2,358	10/25/10	NA	410	360	**1,530**	NA
PZ-11	3,374.31	3,374.43	6.37	23.2	122,900	10/25/10	NA	**2,300**	**77,000**	**100,000**	NA
PZ-12	3,357.29	3,357.16	6.80	22.1	16,200	10/25/10	NA	**960**	**5,800**	**10,300**	NA
PZ-13	3,356.64	3,356.35	Bailed			10/26/10	NA	**2,900**	**190,000**	**246,000**	NA
PZ-14	3,353.42	3,353.20	NS	NS	NS	NS	NA	NS	NS	NS	NS
PZ-15	3,383.68	3,383.51	NS	NS	NS	NS	NA	NS	NS	NS	NS
C-2811	3,345.70	3346.02	7.22	21.4	3,950	10/25/10	NA	370	1,100	**2,470**	NA
C-2505	3,367.13	3,367.30	NS	NS	NS	NS	NA	NS	NS	NS	NS
C-2506	3,367.65	3,367.81	NS	NS	NS	NS	NA	NS	NS	NS	NS
C-2507	3,364.38	3,364.48	6.91	21.7	11,060	10/26/10	NA	**980**	**3,500**	**7,120**	NA
WQSP-6a (Round 29)	3,196.81	3,196.72	7.51	22.7	3,910	9/23/10	6.34	**2,090**	**321**	**3,500**	<1.0

Explanation: **NA: Not Analyzed, parameter not required, per permit conditions.**
NS: Not Sampled, not required per permit conditions
NM: Not Measured, inaccessible due to Post Indicator Valve repairs
PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty using Low-Flow pumps
"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply

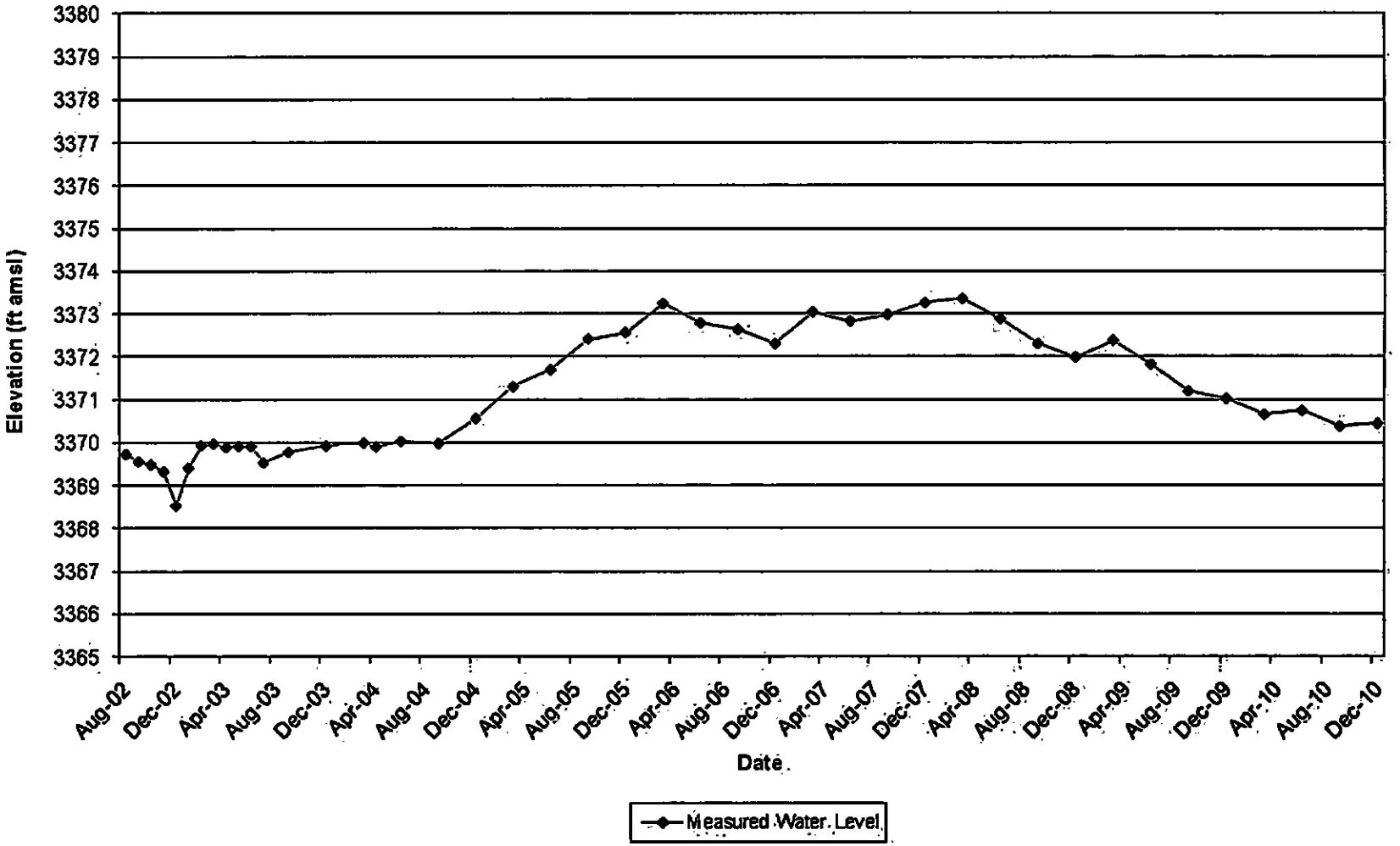
Appendix A

Historical Hydrographs for SSW Piezometers/Wells

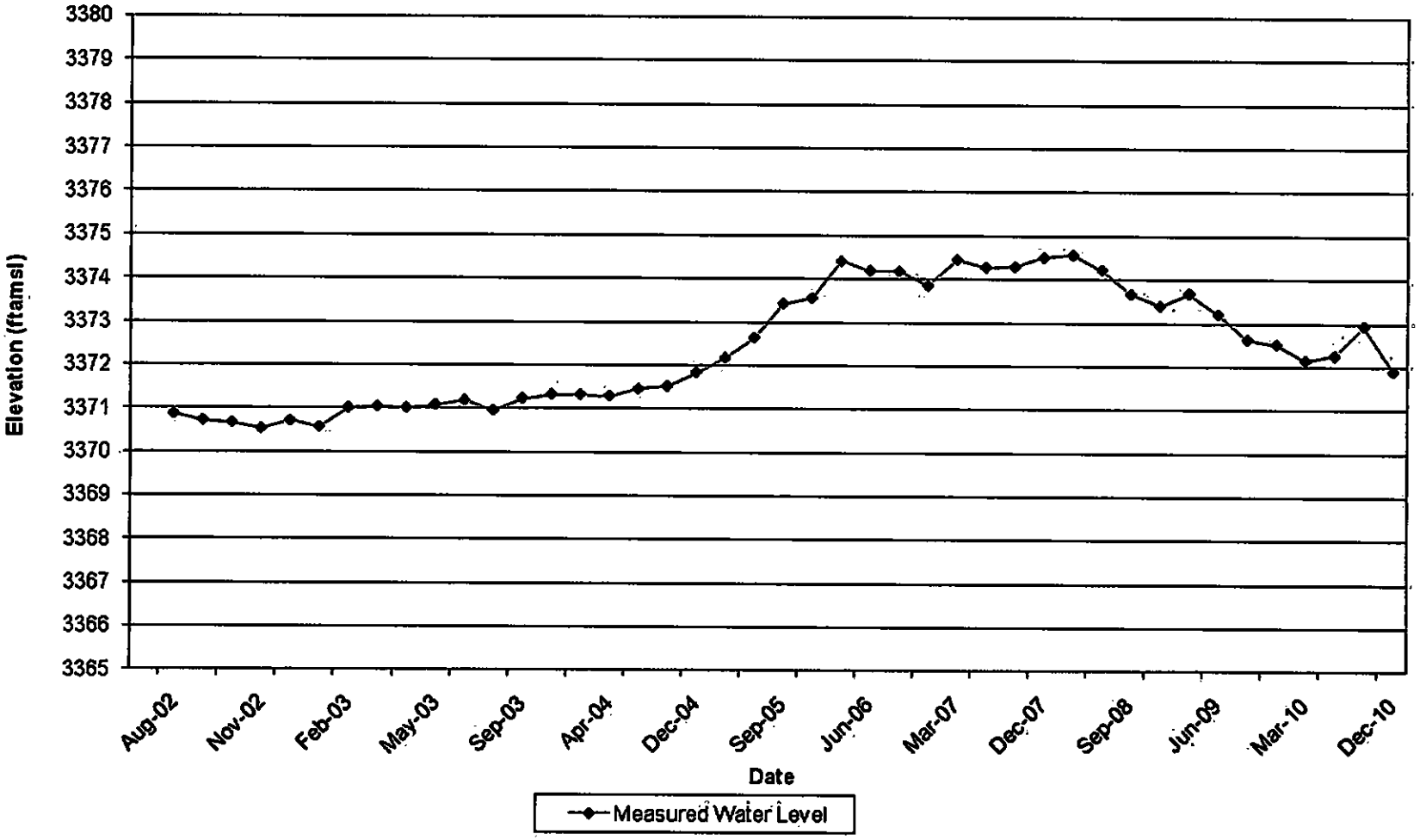
PZ-01, Santa Rosa/Dewey Lake
Historical Water Level Measurements



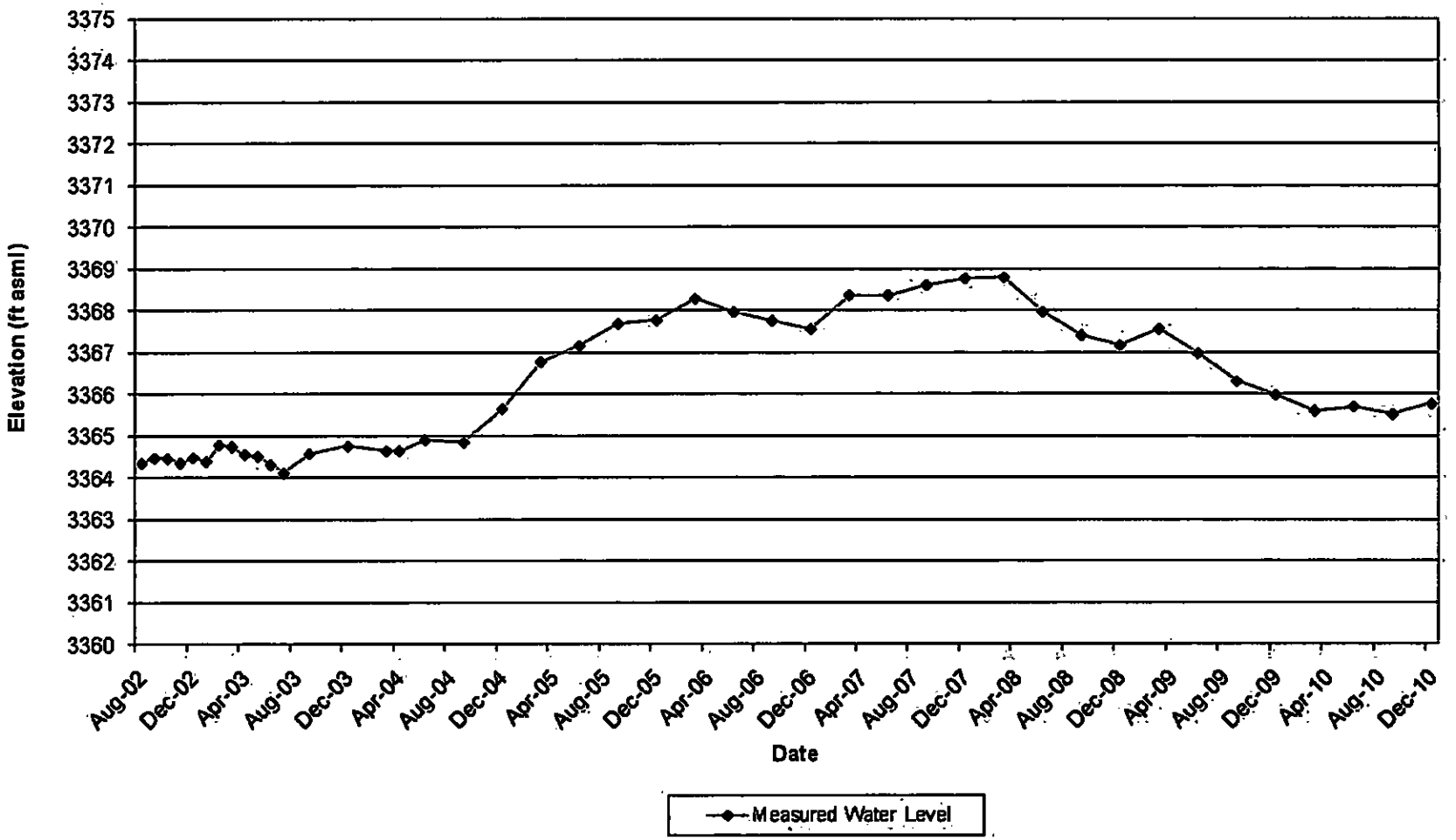
PZ-02, Santa Rosa/Dewey Lake
Historical Water Level Measurements



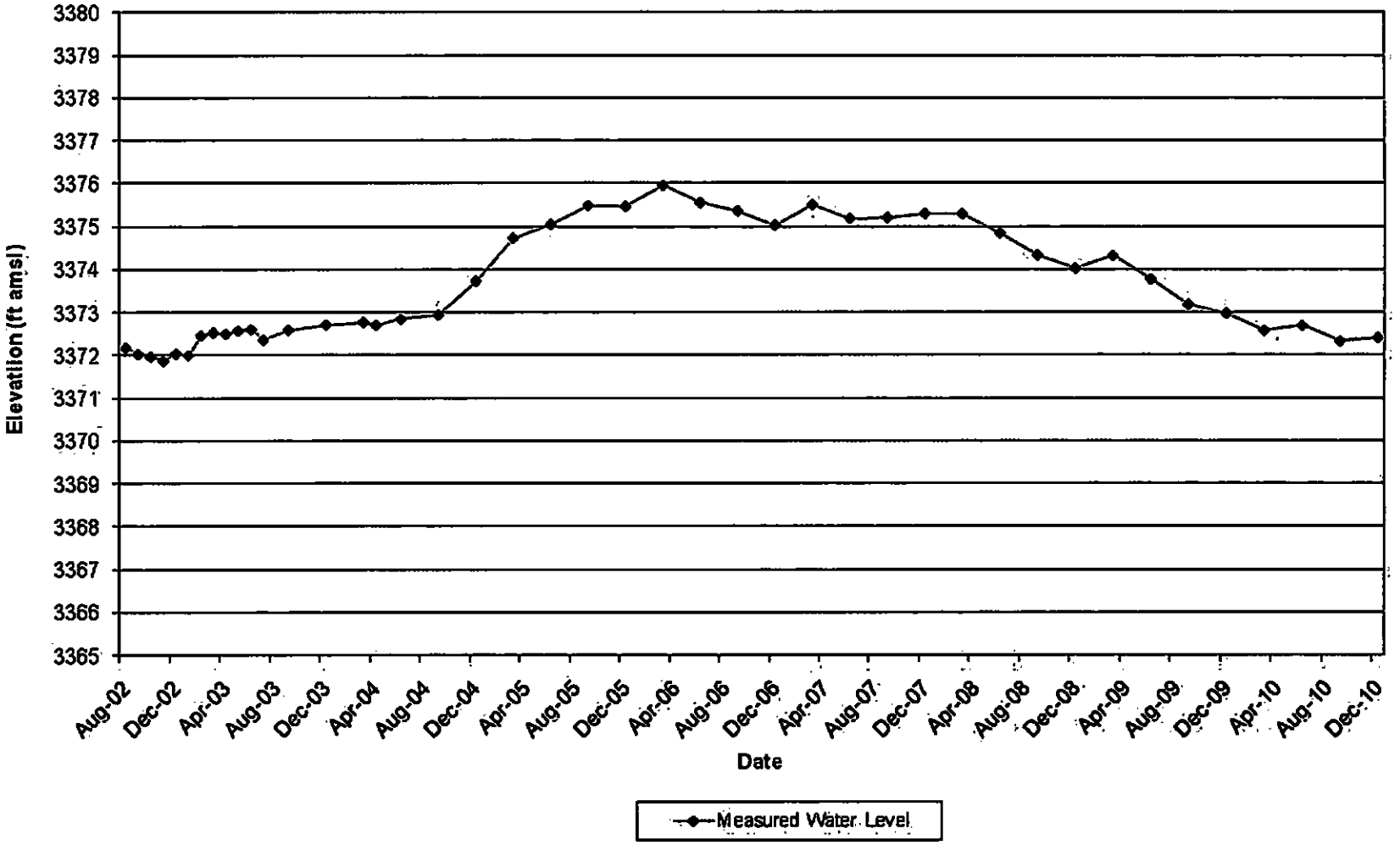
PZ-03 Santa Rosa/Dewey Lake
Historical Water Level Measurements



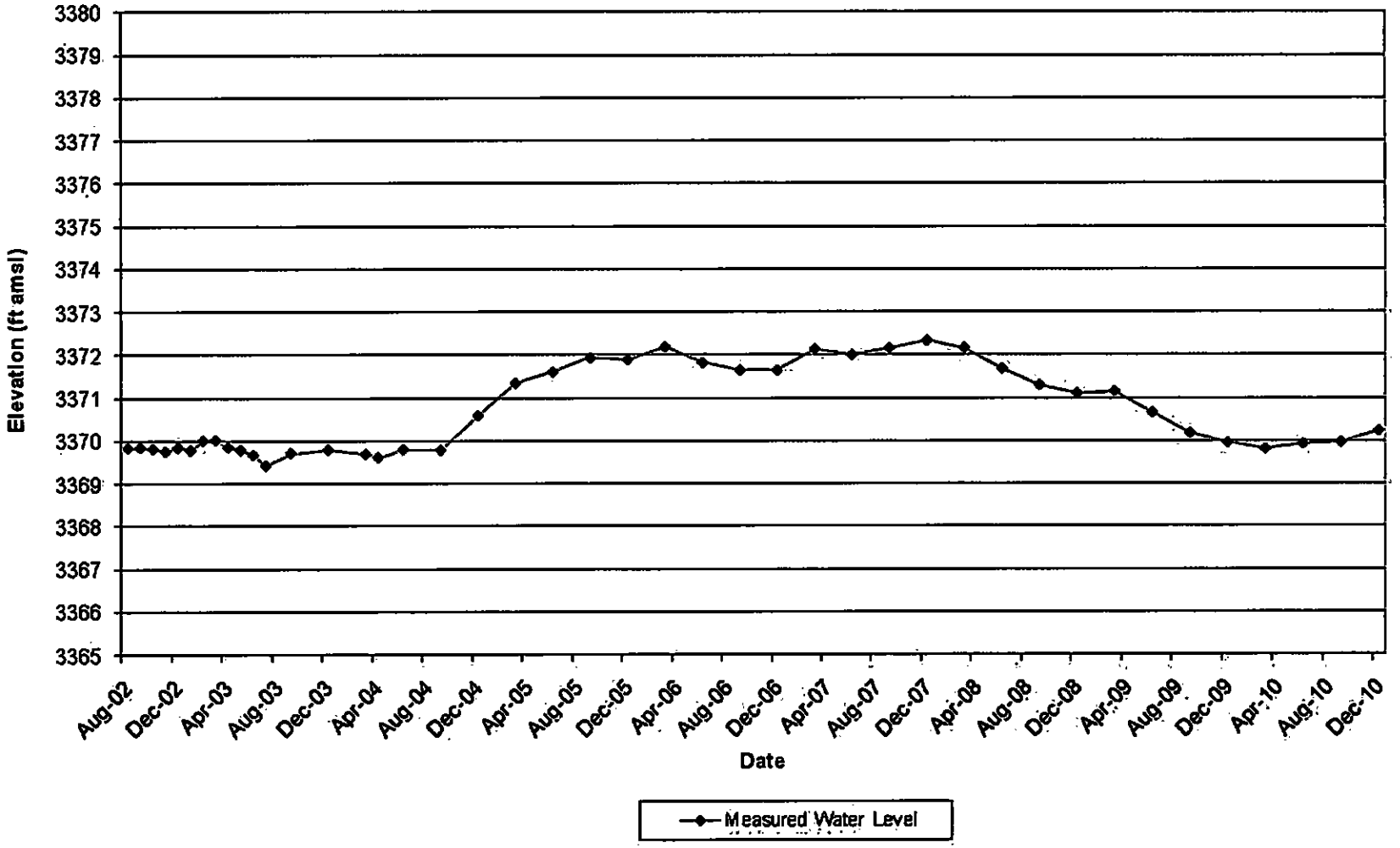
PZ-04 Santa Rosa/Dewey Lake
Historical Water Level Measurements



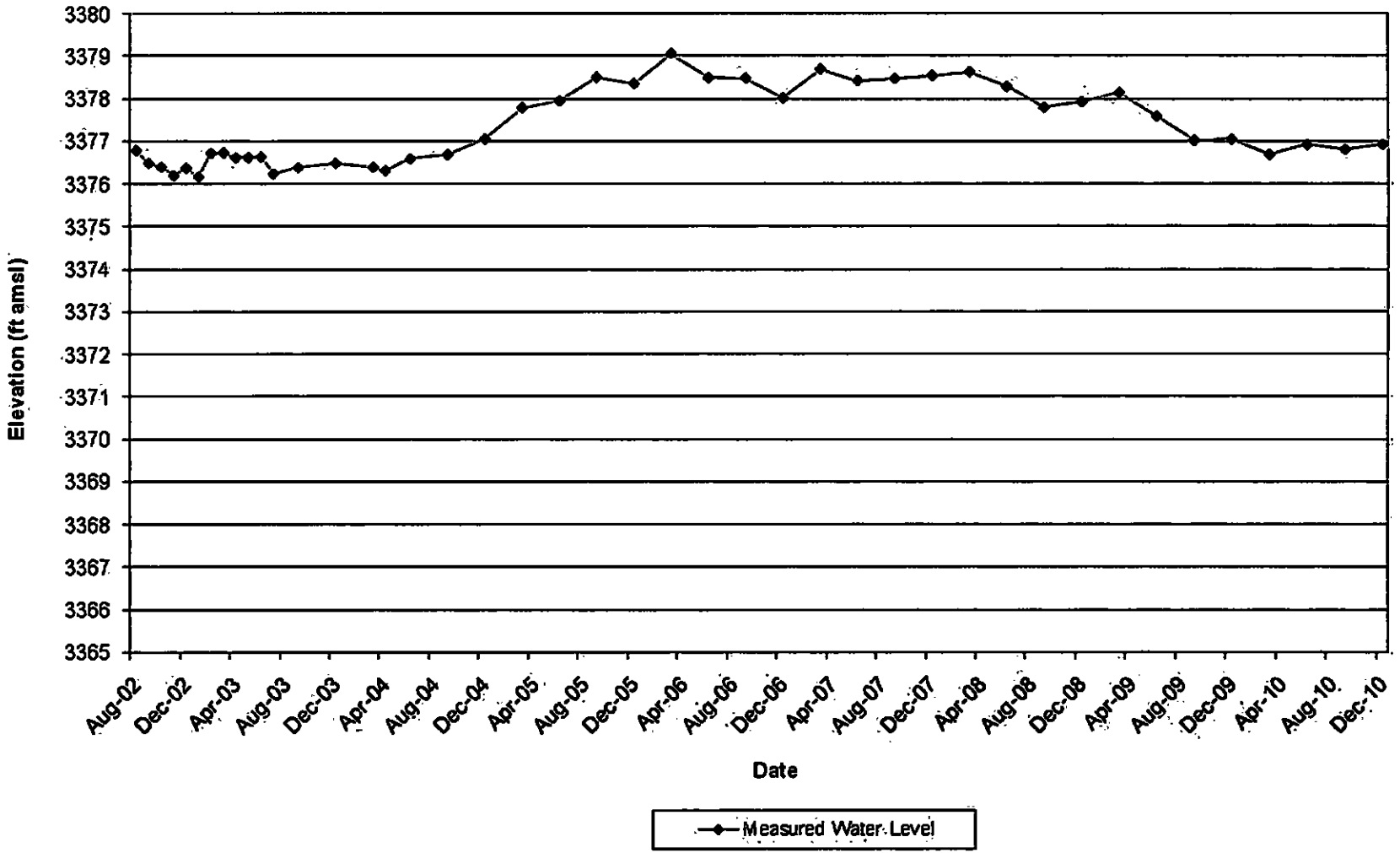
PZ-05 Santa Rosa/Dewey Lake
Historical Water Level Measurements



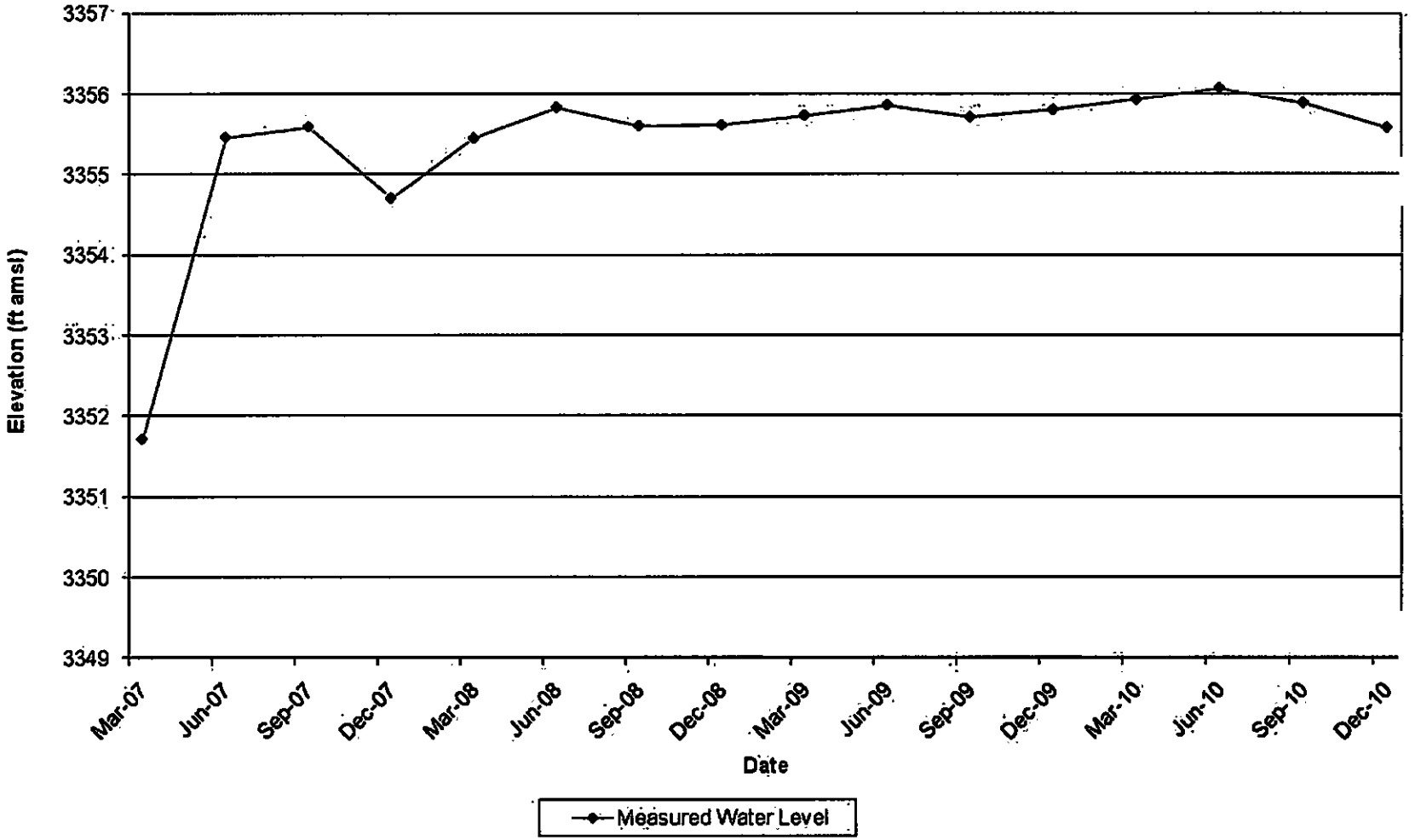
PZ-06 Santa Rosa/Dewey Lake
Historical Water Level Measurements



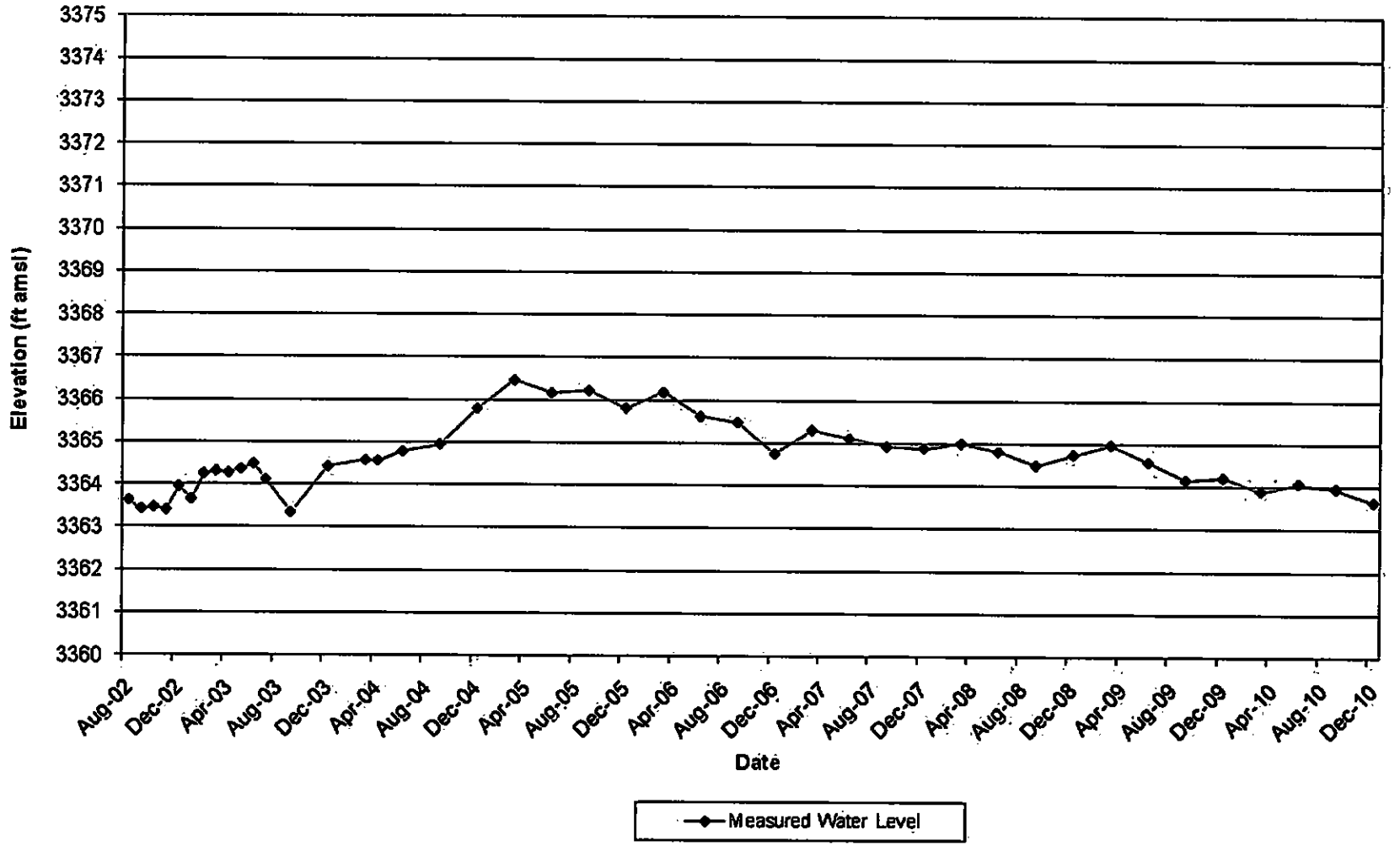
PZ-07 Santa Rosa/Dewey Lake
Historical Water Level Measurements



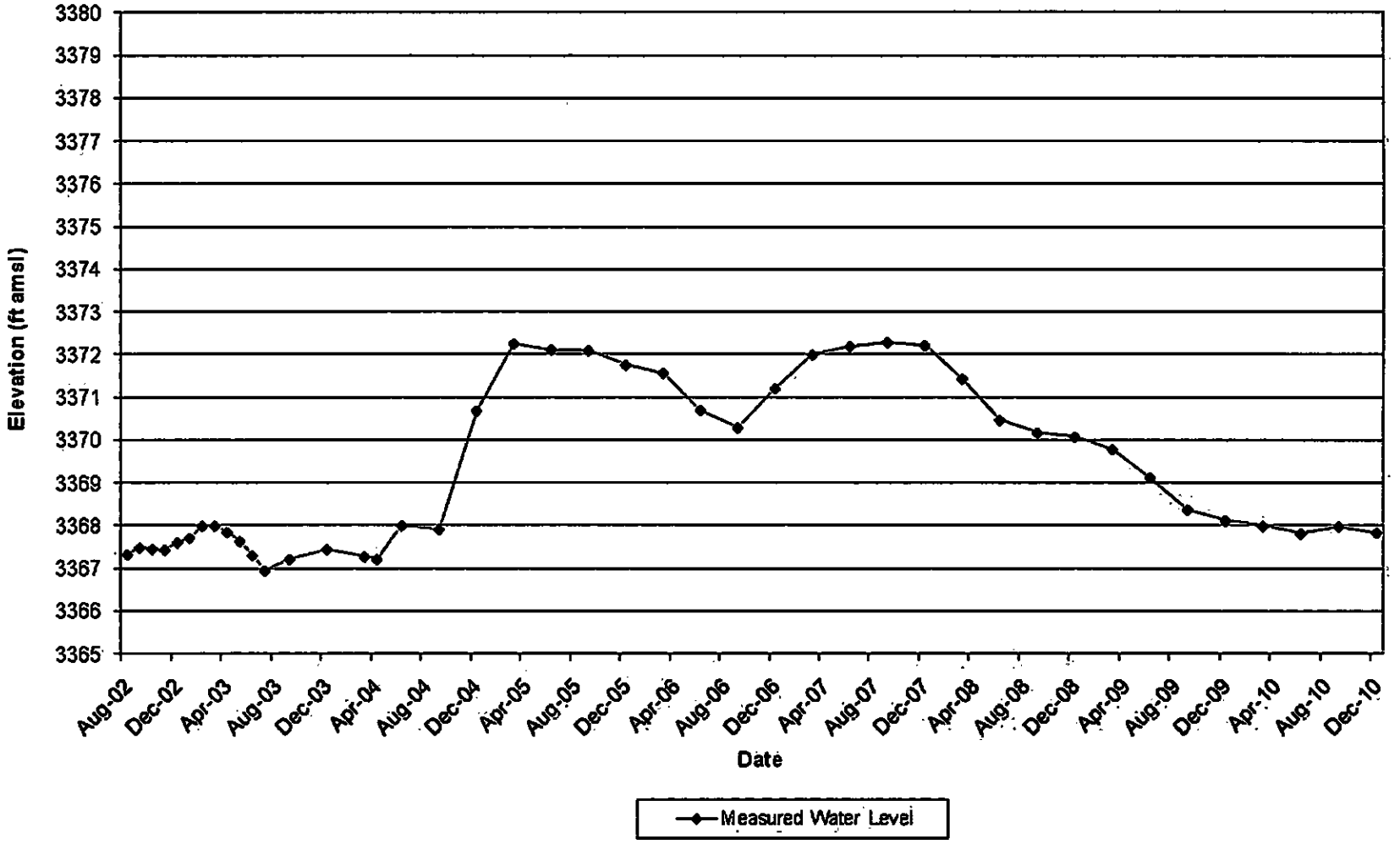
PZ-08 Santa Rosa/Dewey Lake
Historical Water Level Measurements



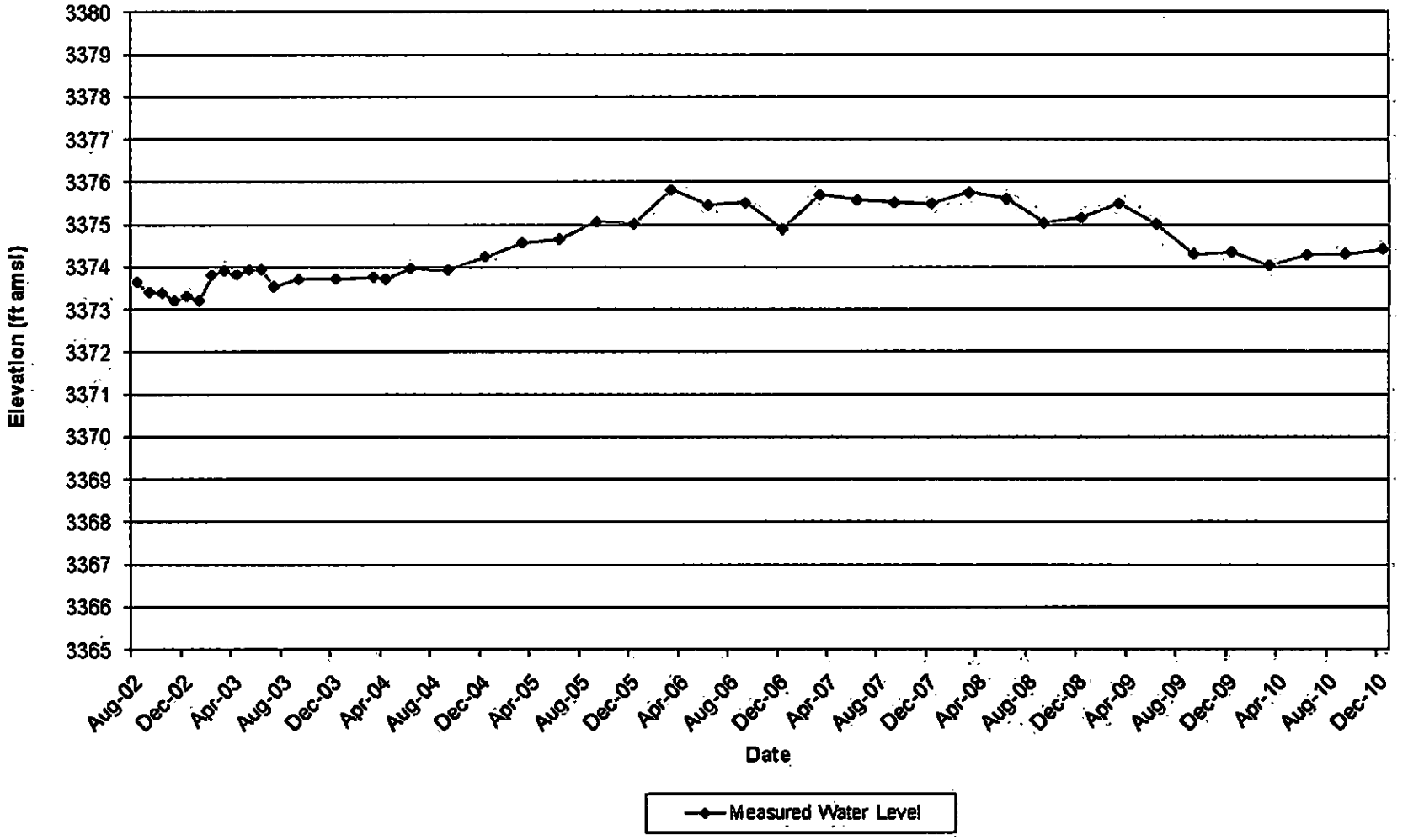
PZ-09 Santa Rosa/Dewey Lake
Historical Water Level Measurements



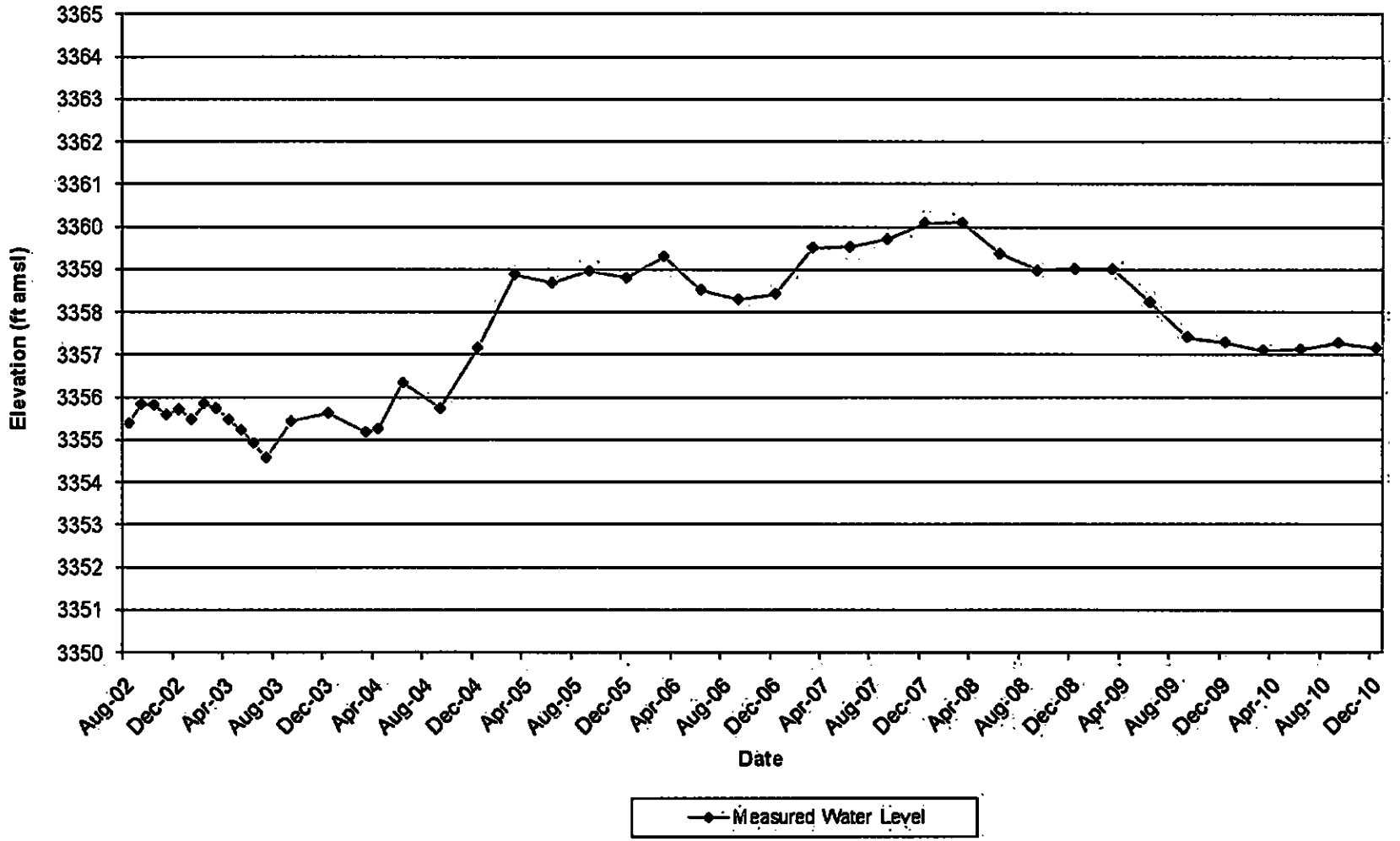
PZ-10 Santa Rosa/Dewey Lake
Historical Water Level Measurements



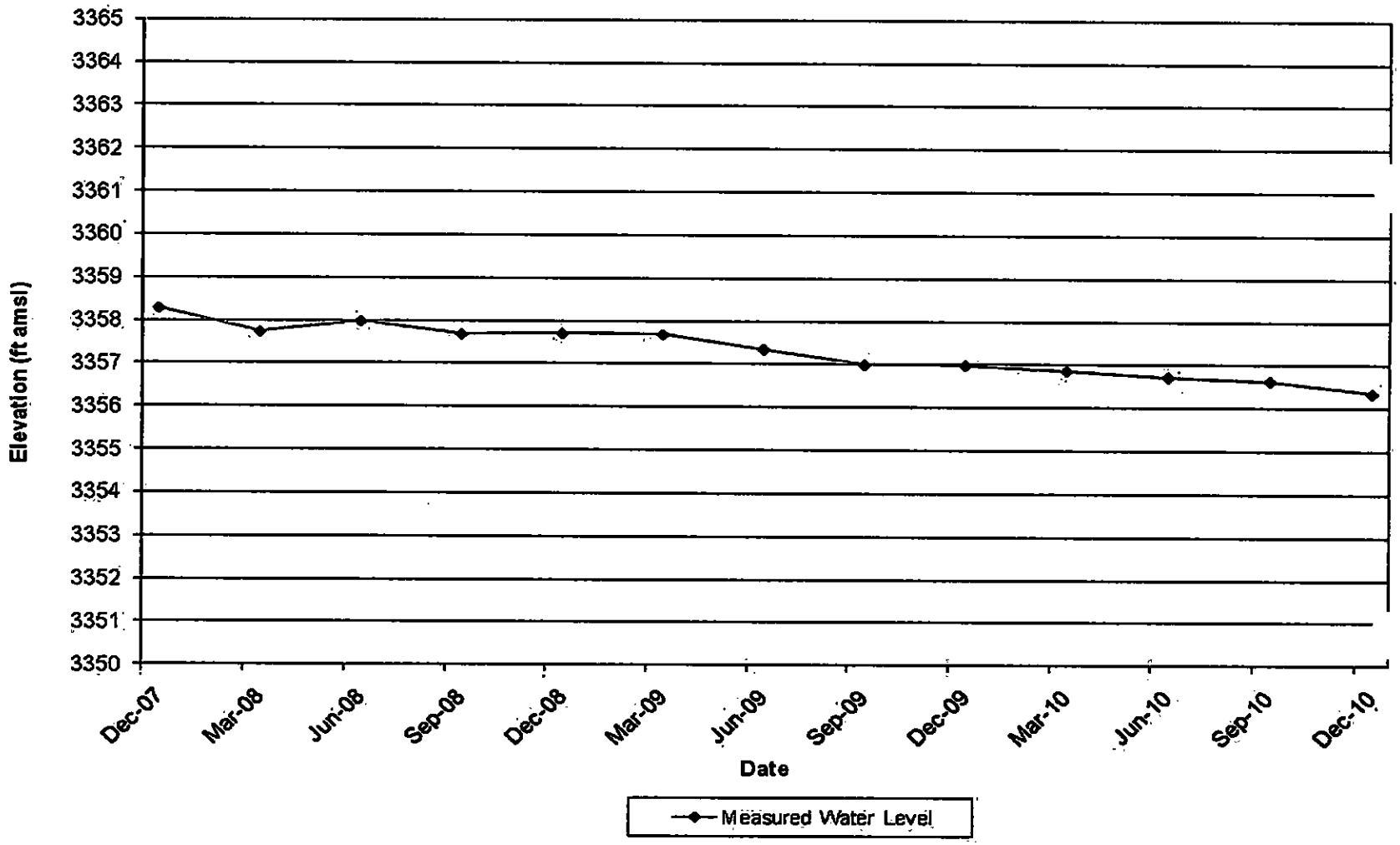
PZ-11 Santa Rosa/Dewey Lake
Historical Water Level Measurements



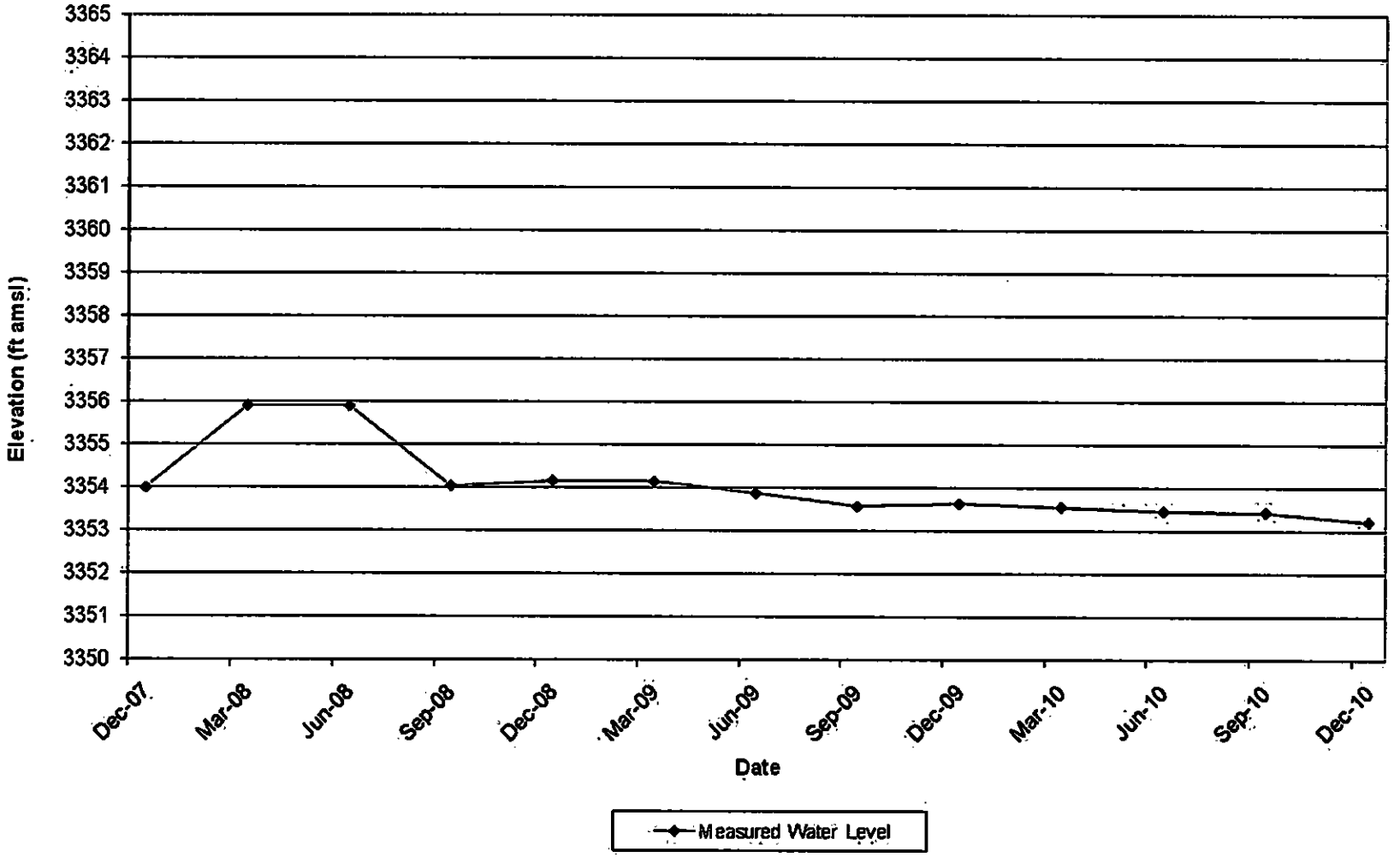
PZ-12 Santa Rosa/Dewey Lake
Historical Water Level Measurements



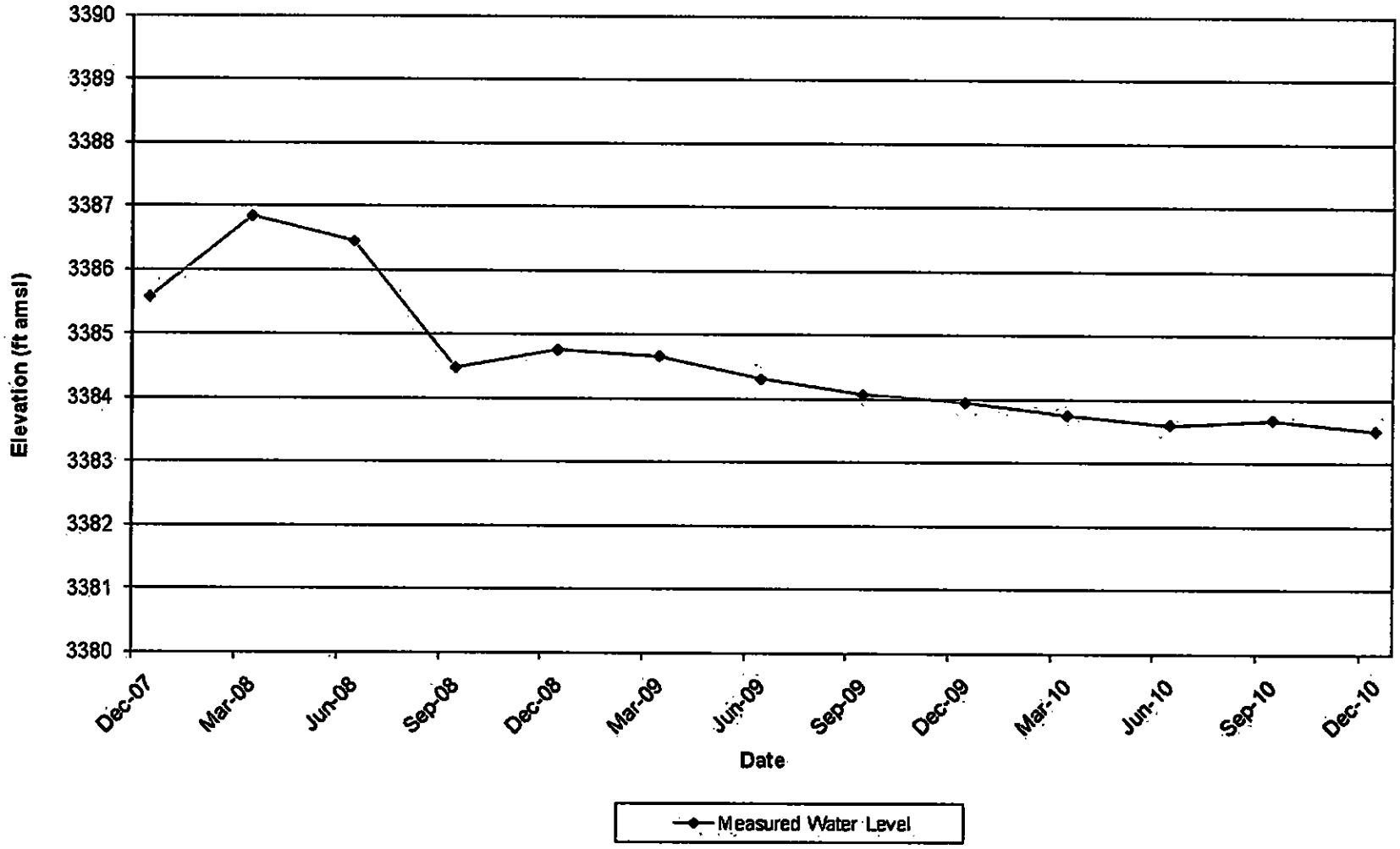
PZ-13, Santa Rosa/Dewey Lake
Historical Water Level Measurements



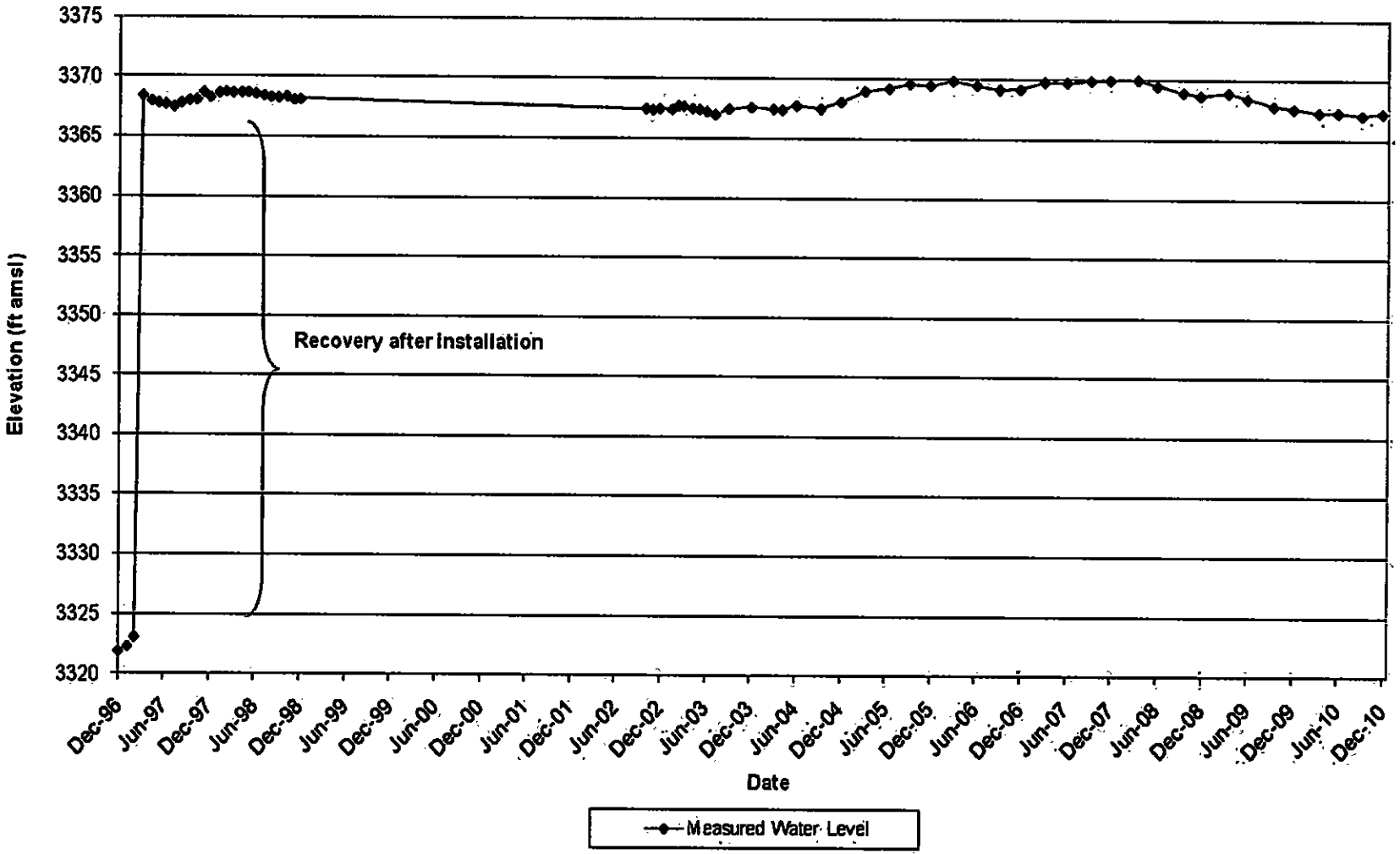
PZ-14, Santa Rosa/Dewey Lake
Historical Water Level Measurements



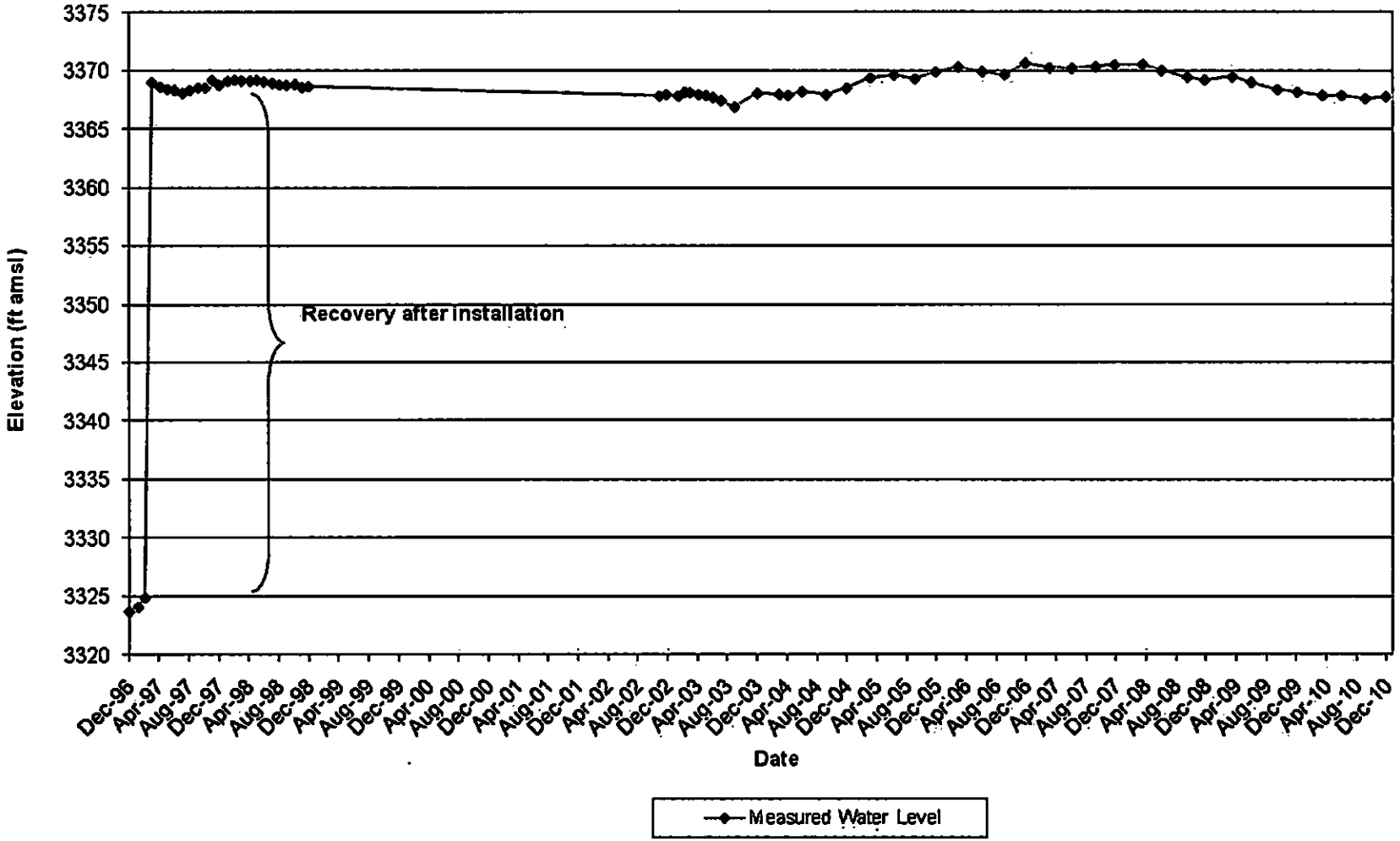
PZ-15, Gatuna
Historical Water Level Measurements



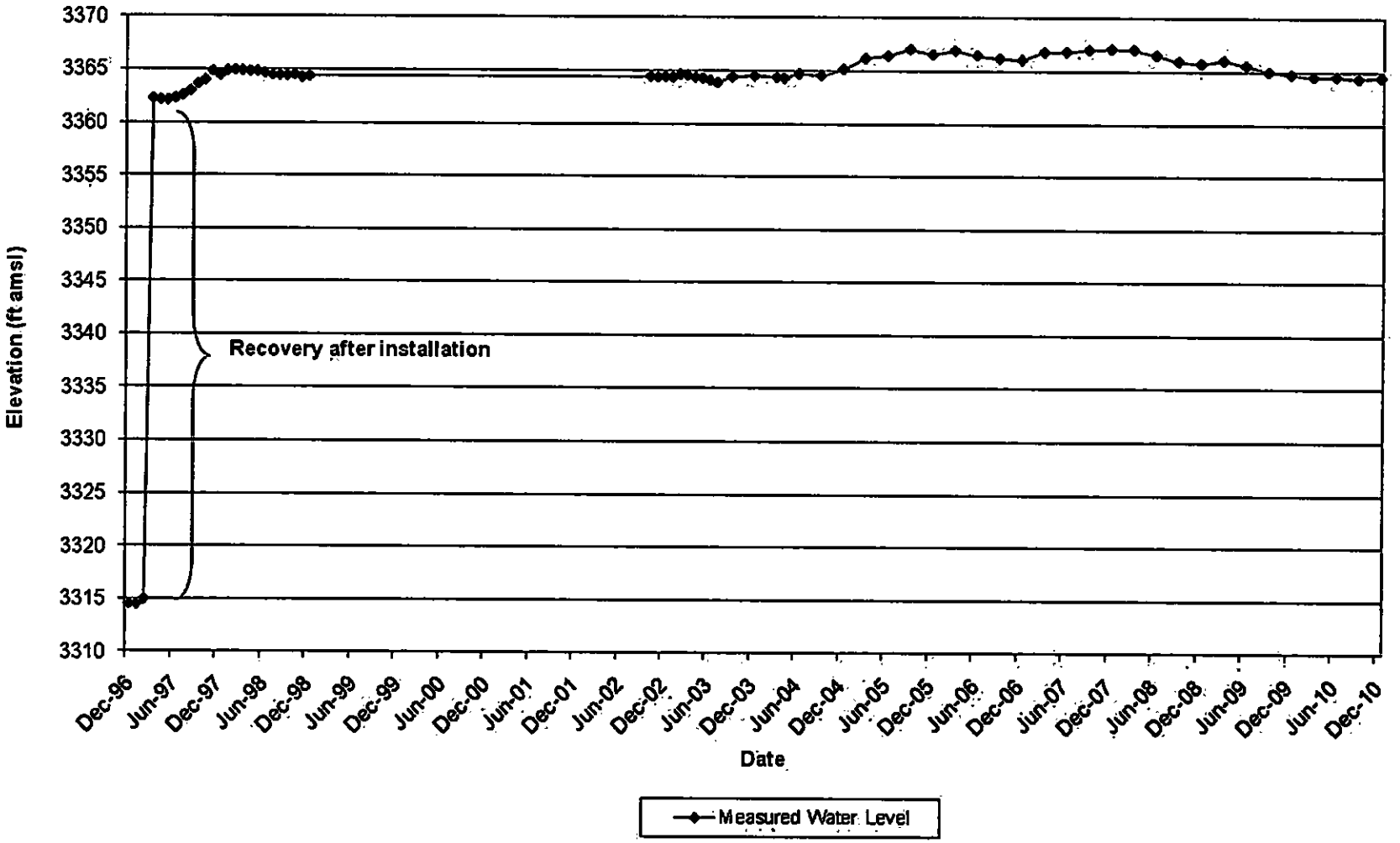
C-2505 Santa Rosa/Dewey Lake
Historical Water Level Measurements

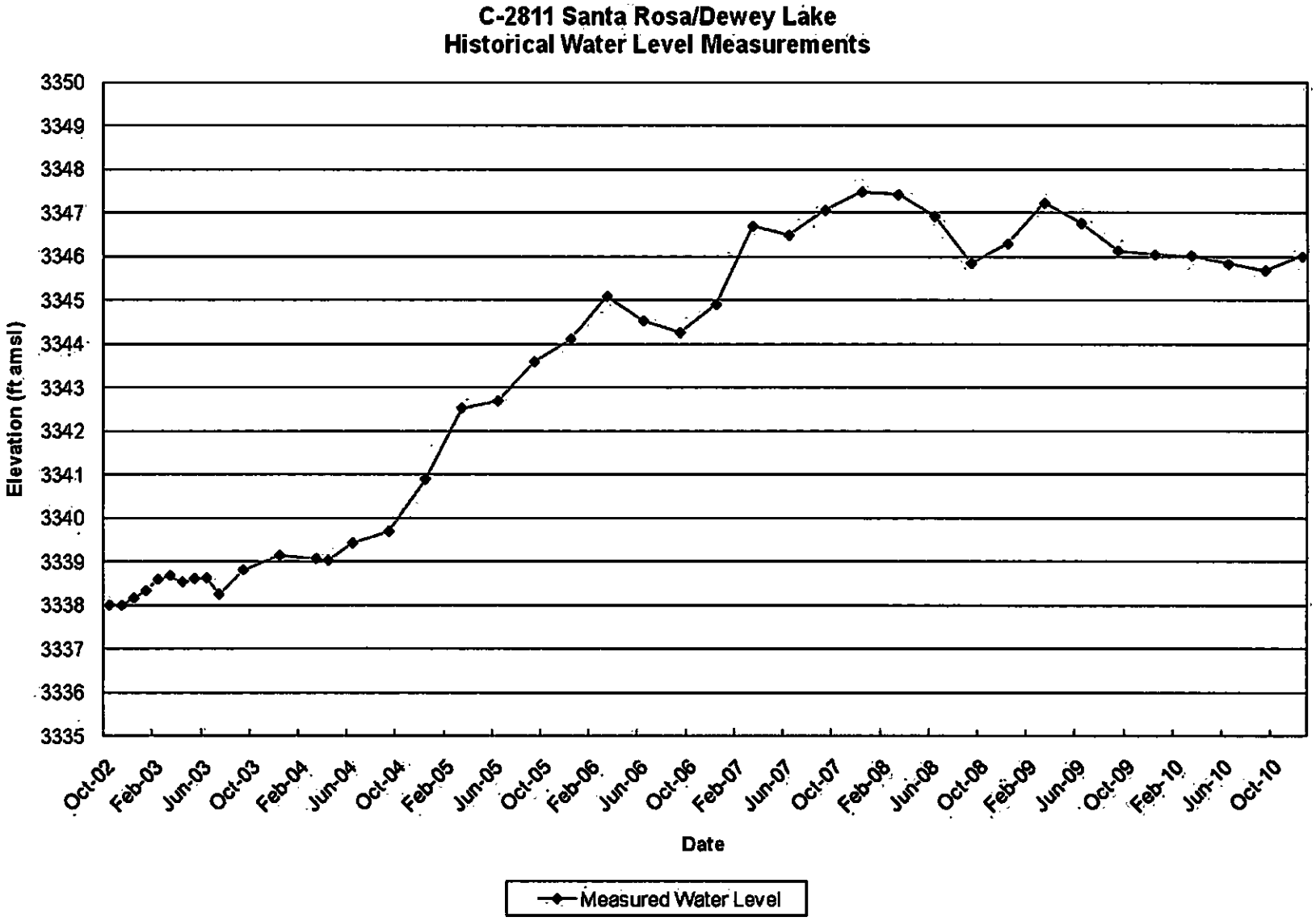


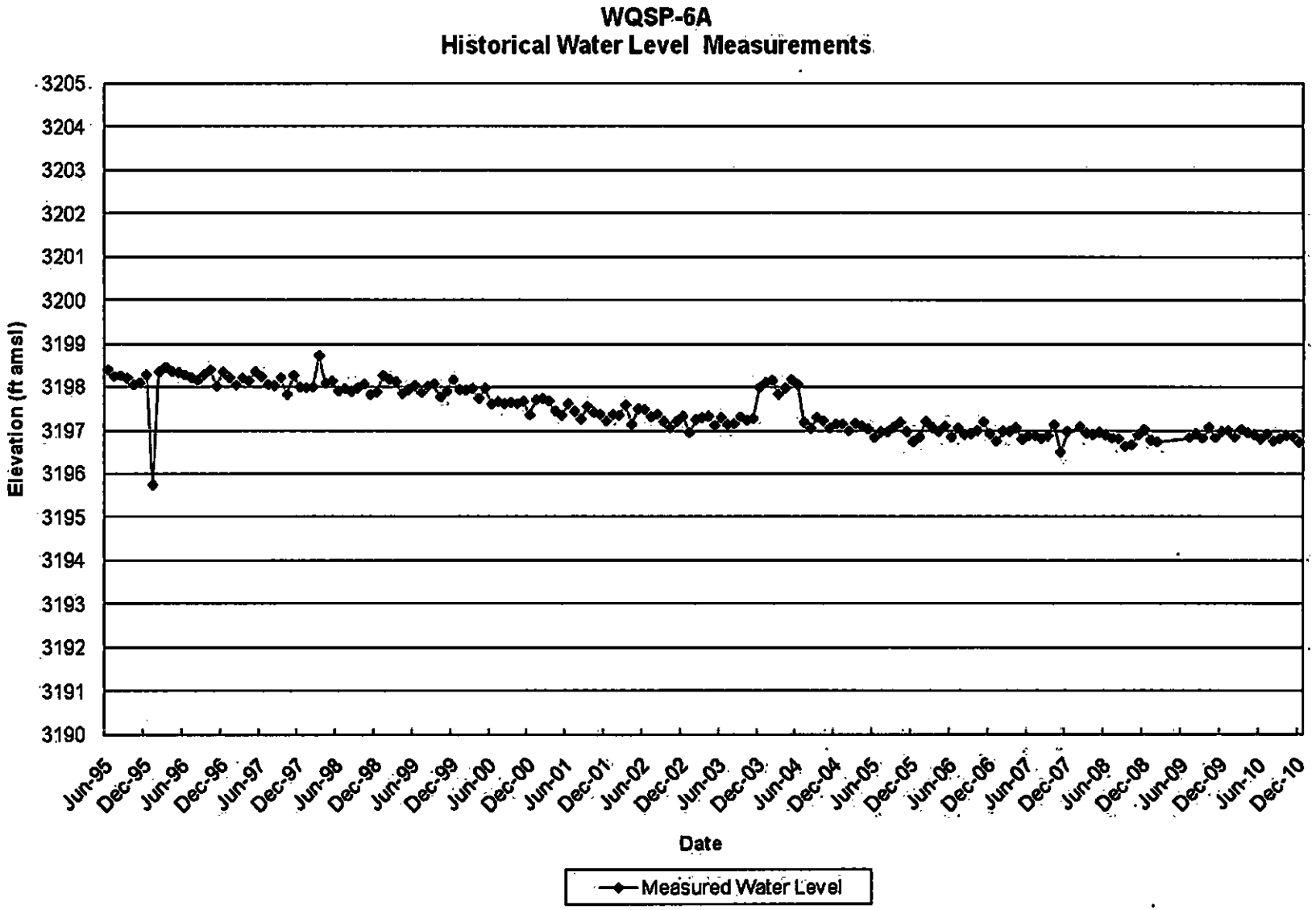
C-2506 Santa Rosa/Dewey Lake
Historical Water Level Measurements



C-2507 Santa Rosa/Dewey Lake
Historical Water Level Measurements




C-2811 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Elevation (ft amsl)
3350
3349
3348
3347
3346
3345
3344
3343
3342
3341
3340
3339
3338
3337
3336
3335
Oct-02
Feb-03
Jun-03
Oct-03
Feb-04
Jun-04
Oct-04
Feb-05
Jun-05
Oct-05
Feb-06
Jun-06
Oct-06
Feb-07
Jun-07
Oct-07
Feb-08
Jun-08
Oct-08
Feb-09
Jun-09
Oct-09
Feb-10
Jun-10
Oct-10
Date
Measured Water Level


WQSP-6A
Historical Water Level Measurements
Elevation (ft amsl)
3205
3204
3203
3202
3201
3200
3199
3198
3197
3196
3195
3194
3193
3192
3191
3190
Jun-95
Dec-95
Jun-96
Dec-96
Jun-97
Dec-97
Jun-98
Dec-98
Jun-99
Dec-99
Jun-00
Dec-00
Jun-01
Dec-01
Jun-02
Dec-02
Jun-03
Dec-03
Jun-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Dec-10
Date
Measured Water Level

Appendix B

Historical Chemistry Data for SSW Piezometers/Wells

	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-1	6/21/04	<10	1,530	36,300	79,600	0.0440	<0.00500
PZ-1	11/09/04	1.30	6,530	45,700	85,800	0.106	<0.0100
PZ-1	5/17/05	1.47	2,640	62,300	100,500	0.0600	0.0770
PZ-1	10/11/05	2.59	1,950	54,900	74,800	0.0430	<0.0100
PZ-1	5/16/06	<2.5	2,490	62,400	113,000	0.0510	<0.0100
PZ-1	10/10/06	<1.00	1,390	55,300	70,200	<0.0500	<0.0250
PZ-1	5/09/07	2.70	2,220	63,000	107,000	<0.0500	<0.0250
PZ-1	10/09/07	<1.00	2,820	83,200	99,500	<0.1000	<0.0250
PZ-1	6/5/08	<2.0	2,100	57,000	98,000	0.667	0.00218
PZ-1	10/14/08	NA	2,200	59,000	94,000	NA	NA
PZ-1	05/19/09	NA	2,200	54,000	96,000	NA	NA
PZ-1	10/19/09	NA	2,300	66,000	101,000	NA	NA
PZ-1	5/25/10	NA	2,200	53,000	92,800	NA	NA
PZ-1	10/26/10	NA	1,800	62,000	96,100	NA	NA
PZ-5	6/21/04	20.7	1,340	28,800	55,200	0.0670	<0.00500
PZ-5	11/09/04	<2.50	1,820	47800	86,000	0.0940	<0.0100
PZ-5	5/17/05	2.96	3,260	46,000	65,400	0.0930	0.0670
PZ-5	10/11/05	5.14	769	14,000	32,800	0.0620	<0.0100
PZ-5	5/16/06	2.56	1,520	18,300	32,600	0.0710	<0.0100
PZ-5	10/10/06	5.04	1,330	28,800	47,400	<0.0500	<0.0250
PZ-5	5/09/07	4.60	1,640	17,300	32,400	<0.0500	<0.0250
PZ-5	10/09/07	<1.00	1,880	19,400	28,700	0.0710	<0.005
PZ-5	6/5/08	5.7	1,500	19,000	33,000	0.0801	0.00317
PZ-5	10/14/08	NA	1,400	13,000	25,000	NA	NA
PZ-5	05/19/09	NA	1,500	13,000	24,000	NA	NA
PZ-5	10/19/09	NA	1,600	14,000	20,200	NA	NA
PZ-5	5/25/10	NA	1,400	13,000	21,900	NA	NA
PZ-5	10/26/10	NA	1,400	13,000	20,800	NA	NA
PZ-6	6/21/04	21.2	2,860	70,500	134,000	0.0170	<0.00500
PZ-6	11/09/04	4.89	13,000	75,400	113,000	0.0600	<0.0100
PZ-6	5/17/05	4.25	3,610	109,000	160,500	0.0500	0.0540
PZ-6	10/11/05	<20.0	2,850	83,800	106,000	0.0210	<0.0100
PZ-6	5/16/06	7.69	3,050	68,800	115,000	<0.0100	<0.0100
PZ-6	10/10/06	252	2,790	79,800	134,000	<0.0500	<0.0250
PZ-6	5/09/07	6.65	2,840	73,500	122,500	<0.0500	<0.0250
PZ-6	10/09/07	<1.00	3,080	81,000	105,000	<0.1000	<0.0250
PZ-6	6/5/08	6.1	2,100	47,000	81,000	0.0412	0.00259
PZ-6	10/14/08	NA	2,500	58,000	87,000	NA	NA
PZ-6	05/19/09	NA	2,700	61,000	89,000	NA	NA
PZ-6	10/19/09	NA	2,300	50,000	83,600	NA	NA
PZ-6	5/25/10	NA	2,300	47,000	82,100	NA	NA
PZ-6	10/26/10	NA	1,900	47,000	72,300	NA	NA
PZ-7	6/21/04	20.7	2,620	53,000	109,000	0.041	<0.00500
PZ-7	11/08/04	2.89	7,460	43,600	80,400	0.0880	<0.0100
PZ-7	5/16/05	4.02	2,530	42,100	65,900	0.0820	0.0940

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-7	10/10/05	6.37	2,770	61,000	88,000	0.0470	<0.0100
PZ-7	5/15/06	<5.3	3,190	54,100	139,000	0.0680	<0.0100
PZ-7	10/9/06	<1.00	2,890	66,800	81,500	<0.00100	<0.0500
PZ-7	5/07/07	5.15	3,190	64,800	119,000	<0.0200	0.0200
PZ-7	10/08/07	<1.00	2,660	45,600	65,000	0.0640	<0.00500
PZ-7	6/4/08	5.0	2,300	49,000	86,000	0.0635	0.00257
PZ-7	10/13/08	NA	1,700	27,000	42,000	NA	NA
PZ-7	05/18/09	NA	3,700	76,000	120,000	NA	NA
PZ-7	10/20/09	NA	4,200	67,000	106,000	NA	NA
PZ-7	5/24/10	NA	3,000	68,000	103,000	NA	NA
PZ-7	10/25/10	NA	3,000	75,000	103,000	NA	NA
PZ-8	10/15/07	0.677	500	7,440	15,000	0.039	<0.00500
PZ-8	6/6/08	1.8	630	11,000	16,000	0.0655	<0.001
PZ-9	6/21/04	<20.0	3,740	80,200	140,000	<0.0100	<0.00500
PZ-9	11/09/04	1.40	14,500	92,400	144,000	0.0660	<0.0100
PZ-9	5/17/05	2.82	5,090	182,000	164,000	0.0500	0.0710
PZ-9	10/11/05	<20.0	3,930	85,500	107,000	0.0220	<0.0100
PZ-9	5/16/06	3.01	4,350	84,700	153,000	0.0230	<0.0100
PZ-9	10/10/06	<20.0	3,370	102,000	135,000	<0.0500	<0.0250
PZ-9	5/09/07	3.28	4,320	89,600	164,000	<0.0500	<0.0250
PZ-9	10/09/07	<200	4,720	116,000	144,000	<0.0200	<0.0050
PZ-9	6/5/08	2.2	4,400	87,000	150,000	0.0351	0.00492
PZ-9	10/14/08	NA	4,100	96,000	140,000	NA	NA
PZ-9	05/19/09	NA	3,600	94,000	130,000	NA	NA
PZ-9	10/19/09	NA	4,000	77,000	139,000	NA	NA
PZ-9	5/25/10	NA	4,400	94,000	144,000	NA	NA
PZ-9	10/26/10	NA	4,300	95,000	149,000	NA	NA
PZ-10	6/14/04	3.81	469	368	1,714	0.0200	<0.00500
PZ-10	11/08/04	3.69	431	353	1,576	<0.0500	<0.0100
PZ-10	5/16/05	3.63	572	416	1,756	0.0440	0.0370
PZ-10	10/10/05	3.34	515	318	1,720	0.0150	<0.0100
PZ-10	5/15/06	3.42	539	460	1,830	0.0140	<0.0100
PZ-10	10/9/06	5.5	549	350	1,600	<0.00100	<0.0500
PZ-10	5/07/07	14.8	407	274	1,504	<0.0200	0.0200
PZ-10	10/08/07	<1.00	211	186	968	0.0260	<0.0050
PZ-10	6/4/08	4.5	390	300	1,500	0.0144	0.00119
PZ-10	10/13/08	NS	380	290	1,400	NA	NA
PZ-10	05/18/09	NS	530	460	1,800	NA	NA
PZ-10	10/20/09	NS	500	440	1,730	NA	NA
PZ-10	5/24/10	NS	500	370	1,680	NA	NA
PZ-10	10/25/10	NS	410	360	1,530	NA	NA
PZ-11	6/21/04	20.8	2,220	58,100	123,000	<0.0100	<0.00500
PZ-11	11/08/04	3.15	13,000	84,100	119,000	<0.0500	<0.0100
PZ-11	5/16/05	4.63	2,890	66,000	100,000	<0.0100	<0.0100

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-11	10/10/05	<20.0	2,950	84,300	129,000	0.0130	<0.0100
PZ-11	5/15/06	<5.3	3,090	71,000	133,000	<0.0100	<0.0100
PZ-11	10/9/06	<1.00	2,550	85,800	123,000	<0.00100	<0.0500
PZ-11	5/07/07	3.84	2,620	68,700	135,000	<0.0200	<0.0100
PZ-11	10/08/07	<1.00	2,970	94,400	108,000	<0.0200	<0.0050
PZ-11	6/4/08	3.9	2,100	65,000	110,000	0.0149	0.00216
PZ-11	10/13/08	NA	3,000	79,000	110,000	NA	NA
PZ-11	05/18/09	NA	2,500	72,000	110,000	NA	NA
PZ-11	10/20/09	NA	3,200	64,000	112,000	NA	NA
PZ-11	5/24/10	NA	2,500	69,000	107,000	NA	NA
PZ-11	10/25/10	NA	2,300	77,000	100,000	NA	NA
PZ-12	6/14/04	11.2	773	5,320	9,700	0.0770	<0.00500
PZ-12	11/08/04	19.8	879	7,170	9,540	0.0660	<0.0100
PZ-12	5/16/05	8.85	679	3,730	5,890	0.0510	0.0540
PZ-12	10/10/05	426	805	3,790	7,740	0.0200	<0.0100
PZ-12	5/15/06	20.6	866	4,510	8,790	0.0190	<0.0100
PZ-12	10/9/06	13.2	795	5,340	9,150	<0.00100	<0.0500
PZ-12	5/07/07	10.8	831	3,780	7,010	<0.0200	0.0240
PZ-12	10/08/07	<1.00	958	4,310	6,200	0.0260	<0.0050
PZ-12	6/4/08	11	760	3,300	6,800	0.0291	0.00132
PZ-12	10/13/08	NS	850	3,300	7,000	NA	NA
PZ-12	05/18/09	NS	870	4,600	8,300	NA	NA
PZ-12	10/20/09	NS	980	6,500	10,100	NA	NA
PZ-12	5/24/10	NS	990	5,500	10,100	NA	NA
PZ-12	10/25/10	NS	990	5,800	10,300	NA	NA
PZ-13	10/10/07	12.4	2,670	150,000	245,500	<0.100	<0.00500
PZ-13	6/6/08	<200	2,600	170,000	240,000	0.0118	0.00316
PZ-13	10/13/08	NS	2,900	160,000	230,000	NA	NA
PZ-13	05/18/09	NS	3,300	180,000	240,000	NA	NA
PZ-13	10/20/09	NS	3,300	170,000	255,000	NA	NA
PZ-13	5/24/10	NS	3,000	170,000	240,000	NA	NA
PZ-13	10/26/10	NS	2,900	190,000	246,000	NA	NA
PZ-14	10/15/07	1.41	2,140	71,500	106,000	<0.0100	<0.00500
PZ-14	6/6/08	<100	3,300	130,000	180,000	0.0201	0.00168
PZ-15	10/15/07	2.97	169	764	2,060	0.022	<0.00500
PZ-15	6/6/08	12	160	460	1,600	0.00372	<0.001
C-2811	6/14/04	6.06	299	769	2,022	0.0470	<0.00500
C-2811	11/08/04	7.63	305	1,030	1,996	0.0540	<0.0100
C-2811	5/16/05	6.02	524	1,930	3,740	0.0580	0.0530
C-2811	10/10/05	7.48	584	2,250	4,410	0.0340	<0.0100
C-2811	5/15/06	6.94	511	1,760	3,740	0.0310	<0.0100
C-2811	10/9/06	6.05	402	1,310	2,100	<0.00100	<0.0500
C-2811	5/07/07	5.31	516	1,760	4,205	<0.0200	0.0310
C-2811	10/08/07	<1.00	635	2,980	3,860	0.0510	<0.0050

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
C-2811	6/4/08	5.7	390	1,300	2,800	0.00170	0.0350
C-2811	10/13/08	NA	320	1,000	2,100	NA	NA
C-2811	05/18/09	NA	360	1,200	2,300	NA	NA
C-2811	10/20/09	NA	320	1,000	2,120	NA	NA
C-2811	5/24/10	NA	340	920	2,090	NA	NA
C-2811	10/25/10	NA	370	1,100	2,470	NA	NA
C-2507	6/21/04	7.55	717	1,300	3,830	0.029	0.028
C-2507	11/09/04	7.58	824	1,380	3,350	0.0800	0.0140
C-2507	5/17/05	7.94	860	1,370	3,340	0.0780	0.0630
C-2507	10/11/05	6.13	920	1,630	3,240	0.0470	<0.0100
C-2507	5/16/06	7.37	1,040	1,930	5,300	0.0510	<0.0100
C-2507	10/10/06	2.9	943	3,640	1,740	<0.0500	<0.0250
C-2507	5/9/07	6.62	1,110	3,060	5,485	<0.0500	<0.0250
C-2507	10/9/07	<1.00	1,220	3,500	5,540	0.0550	0.007
C-2507	6/5/08	6.9	990	2,800	5,800	0.0637	0.00493
C-2507	10/14/08	NA	940	2,200	5,100	NA	NA
C-2507	5/19/09	NA	950	2,600	5,200	NA	NA
C-2507	10/19/09	NA	930	3,400	5,710	NA	NA
C-2507	5/25/10	NA	910	3,500	6,640	NA	NA
C-2507	10/26/10	NA	980	3,500	7,120	NA	NA
WQSP-6A	7/13/95	7.62	1,905	1,040	11,000	<0.006	<0.025
WQSP-6A	3/28/96	3.98	1,810	507	3,920	<0.013	<0.025
WQSP-6A	7/11/96	2.75	1,971	6,748	4,500	0.020	<0.025
WQSP-6A	4/10/97	4.64	2,240	675	3,960	0.017	<0.025
WQSP-6A	7/10/97	4.04	2,560	660	3,840	<0.050	<0.1000
WQSP-6A	6/10/98	6.19	1,950	644	4,120	0.016	0.0015
WQSP-6A	11/3/98	11.00	2,100	770	4,100	0.220	<0.500
WQSP-6A	5/26/99	7.00	1,900	540	3,800	<0.100	<0.050
WQSP-6A	11/10/99	9.40	1,900	540	3,800	<0.050	<0.050
WQSP-6A	5/24/00	7.50	2,100	530	3,800	0.0129	<0.020
WQSP-6A	11/30/00	6.70	1,900	480	3,700	<0.0130	<0.025
WQSP-6A	6/6/01	6.37	1,900	536	3,680	0.0385	<0.025
WQSP-6A	11/14/01	3.67	1,900	414	4,600	<0.050	<0.010
WQSP-6A	5/22/02	5.52	1,930	487	3,540	<0.050	<0.010
WQSP-6A	11/20/02	5.61	2,090	419	3,685	<0.050	<0.010
WQSP-6A	5/21/03	4.74	1,950	384	3,650	<0.123	<0.050
WQSP-6A	11/19/03	<0.01	1,950	391	3,955	<0.219	<0.025
WQSP-6A	5/26/04	9.61	1,970	416	3,646	<0.025	<0.025
WQSP-6A	11/17/04	6.72	1,960	491	3,655	<0.025	<0.025
WQSP-6A	4/20/05	5.98	1,920	432	3,700	0.057	<0.025
WQSP-6A	10/19/05	<0.01	1,940	360	3,430	<0.025	<0.025
WQSP-6A	5/3/06	2.5	2,210	450	3,200	<0.025	<0.025
WQSP-6A	9/20/06	6.00	2,120	360	3,515	<0.025	<0.025
WQSP-6A	3/7/07	5.78	2,170	484	3,355	<0.025	<0.025

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
WQSP-6A	9/12/07	5.47	1,950	350	3,400	<0.025	<0.025
WQSP-6A	3/12/08	4.67	2,090	378	3,400	<0.025	<0.025
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)	
WQSP-6A	9/10/08	5.69	2,030	348	3,150	< 5	
WQSP-6A	3/4/09	5.90	2,100	350	3,500	<1.0	
WQSP-6A	9/10/09	6.30	2,100	350	3,640	<1.0	
WQSP-6A	3/03/10	6.55	2,145	330	3,545	<1.0	
WQSP-6A	9/23/10	6.34	2,090	321	3500	<1.0	

NA: Not Analyzed, parameter not required, per permit conditions.
NS: Not Sampled, not required per permit conditions

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

JUL 22 2010

RECEIVED
JUL 26 2010

Mr. Clint Marshall
Ground Water Quality Bureau
New Mexico Environment Department
P.O. Box 26110
Santa Fe, NM 87502

Subject: Semi-Annual Discharge Monitoring Report for January 1, 2010 through June 30, 2010

Dear Mr. Marshall:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Discharge Monitoring Report for the period of January 1, 2010 through June 30, 2010. This report is required by Discharge Permit 831.

Please contact me at (575) 234-8128 if you have any questions regarding this report.

Sincerely,

Daniel J. Ferguson
Site Regulatory Specialist

cc: w/o enclosure
J. Bearzi, NMED *ED
S. Zappe, NMED ED
M. Menetrey, NMED ED
*ED denotes electronic distribution

04414

CGFO:ORC:DJF:MDA:10-1607:UFC 5486.00

WASTE ISOL...ON PILOT PLANT (WIPP) SEMI-A...AL DISCHARGE MONITORING REPORT FOR DISCHARGE PLAN DP-831

January 1, 2010 through June 30, 2010

SPECIFIC REPORTING REQUIREMENTS OF DP-831

1.0 WIPP SEWAGE TREATMENT FACILITY AND H-19 EVAPORATION POND MONITORING AND REPORTING

Table 1
Monthly Discharge Volumes to Facultative Lagoon System

Month	Volume (gallons)
January	150,810
February	201,400
March	457,940
April	556,100
May	486,460
June	800,600

Facultative Lagoon System Evaporation Pond B: None

Facultative Lagoon System Evaporation Pond C: None

Table 2
Monthly Discharge Volumes to H-19 Evaporation Pond

Month	Volume (gallons)
January	1,200
February	1,666
March	3,850
April	5,325
May	11,950
June	28,761

Table 3 contains a summary of the analytical results for the Sewage Treatment System and the H-19 Evaporation Pond. Miscellaneous non-hazardous water disposed of in the H-19 Evaporation Pond was 700-Fan condensate, purged water from groundwater monitoring activities, Exhaust Shaft interception borehole water and rain water from a secondary containment structure at the 474 Area.

Table 3
Sewage Treatment Facility and H-19 Analytical Data Summary

Analyte	Sample Date	Influent Pond 2A	Pond B	Pond C	H-19
Nitrate (mg/L)	2/16/10	0.61	NA	NA	NA
TKN (mg/L)	2/16/10	79	NA	NA	NA
TDS (mg/L)	2/16/10	490	89.0	**307,000**	**178,000**
Sulfate (mg/L)	2/16/10	58	4.8	**22,000**	390
Chloride (mg/L)	2/16/10	77	19	**160,000**	**130,000**

NA: Not analyzed, parameters not required
Bold: Concentration exceeds the standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply

During this reporting period the following activities were conducted as required by your letter dated December 22, 2005, Conditional Approval of the Corrective Action Plan based on the Sewage Lagoon Leak Testing Results and Liner Integrity Evaluation.

Approximately 160 cubic yards of Salt from Evaporation Pond C at the Sewage Treatment Facility was disposed of in accordance with the Waste Isolation Pilot Plant, Waste Water Treatment Plant Sludge Disposal Plan approved by the NMED, Solid Waste Bureau. As required by DP-831, the Waste Isolation Pilot Plant, Waste Water Treatment Plant Sludge Disposal Plan was developed in compliance with 20.9.1.709 NMAC, 20.6.2.3109 NMAC, and 40 CFR 503. Approximately 640 cubic yards remain to be disposed of to facilitate replacement of the liner in Evaporation Pond C by the end of fiscal year 2010.

2.0 INFILTRATION CONTROL ACTIVITIES

Construction of the Salt Storage Extension Basin II (SSEB-II) was completed in January and the installation of the culvert that joins the SSEB-I to the SSEB-II was completed in April. Approximately 5500 cubic yards of salt were removed from the SSEB-I in May, of this reporting period, to extend the life of the pond. Approximately one foot of salt was left in place in the SSEB-I to protect the liner from the heavy equipment used in the excavation.

The Salt Storage Area erosion controls described in the *Conceptual Design for Controlling Storm Water and Minimizing Erosion on the Covered Salt Pile* submitted on October 14, 2009, and approved by the Ground Water Quality Bureau on October 15, 2009, were completed during this reporting period. This project involved the installation of two additional run-off chutes, installing two culverts, installing additional berms, repairing the runoff drainage ditch, and regrading the surface to direct flow to the run-off chutes and culverts.

The berm on the Salt Pile Evaporation Pond (SPEP) was raised approximately two feet to provide additional storage capacity while maintaining one foot of freeboard in the pond in accordance with the Discharge Plan Amendment Approval dated October 15, 2009. As-Built drawings will be submitted to the Bureau in the near future to reflect the berm being raised two feet instead of the two and one-half feet anticipated in the conceptual design. In the September 30, 2009 *Corrected Amendment Request to Increase the Capacity of the Salt Pile Evaporation Pond*, DOE stated, "if the final as-built elevation of the new berm or pond capacity differs from the proposed elevation and capacity we will notify your office to revise this amendment request."

A contract has been established for the sale of salt from the Salt Storage Extension Area during this reporting period. An access road from the north and a ramp for entry into the Salt Storage Area has been constructed so that the removal of salt via truck will not interfere with WIPP facility salt haul trucks.

3.0 SUMMARY OF ACTIVITIES RELATED TO THE SHALLOW SUBSURFACE WATER (SSW) MONITORING AND SAMPLING PROGRAM

Water levels in the shallow wells (PZ-1 through PZ-15, C-2811, C-2505, C-2506, C-2507 and WQSP-6a), Figure 1, were obtained March 24-25 and June 8-10, 2010, and are included in Table 4. These were taken on the quarterly milestones outlined in the Ground Water Monitoring Schedule, in the September 9, 2008, DP-831 Modification. Total rainfall in the area of WIPP for this reporting period was 5.81 inches compared to 3.82 inches for the same time period in 2009, a difference of 1.99 inches more in 2010. Total rainfall in 2009, 12.53 inches, was less than the average annual rainfall for the region of 12.92 inches reported by the National Oceanic and Atmospheric Administration.

The largest decrease in water level over the reporting period was 0.35 feet identified in PZ-15, east of the Site and Preliminary Design Validation Salt Pile. An increase in PZ-8 (+0.27 feet) may be attributed to the lag time from rain fall in October of 2008. The average groundwater decrease around the lined ponds (PZ-10, PZ-12, PZ-7, PZ-11) was 0.16 feet for this reporting period. All SSW wells, except PZ-8, reported a decrease in water level elevation for this reporting period.

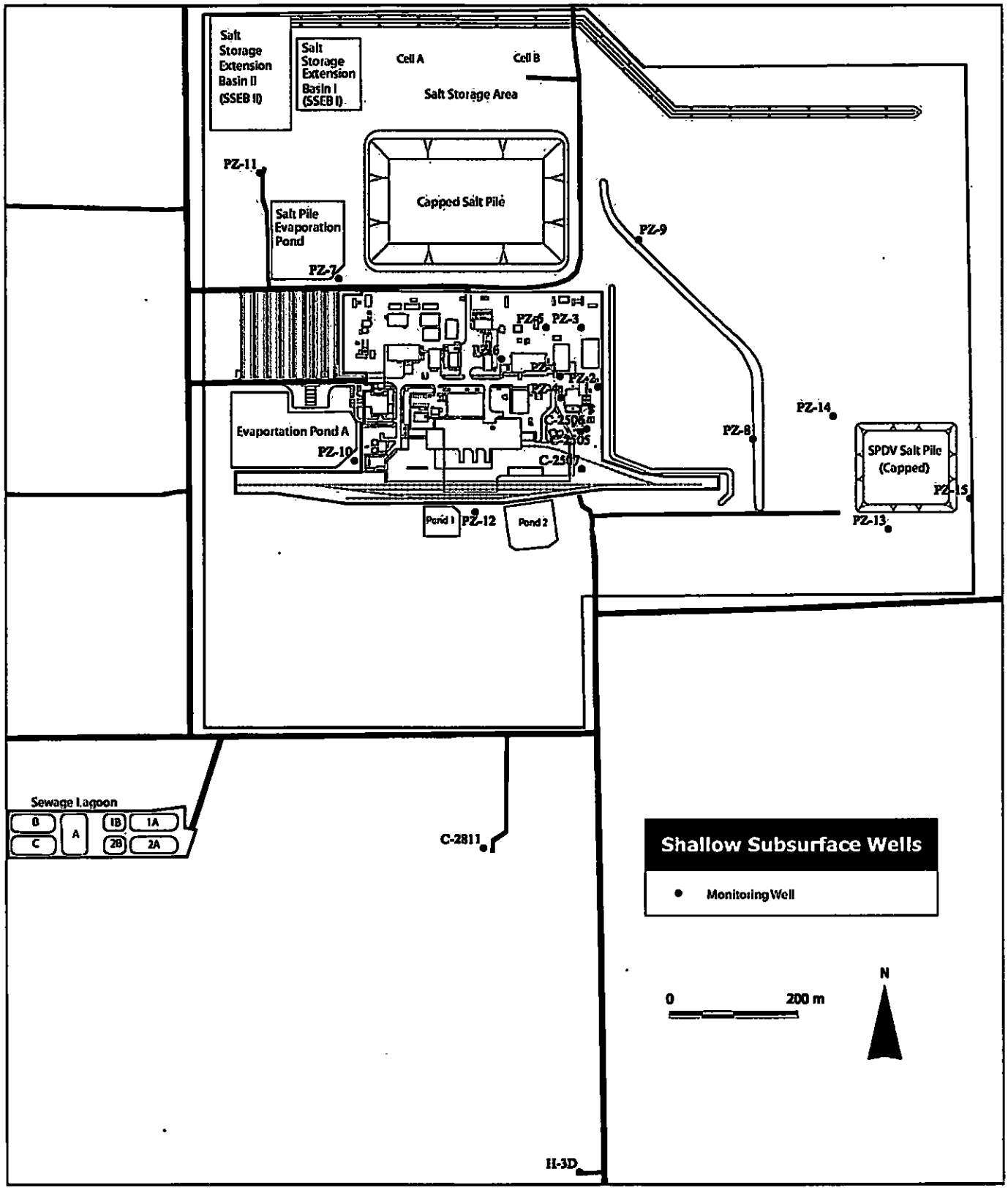
WQSP-6A was sampled in March 2010 as part of the WIPP Hazardous Waste Facility Permit Detection Monitoring Program. WQSP-6A data for that time are provided in Table 4.

Sulfate, chloride, and total dissolved solids (TDS) concentrations were detected in WQSP-6A samples at concentrations exceeding standards of 20.6.2.3103 NMAC, *Standards for Ground Water of 10,000 mg/L TDS*

Concentration or Less for Human Health and Domestic Water Supply. Although the concentrations were higher than the standards, they are less than background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285). Total Kjeldahl nitrogen (TKN) was below the detection limit of 1 mg/L. The shallow subsurface water identified at the WIPP site has not impacted the Dewey Lake groundwater in WQSP-6A based on the consistency of analyzed parameters in WQSP-6A.

The SSW piezometers were sampled for field and general chemistry parameters in May 2010 as required by the September 9, 2008, modification to DP-831. Five piezometers were sampled on May 24, and six on May 25, 2010. Results for the field sampling parameters and laboratory analyses are presented in Table 4. Chloride concentrations exceeded values listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply in all shallow piezometers sampled. The maximum chloride concentration was 170,000 mg/L in PZ-13, while the minimum concentration was 370 mg/L in PZ-10. Total dissolved solids concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in all shallow piezometers sampled, with the maximum concentration of 240,000 mg/L in PZ-13. Sulfate concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in 9 of 11 piezometers sampled with a maximum concentration of 4,400 mg/L in PZ-9.

Figure 1
Map of Shallow Subsurface Monitoring Wells



04418

Table 4
SUMMARY OF SHALLOW SUBSURFACE WATER LEVELS, FIELD PARAMETERS, AND ANALYTICAL RESULTS

	Water Level Monitoring (Ft AMSL)		Field Parameters			General Chemistry Parameters					Other
Monitoring Site	3/24-25/ 2010	6/8-10/ 2010	pH (SU)	Temp. (^{0}C)	Specific Conductivity @25 ^{0}C (µS/cm)	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)
PZ-1	3371.11	3371.19	6.21	26.6	111,500	05/25/10	NS	**2,200**	**53,000**	**92,800**	NS
PZ-2	3370.66	3370.75	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-3	3372.14	3372.25	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-4	3365.60	3365.70	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-5	3372.59	3372.70	6.72	25.8	32,540	05/25/10	NS	**1,400**	**13,000**	**21,900**	NS
PZ-6	3369.81	3369.93	6.39	27.2	107,000	05/25/10	NS	**2,300**	**47,000**	**82,100**	NS
PZ-7	3376.70	3376.93	6.04	25.2	124,500	05/24/10	NS	**3,000**	**68,000**	**103,000**	NS
PZ-8	3355.93	3356.07	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-9	3363.90	3364.08	6.20	22.1	160,600	05/25/10	NS	**4,400**	**94,000**	**144,000**	NS
PZ-10	3368.00	3367.82	7.05	26.8	2,588	05/24/10	NS	500	**370**	**1,680**	NS
PZ-11	3374.04	3374.29	6.26	25.5	128,500	05/24/10	NS	**2,500**	**69,000**	**107,000**	NS
PZ-12	3357.12	3357.14	6.73	24.1	16,210	05/24/10	NS	**990**	**5,500**	**10,100**	NS
PZ-13	3356.87	3356.73	Bailed			05/24/10	NS	**3,000**	**170,000**	**240,000**	
PZ-14	3353.54	3353.44	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-15	3383.75	3383.60	NS	NS	NS	NS	NS	NS	NS	NS	NS
C-2811	3346.04	3345.85	6.97	21.5	3,653	05/24/10	NS	340	**920**	**2,090**	NS
C-2505	3367.36	3367.36	NS	NS	NS	NS	NS	NS	NS	NS	NS
C-2506	3367.92	3367.90	NS	NS	NS	NS	NS	NS	NS	NS	NS
C-2507	3364.56	3364.58	6.83	25.4	10,700	05/25/10	NS	**910**	**3,500**	**6,640**	NS
WQSP-6a (Round 30)	3197.02	3196.80	7.27	22.1	3,800	03/03/10	6.55	**2,145**	**330**	**3,545**	<1.0

Explanation:

NS: Not Sampled, Not required by DP-831

"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

JAN 28 2010

RECEIVED
FEB 05 2010
BY:.....

Mr. Clint Marshall
New Mexico Environment Department
Ground Water Quality Bureau
Mining and Environmental Compliance Section
P.O. Box 26110
Santa Fe, NM 87502

Subject: Semi-Annual Discharge Monitoring Report for July 1 through December 31, 2009

Dear Mr. Marshall:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Discharge Monitoring Report for the period of July 1, 2009, through December 31, 2009. This report is required by Discharge Permit 831.

If you have any questions about this report or require any additional information, please contact me at (575) 234-8128.

Sincerely,

Daniel J. Ferguson
Site Regulatory Specialist
Office of Regulatory Compliance

Enclosure

cc: w/o enclosure
J. Bearzi, NMED *ED
M. Menetrey, NMED ED
*ED denotes electronic distribution

04420

CBFO:ORC:DF:MA:10-0913:UFC 5487.00

WASTE ISOLATIC...LOT PLANT (WIPP) SEMI-ANNUAL D...ARGE MONITORING REPORT FOR DISCHARGE PLAN DP-831

July 1, 2009 through December 31, 2009

SPECIFIC REQUIREMENTS OF DP-831

1.0 DISCHARGE VOLUMES

Facultative Lagoon System	
Month	Volume (gallons)
July	501,346
August	404,980
September	361,000
October	371,342
November	461,000
December	252,000

*Volume reported from the domestic water use totalizing flow meter

Facultative Lagoon System Evaporation Pond B: None

Facultative Lagoon System Evaporation Pond C: None

H-19 Evaporation Pond	
Month	Volume (gallons)
July	1,850
August	1,350
September	2,300
October	6,300
November	1,300
December	0 (No water was discharged)

2.0 FACULTATIVE LAGOON AND H-19 EVAPORATION POND MONITORING AND REPORTING

Table 1 contains a summary of the analytical results for the Facultative Lagoon System and the H-19 Evaporation Pond. Miscellaneous non-hazardous water disposed of in the H-19 Evaporation Pond was 700-Fan condensate, purged water from groundwater monitoring activities, and 410 gallons of unused water from a portable decontamination shower.

Table 1
Sewage Treatment Facility and H-19 Analytical Data Summary
Sample Date September 21, 2009

Analyte	Influent Pond 2A	Pond B	Pond C	H-19
Nitrate (mg/L)	ND	NS	NS	NA
TKN (mg/L)	63	NS	NS	NA
TDS (mg/L)	474	NS	NS	**348,000**
Sulfate (mg/L)	57	NS	NS	600
Chloride (mg/L)	80	NS	NS	**280,000**

ND: Not detected, analyte below the detection limit
NA: Not analyzed, parameters not required
NS: Not sampled, either the pond was dry, or the sample was deferred due to liner replacement in pond
Bold: Concentration exceeds the standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply

During this reporting period the following activities were conducted as required by your letter dated December 22, 2005, *Conditional Approval of the Corrective Action Plan based on the Sewage Lagoon Leak Testing Results and Liner Integrity Evaluation.*

Evaporation Ponds A and B had lin placed in September and October 2009, resp...ly.

3.0 INFILTRATION CONTROL ACTIVITIES

Table 2 contains the analytical results for the Salt Pile Evaporation Pond, Salt Storage Extension Evaporation Basin and Ponds 1, 2 and A.

Table 2: Infiltration Controls Analytical Data Summary
Sample Date September 21, 2009

	Salt Pile Evaporation Pond	Salt Storage Extension Evaporation Basin	Pond 1	Pond 2	Pond A
Chloride (mg/L)	**180,000**	**220,000**	**270**	**470**	**420**
Sulfate (mg/L)	**1,200**	**35,000**	41	62	34
TDS (mg/L)	**202,000**	**348,000**	**651**	**804**	**793**
Water Depth (ft)/Volume (cubic feet)	0.3/(40,161)	5.4/(429,453)	1.3/(16,937)	4.6/(168,386)	2.6/(511,884)

Bold: Concentration exceeds the standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply

During this reporting period a final design and request for proposals to control run-off and minimize erosion on the covered inactive Salt Storage Area was developed. The request for proposals will be submitted for invitations to bid the first week of February 2010, with the vendors proposals submitted to WIPP the third week of February 2010. The contract is anticipated to be awarded the last week of March, followed by mobilization of the contractor around mid-April. The estimated duration of construction activities is approximately 60 days with project completion in late June 2010.

Construction of the Salt Storage Extension Basin II has progressed with one liner and 75 percent of the geotextile leak detection layer being completed in this reporting period. Substantial work has been done on this project; therefore, it is anticipated this project will be complete by mid-February 2010.

4.0 SUMMARY OF ACTIVITIES RELATED TO THE SHALLOW SUBSURFACE WATER (SSW) MONITORING AND SAMPLING PROGRAM

Water levels in the shallow wells (PZ-1 through PZ-15, C-2811, C-2505, C-2506, and C-2507), Figure 1, were obtained September 23-24 and December 14, 2009, and are included in Table 3. Table 3 also contains water levels recorded for WQSP-6A on September 22, 2009 and December 10, 2009. These were taken in accordance with the schedule outlined in Table 2, Ground Water Monitoring Schedule, in the September 9, 2008, DP-831 Modification. Total rainfall in the area of WIPP for this reporting period was 8.71 inches compared to 10.16 inches for the same time period in 2008, a difference of 1.45 inches less in 2009. The annual rainfall for 2009 was 12.53 inches compared to 11.52 inches in 2008. Total rainfall in 2009 was slightly less than the average annual rainfall of 12.92 inches for this region reported by the National Oceanic and Atmospheric Administration.

Water levels during the last six months (July – December 2009) continued on a decreasing trend as reported for the previous six months. The SSW water level monitoring points recorded an average decrease in water level of 0.65 feet, when including all monitoring points. Excluding the monitoring points around the Site Preliminary Design and Validation (SPDV), the overall trend was a decrease of 0.75 feet. For 2009, the general trend for the SSW monitoring points was a decrease in elevation of 1.10 feet; a decrease of 1.27 feet excluding the SPDV monitoring points. The largest water level elevation decreases were measured in PZ-10 and PZ-12, both located adjacent to lined evaporation ponds. In 2009, PZ-10 decreased in elevation 1.67 feet and PZ-12 decreased 1.72 feet. Other wells located near the lined ponds also experienced decreases in water level elevation. PZ-7 decreased 1.08 feet and PZ-11 decreased 1.14 feet in 2009.

Although the rainfall for 2009 was below average annual rates, there have been decreases in water level elevations across the site in 2009 and the years since the liners were installed on the salt pile and the other evaporation ponds. Overall water level elevation trends indicate that, in combination with lower rainfall, the liners are reducing infiltration enough to see an effect on the SSW elevation. Figure 2 presents a potentiometric surface map of water level elevations recorded in the SSW monitoring points for December 14, 2009. Appendix A presents historical hydrographs of all SSW monitoring points since installation, and for WQSP-6A.

WQSP-6A was sampled on Septem I, 2009 as part of the WIPP Hazardous Wast_ _ _ility Permit Detection Monitoring Program. Data are provided in Table 3. Sulfate, nitrate, chloride, and total dissolved solids (TDS) concentrations were detected in WQSP-6A samples at concentrations exceeding standards of 20.6.2.3103 NMAC, *Standards for Ground Water of 10,000 mg/L TDS Concentration or Less* for Human Health and Domestic Water Supply. Although the concentrations were higher than the standards, they are less than background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285). Total Kjeldahl nitrogen (TKN) was below the detection limit of 1 mg/L. The shallow subsurface water identified at the WIPP site has not impacted the Dewey Lake groundwater in WQSP-6A based on the consistency of analyzed parameters in WQSP-6A.

The SSW monitoring piezometers were sampled for field and general chemistry parameters in October 2009 as required by the September 9, 2008, modification to DP-831. Table 2 of DP-831 requires sampling of PZ-1, PZ-5, PZ-6, PZ-7, PZ-9, PZ-10, PZ-11, PZ-12, PZ-13, C-2507, and C-2811 semi-annually. Five piezometers (PZ-1, PZ-5, PZ-6, PZ-9 and C-2507) were sampled on October 19, 2009. Six piezometers (PZ-7, PZ-10, PZ-11, PZ-12, PZ-13 and C-2811) were sampled on October 20, 2009. Results for the field sampling parameters and laboratory analyses are presented in Table 3. Chloride concentrations exceeded values listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply in all shallow piezometers sampled. The maximum chloride concentration was 170,000 mg/L in PZ-13. Total dissolved solids concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in all shallow piezometers sampled, with the maximum concentration of 255,000 mg/L in PZ-13. Sulfate concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in 9 of 11 piezometers sampled with a maximum concentration of 4,200 mg/L in PZ-7.

Appendix B presents historical chemical analysis results for the SSW monitoring points obtained since incorporation into the DP-831 permit.

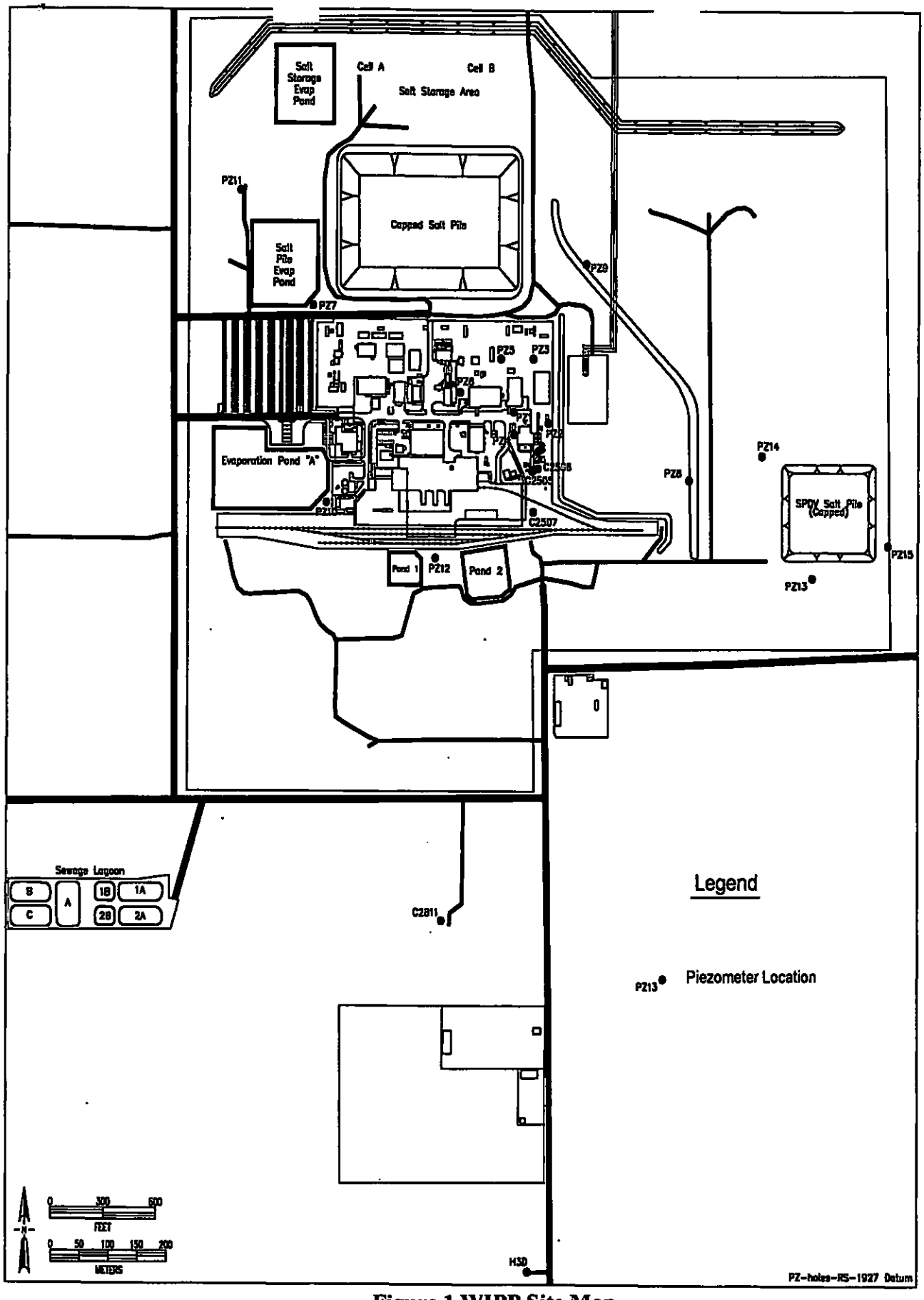


Figure 1 WIPP Site Map

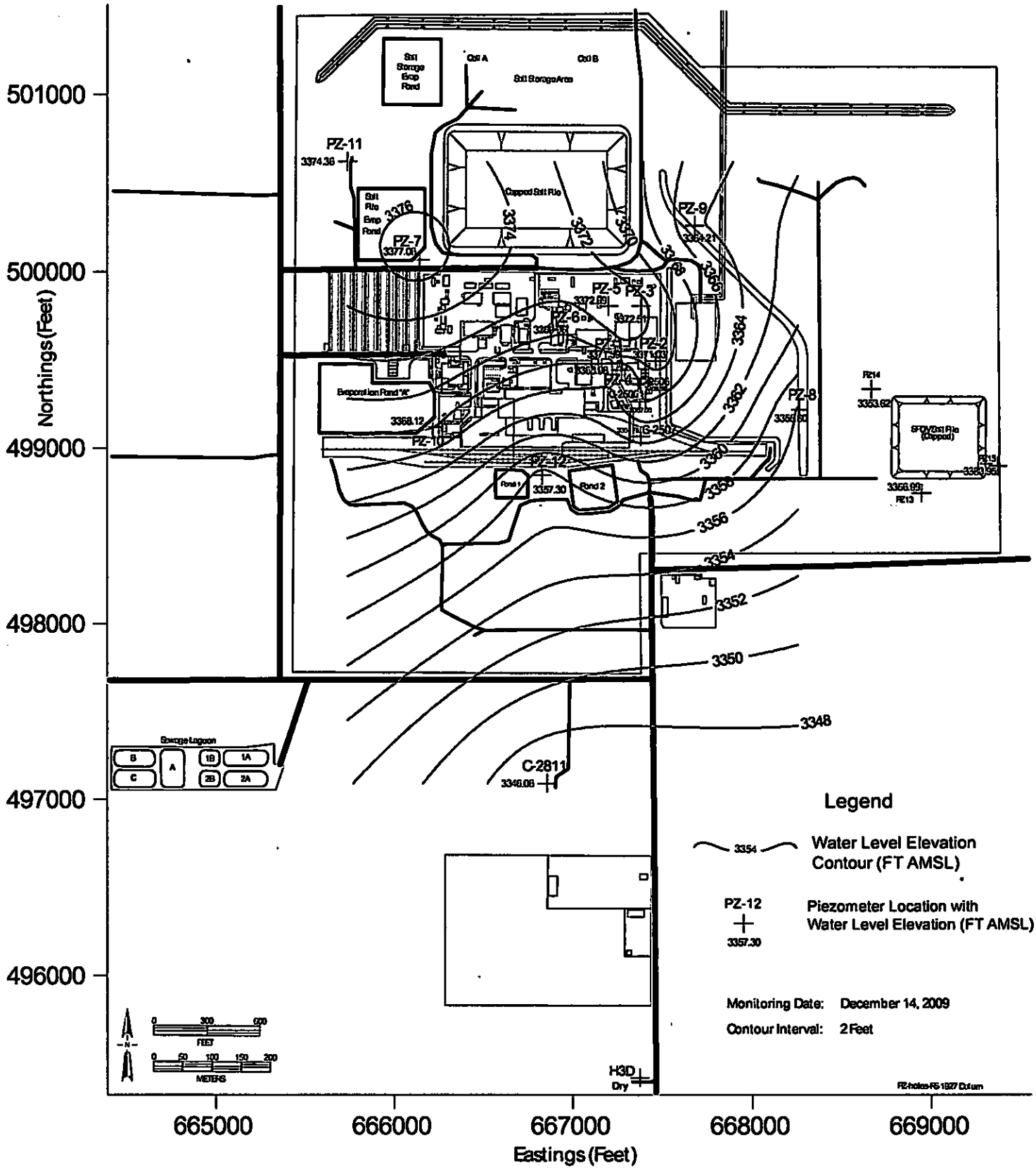


FIGURE 2
SSW Potentiometric Surface Map

Table 3
SUMMARY OF SHALLOW SUBSURFACE WATER LEVELS, FIELD PARAMETERS, AND ANALYTICAL RESULTS

	Water Level Monitoring (Ft AMSL)		Field Parameters			General Chemistry Parameters					Other
Monitoring Site	9/23-24/09	12/14/09	pH (SU)	Temp. (^{0}C)	Specific Conductivity @25 ^{0}C (µS/cm)	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)
PZ-1	3371.61	3371.39	6.26	25.7	117,200	10/19/09	NS	2,300	66,000	101,000	NS
PZ-2	3371.20	3371.03	NA	NA	NA	NS	NS	NS	NS	NS	NS
PZ-3	3372.62	3372.51	NA	NA	NA	NS	NS	NS	NS	NS	NS
PZ-4	3366.31	3365.98	NA	NA	NA	NS	NS	NS	NS	NS	NS
PZ-5	3373.19	3372.99	6.81	24.8	30,680	10/19/09	NS	1,600	14,000	20,200	NS
PZ-6	3370.18	3369.96	6.41	25.8	106,500	10/19/09	NS	2,300	50,000	83,600	NS
PZ-7	3377.03	3377.06	6.22	24.4	121,700	10/20/09	NS	4,200	67,000	106,000	NS
PZ-8	3355.71	3355.80	NA	NA	NA	NS	NS	NS	NS	NS	NS
PZ-9	3364.15	3364.21	6.22	20.9	159,500	10/19/09	NS	4,000	77,000	139,000	NS
PZ-10	3368.38	3368.12	7.03	26.0	2,573	10/20/09	NS	500	440	1,730	NS
PZ-11	3374.31	3374.36	6.29	21.7	127,200	10/20/09	NS	3,200	64,000	112,000	NS
PZ-12	3357.42	3357.30	6.68	25.8	1,568	10/20/09	NS	980	6,500	10,100	NS
PZ-13	3357.00	3356.99	Bailed[3]			10/20/09	NS	3,300	170,000	255,000	NS
PZ-14	3353.55	3353.62	NA	NA	NA	NS	NS	NS	NS	NS	NS
PZ-15	3384.07	3383.95	NA	NA	NA	NS	NS	NS	NS	NS	NS
C-2811	3346.15	3346.06	6.96	25.5	3,739	10/20/09	NS	320	1,000	2,120	NS
C-2505	3367.88	3367.66	NA	NA	NA	NS	NS	NS	NS	NS	NS
C-2506	3368.40	3368.19	NA	NA	NA	NS	NS	NS	NS	NS	NS
C-2507	3365.00	3364.78	6.91	21.7	9,480	10/19/09	NS	930	3,400	5,710	NS
WQSP-6A (Round 29)	3196.82[1]	3196.97[2]	7.18	22.8	3,710	9/10/09	6.30	2,100	350	3,640	<1.0

Explanation:

[1] Water Level Measurement Taken on 9/22/09

[2] Water Level Measurement Taken on 12/10/09

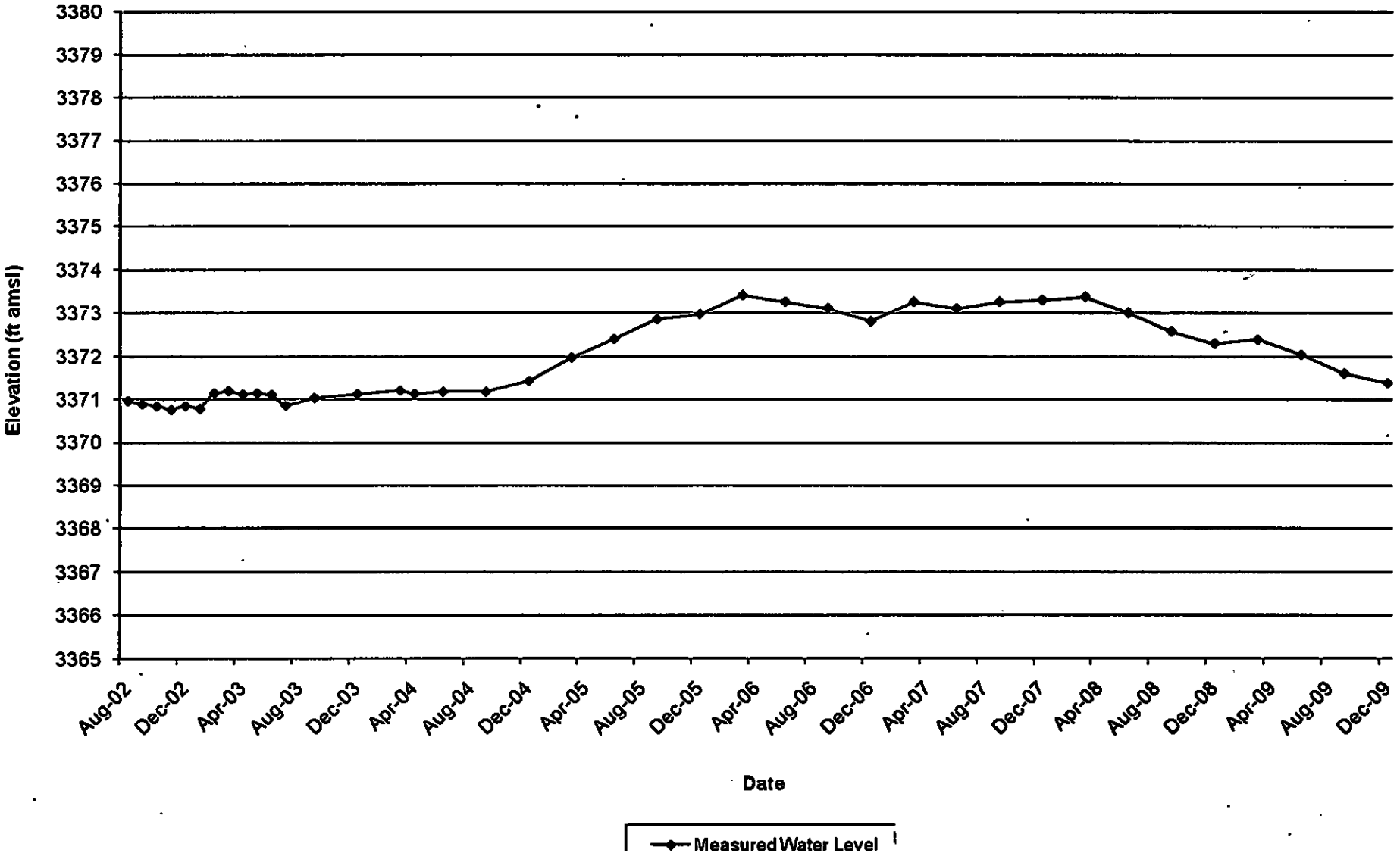
[3] Field parameters (pH, temperatures, and specific conductivity) are only conducted when using low-flow sampling techniques. PZ-13 does not produce enough water for sustained pumping required by low-flow sampling techniques.

NS: Not sampled as per permit conditions

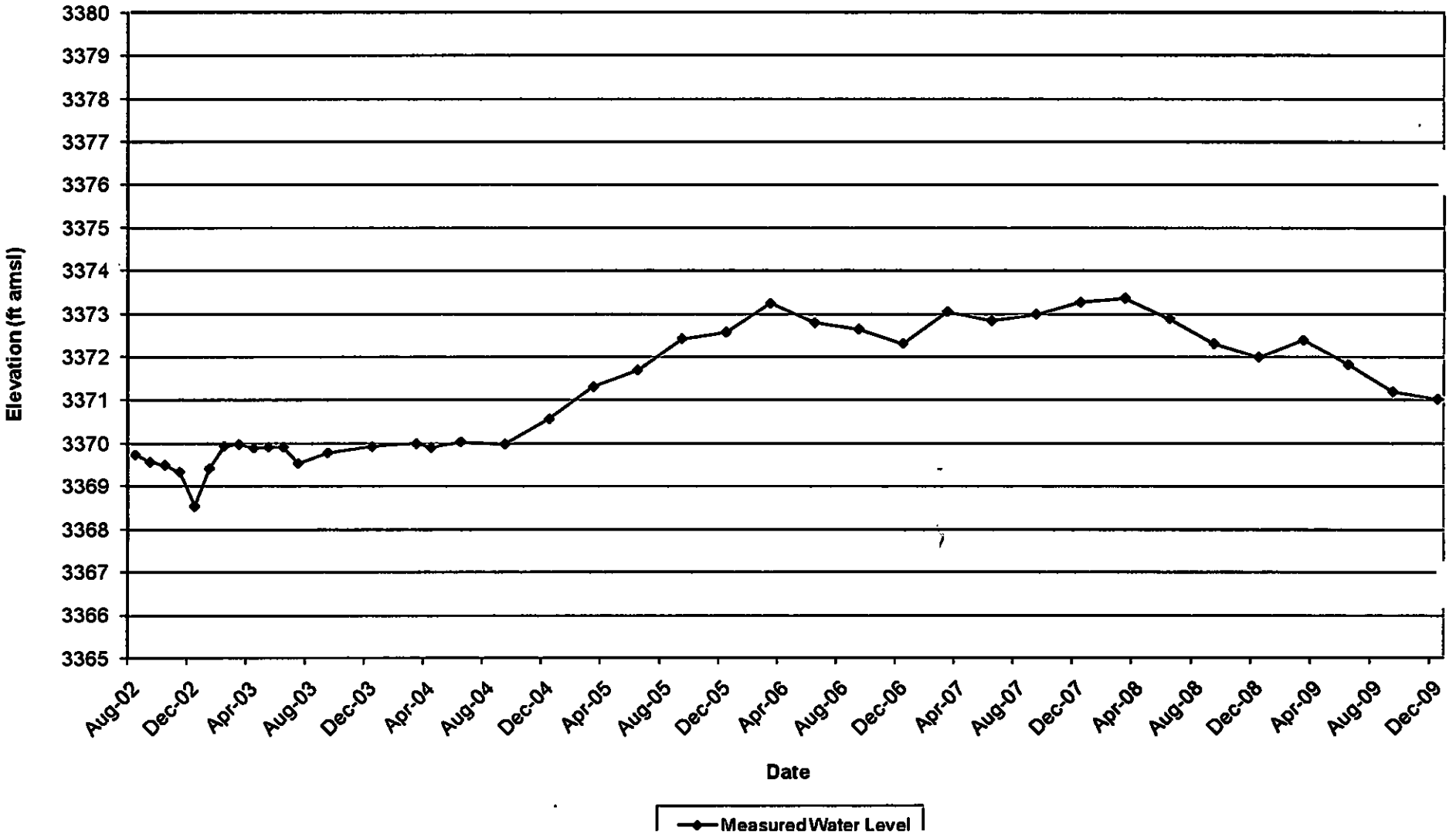
NA: Not analyzed, parameters not required

Appendix A

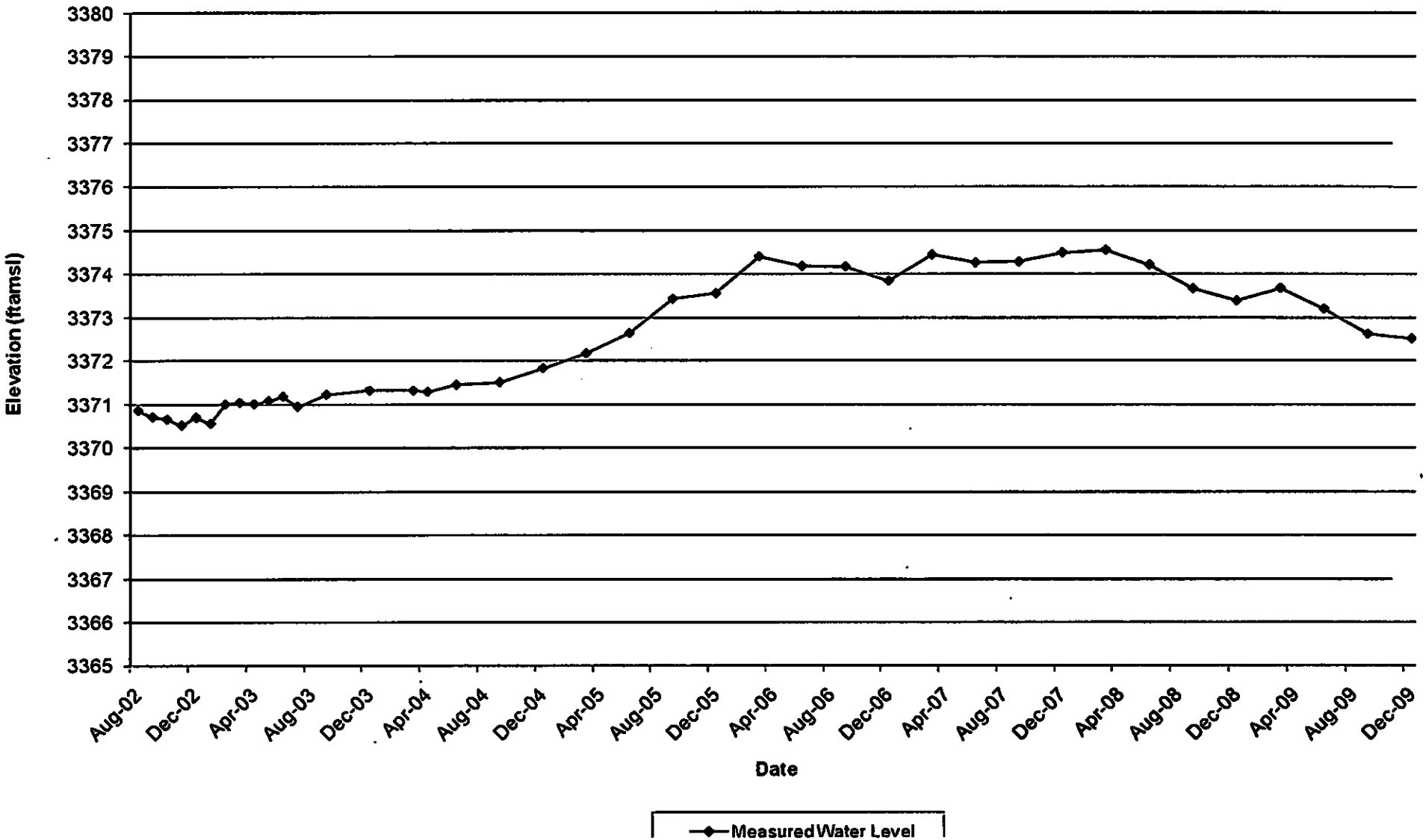
Historical Hydrographs for SSW Piezometers/Wells With Elevation Noted Feet Above Mean Sea Level (ft amsl)


PZ-01, Santa Rosa/Dewey Lake
Historical Water Level Measurements
Elevation (ft amsl)
3380
3379
3378
3377
3376
3375
3374
3373
3372
3371
3370
3369
3368
3367
3366
3365
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Date
Measured Water Level

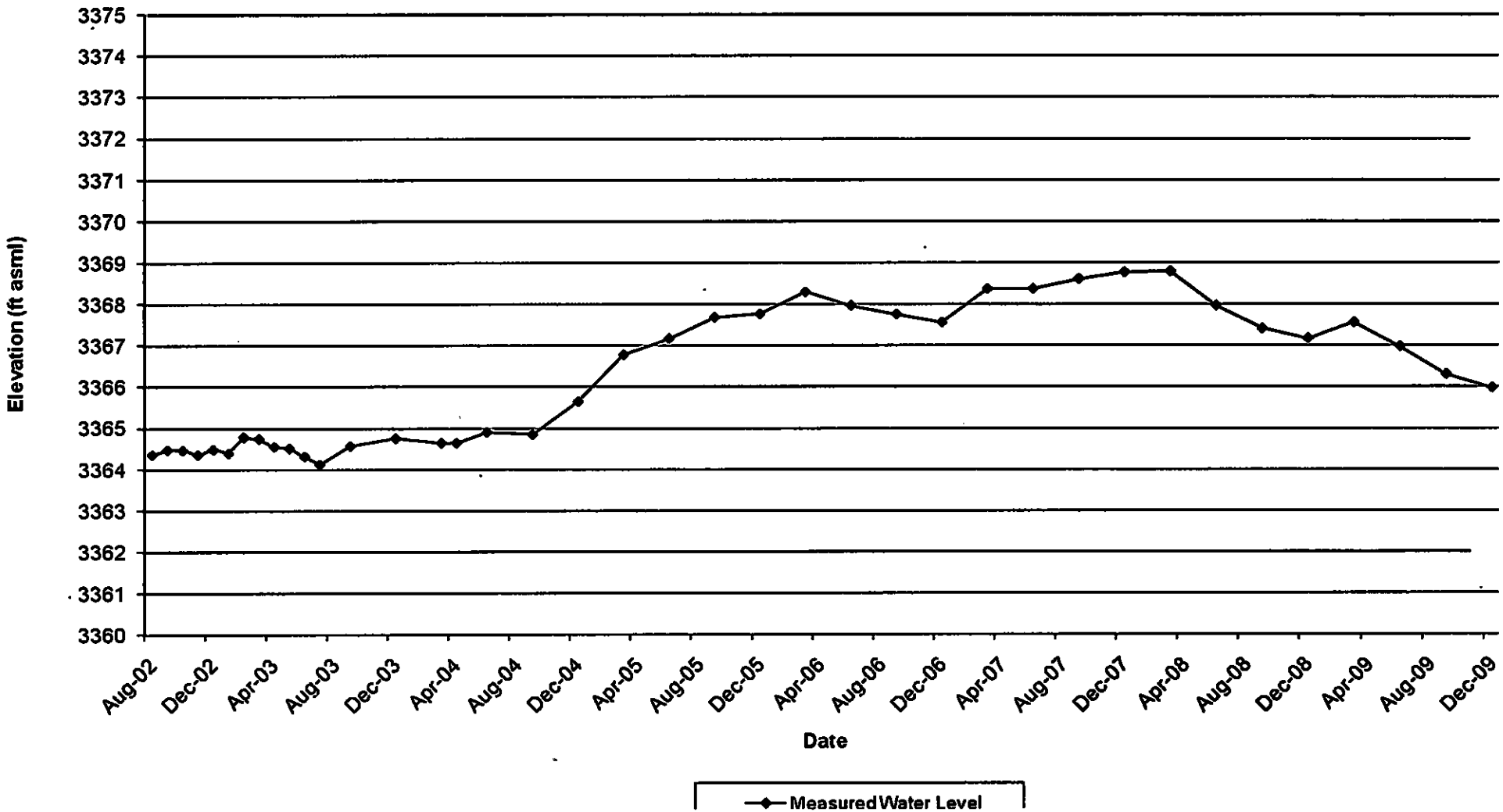
PZ-02, Santa Rosa/Dewey Lake
Historical Water Level Measurements



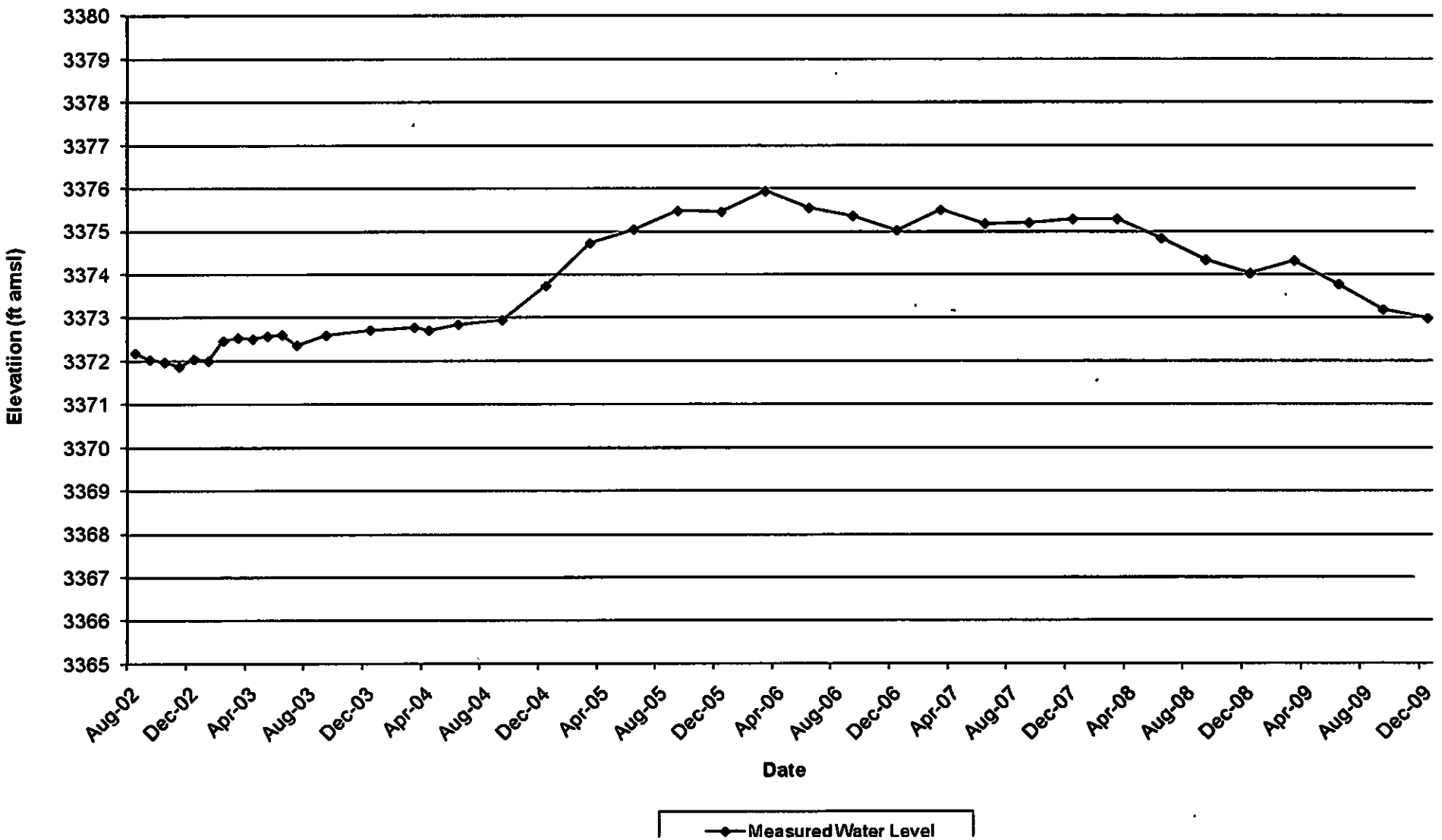
PZ-03 Santa Rosa/Dewey Lake
Historical Water Level Measurements



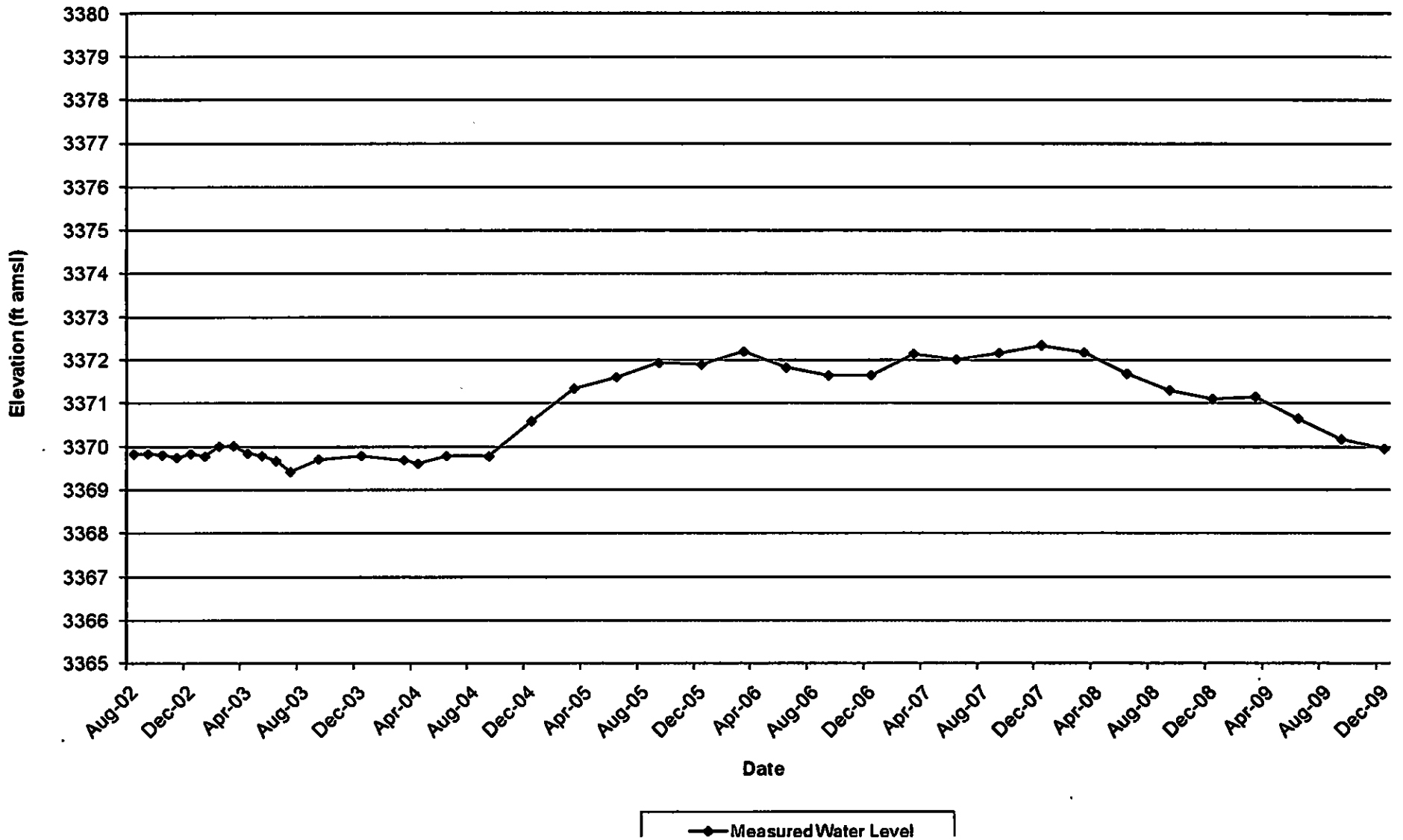
PZ-04 Santa Rosa/Dewey Lake
Historical Water Level Measurements

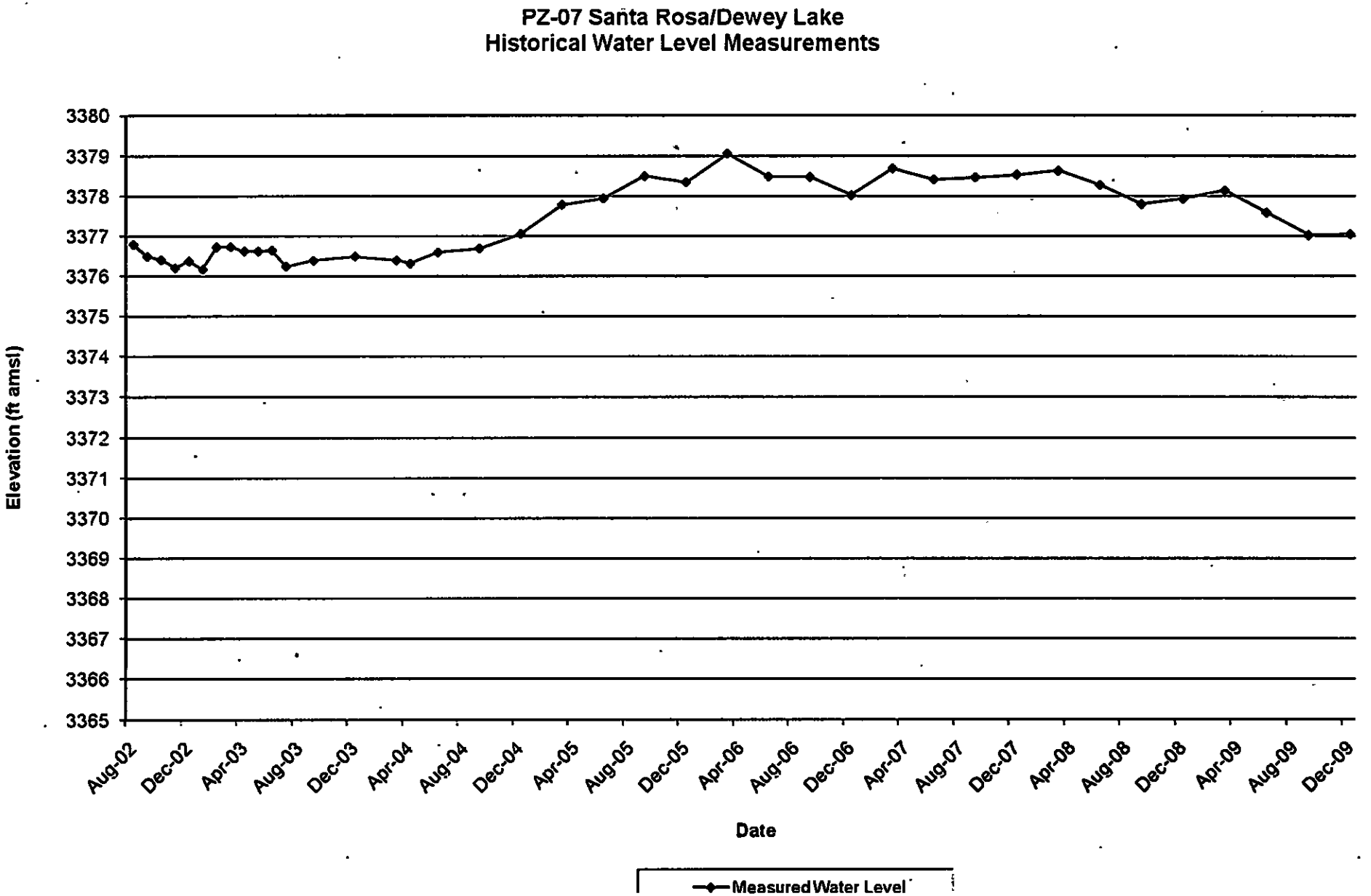


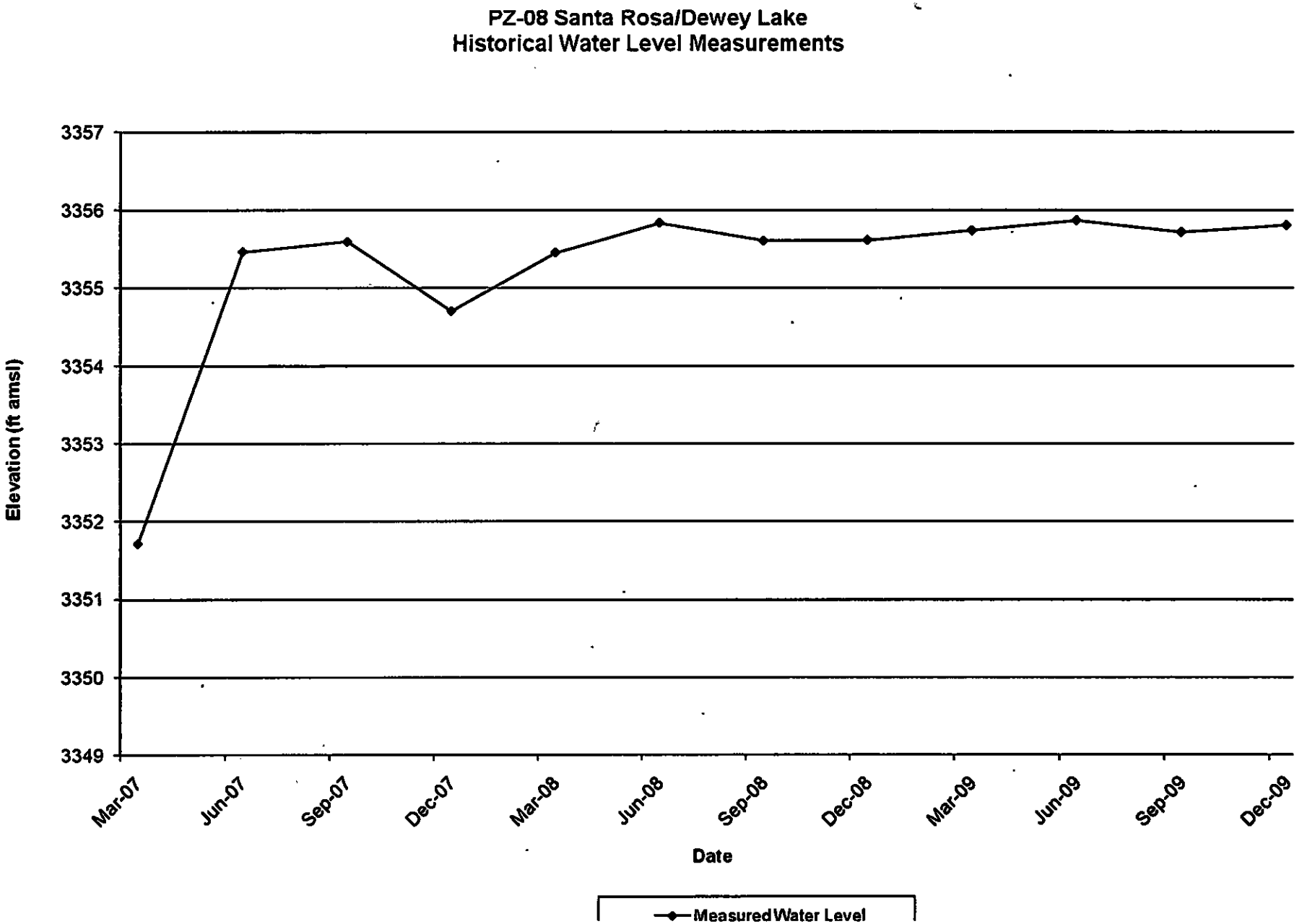
PZ-05 Santa Rosa/Dewey Lake
Historical Water Level Measurements



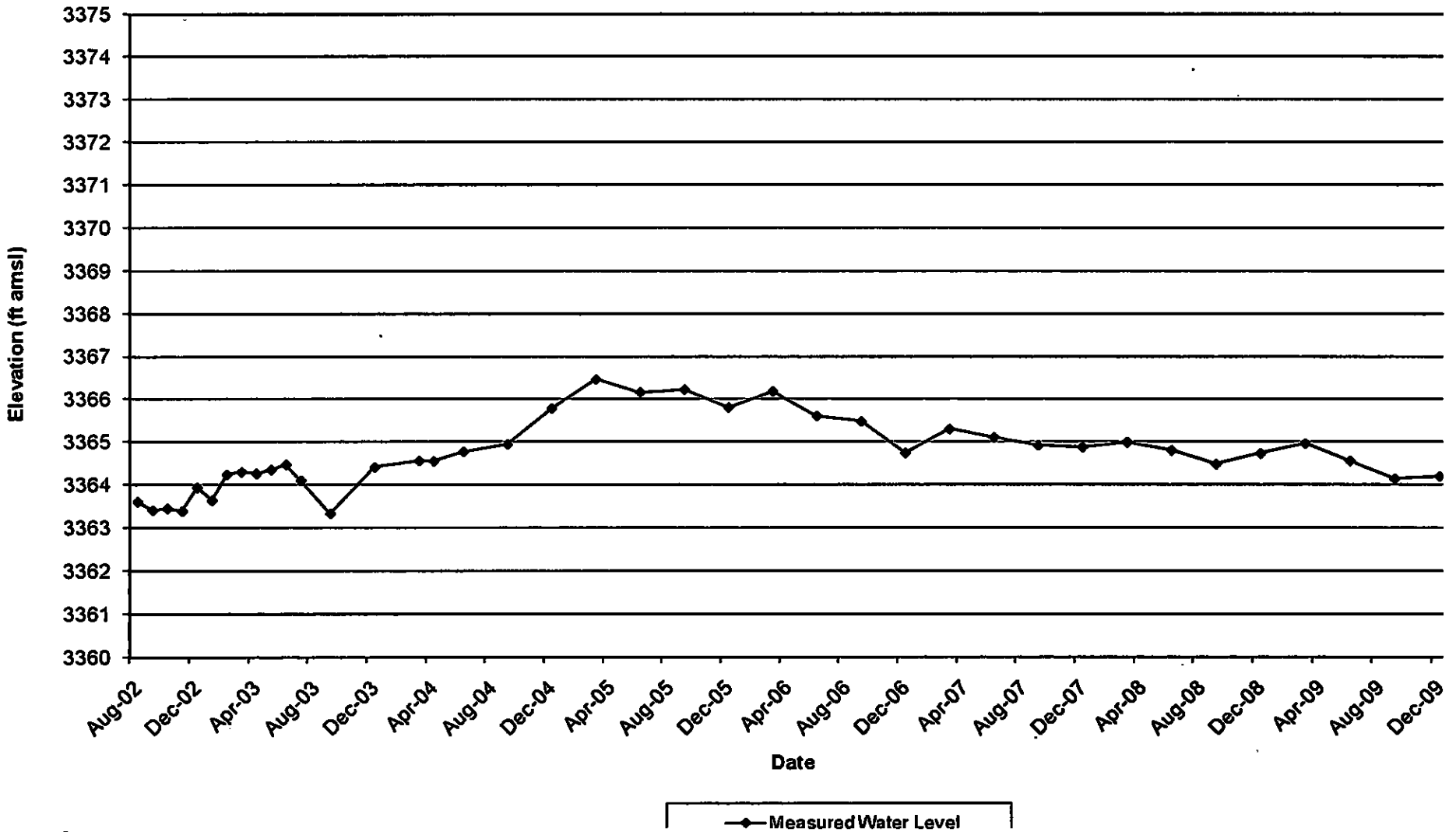
PZ-06 Santa Rosa
Historical Water Level Measurements

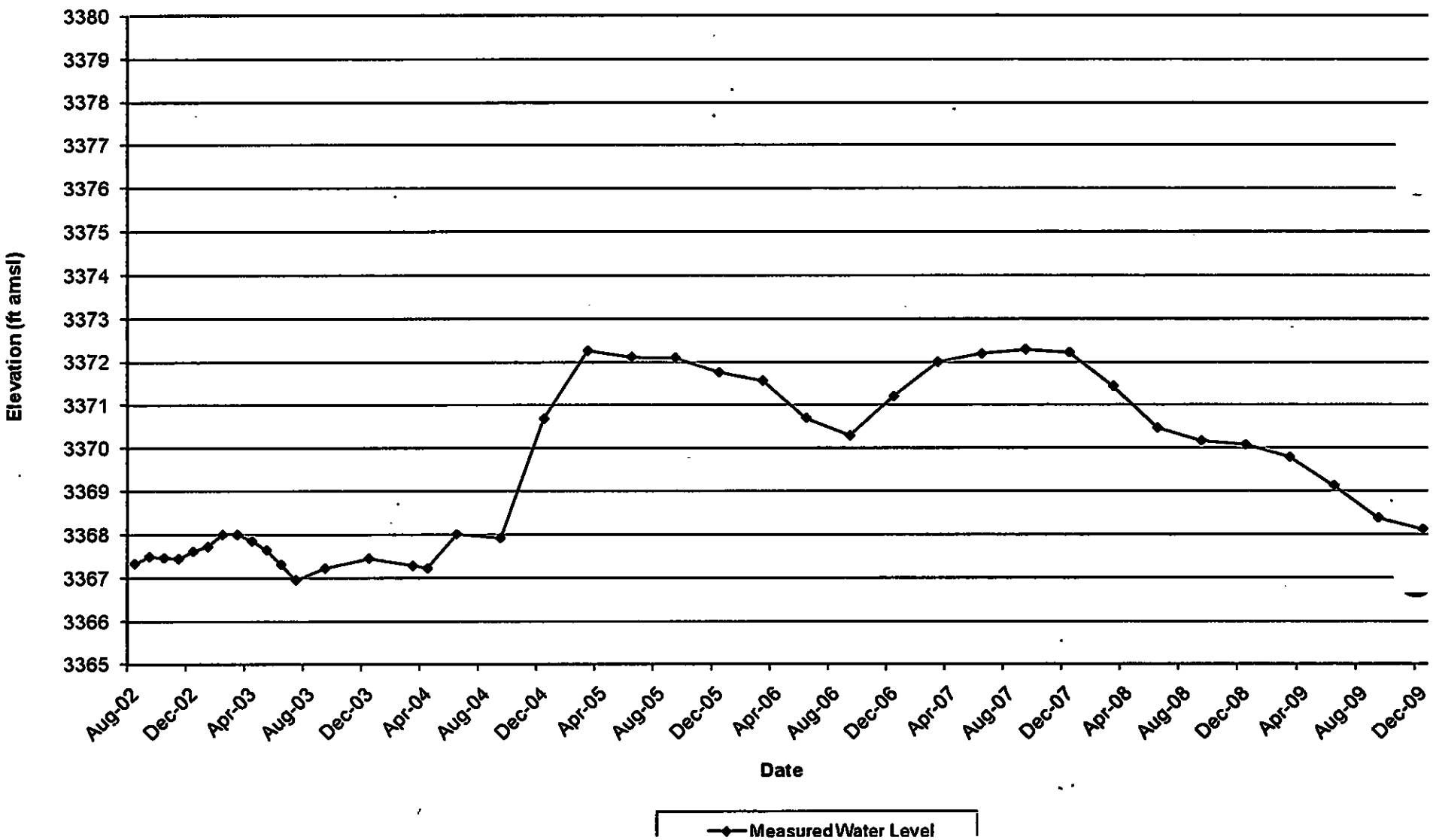



PZ-07 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Elevation (ft amsl)
3380
3379
3378
3377
3376
3375
3374
3373
3372
3371
3370
3369
3368
3367
3366
3365
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Date
Measured Water Level

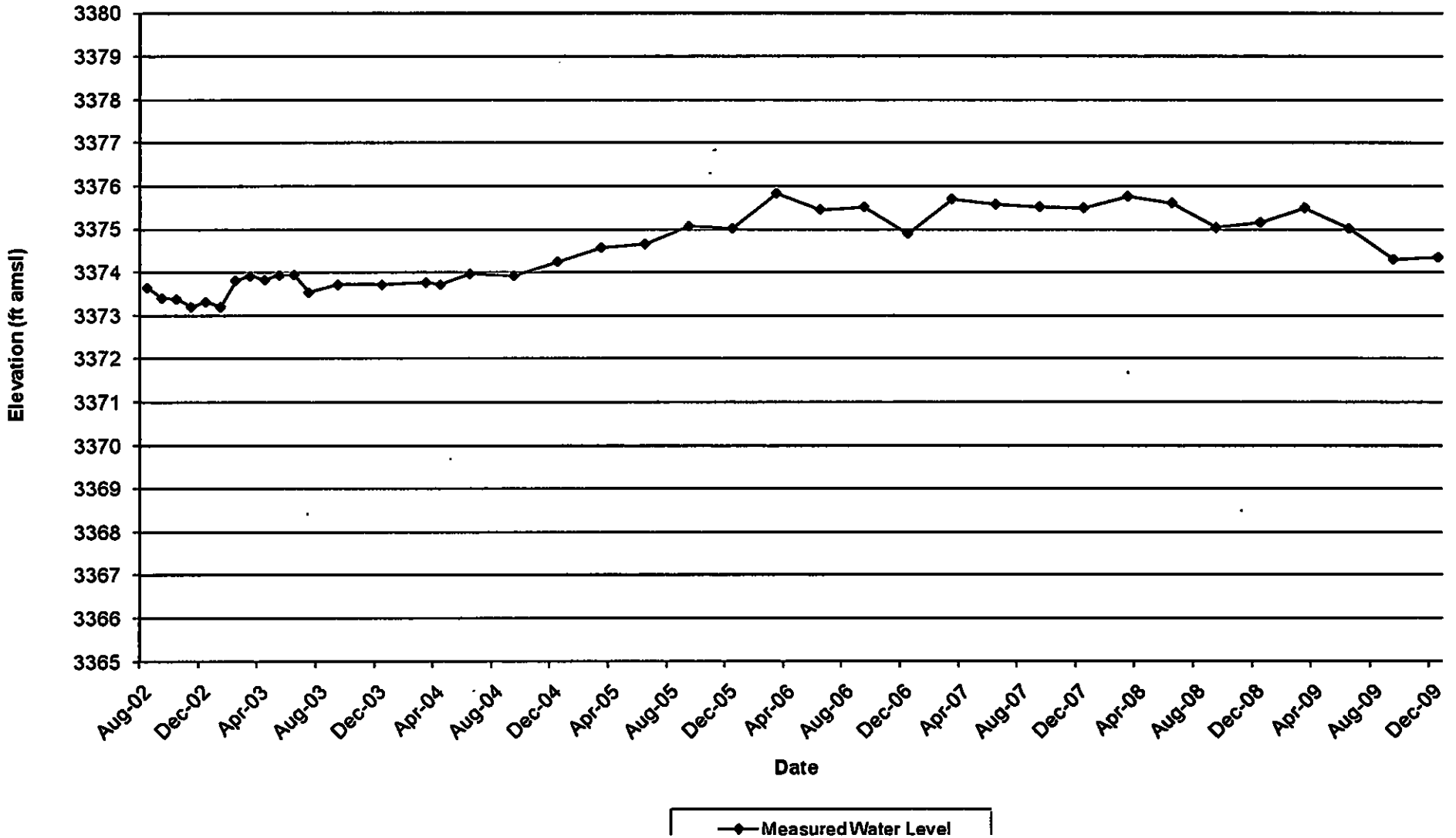

PZ-08 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Elevation (ft amsl)
3357
3356
3355
3354
3353
3352
3351
3350
3349
Mar-07
Jun-07
Sep-07
Dec-07
Mar-08
Jun-08
Sep-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Date
Measured Water Level

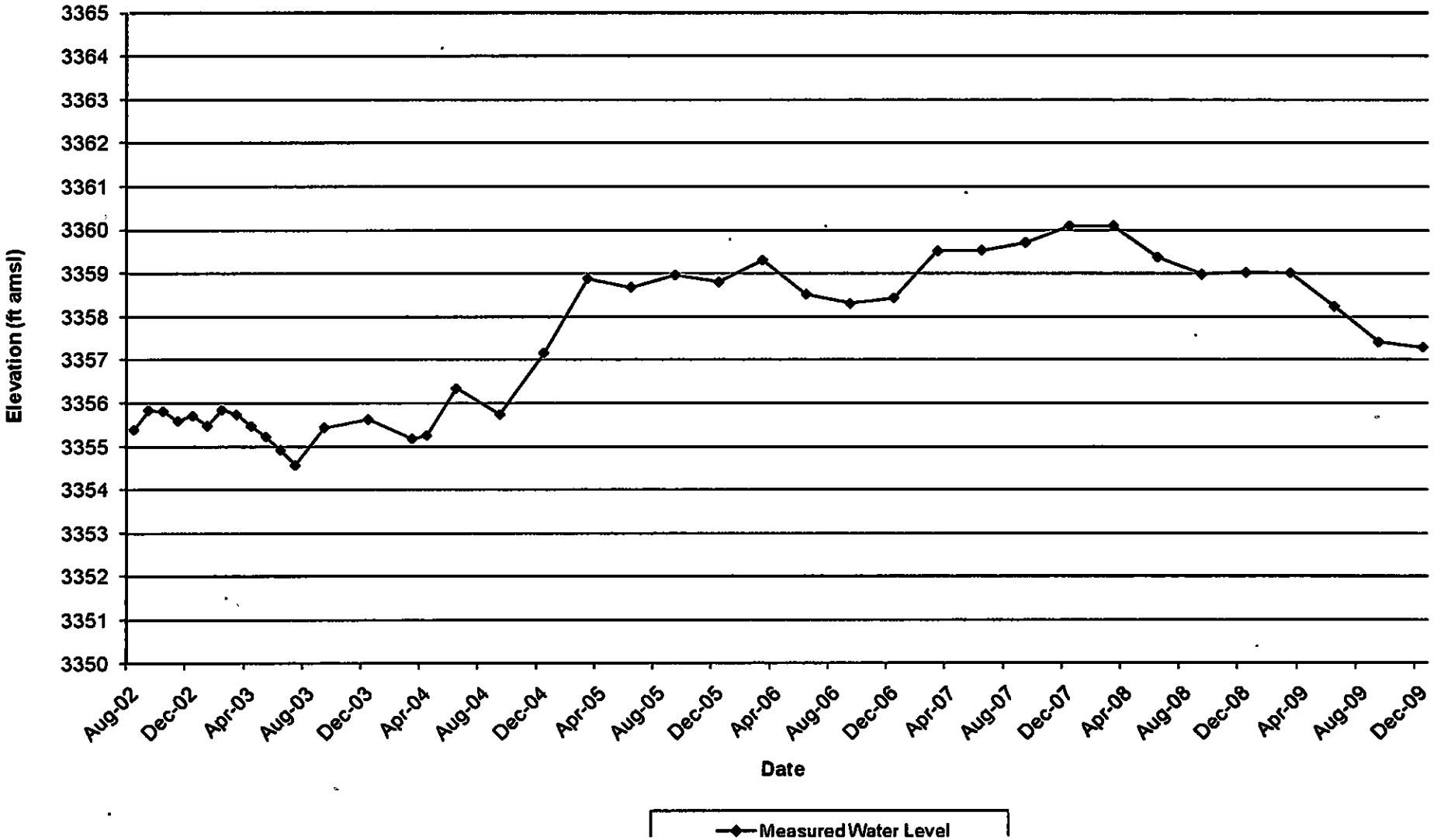
PZ-09 Santa Rosa/Dewey Lake
Historical Water Level Measurements



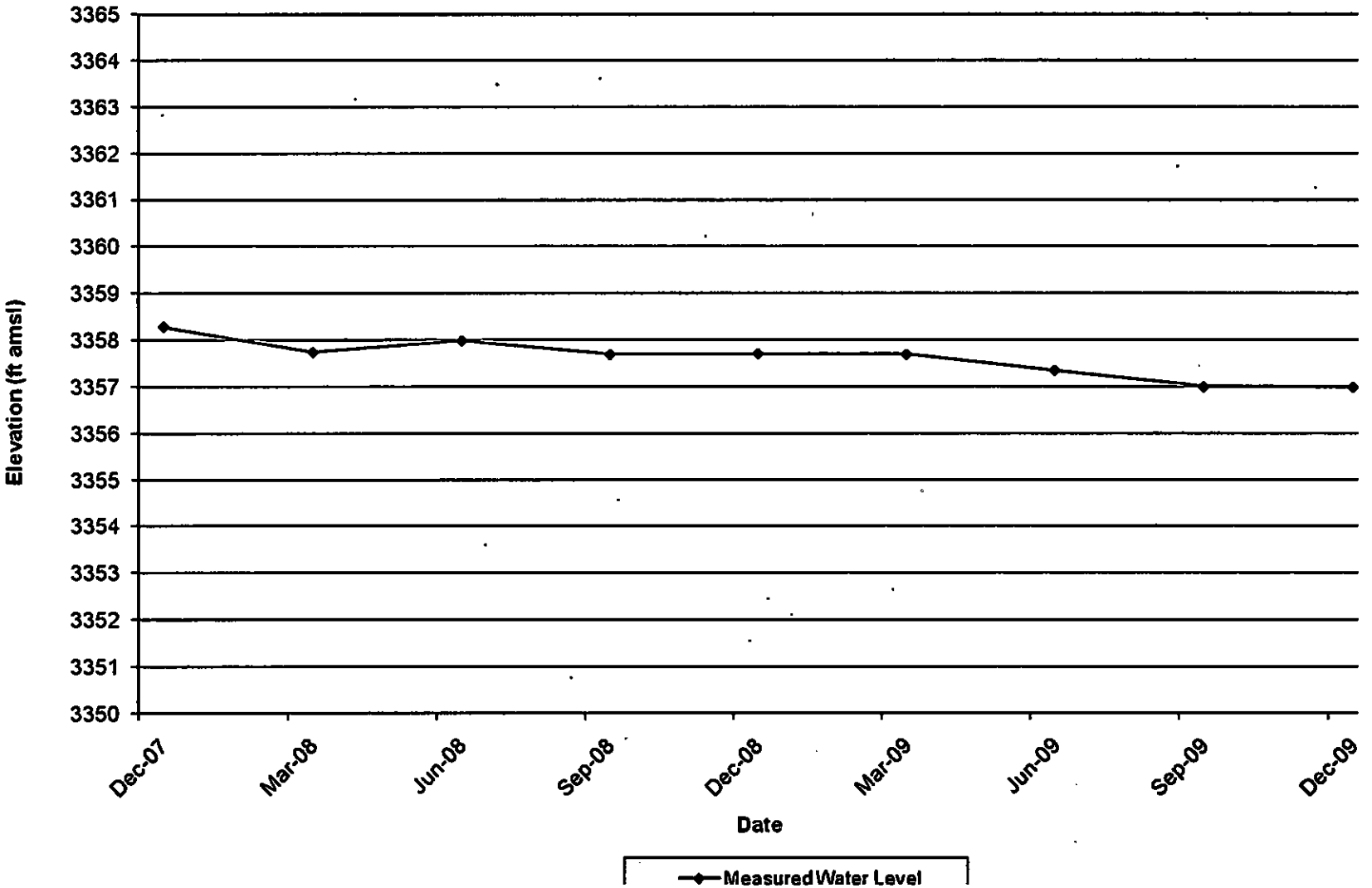

PZ-10 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Elevation (ft amsl)
3380
3379
3378
3377
3376
3375
3374
3373
3372
3371
3370
3369
3368
3367
3366
3365
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Date
Measured Water Level

PZ-11 Santa Rosa/Dewey Lake
Historical Water Level Measurements

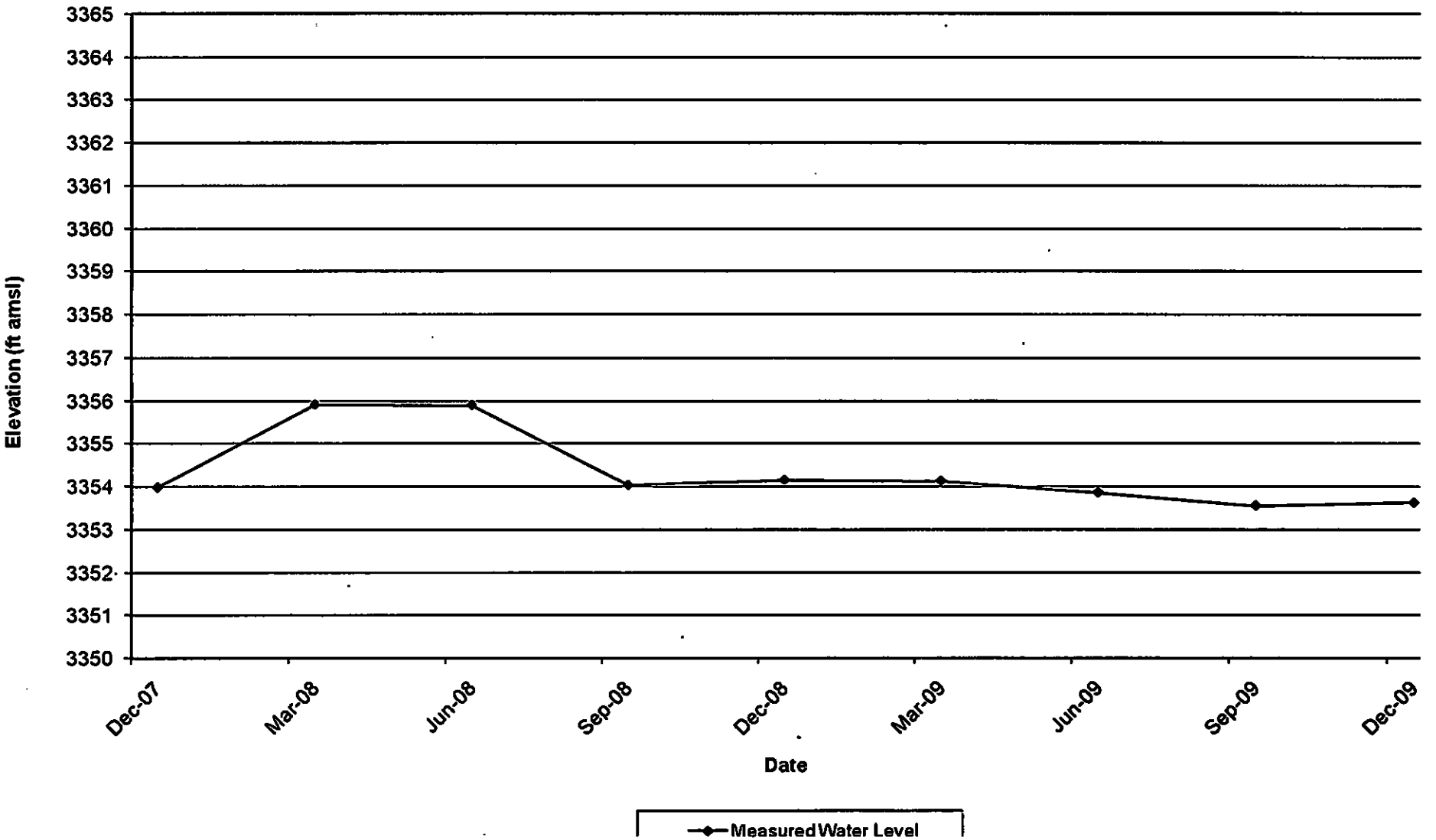


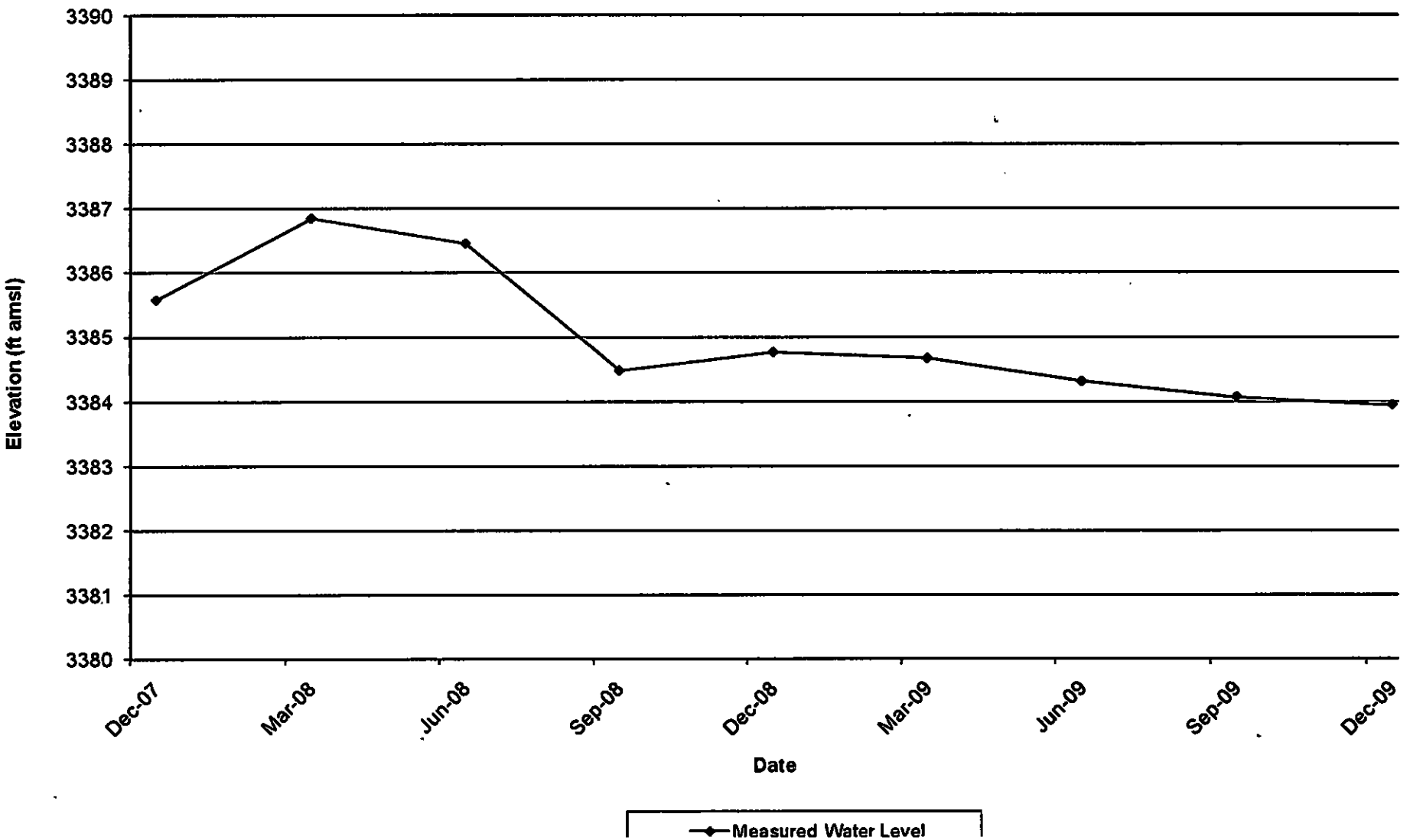

PZ-12 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Elevation (ft amsl)
3365
3364
3363
3362
3361
3360
3359
3358
3357
3356
3355
3354
3353
3352
3351
3350
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Date
Measured Water Level

PZ-13, Santa Rosa/Dewey Lake
Historical Water Level Measurements

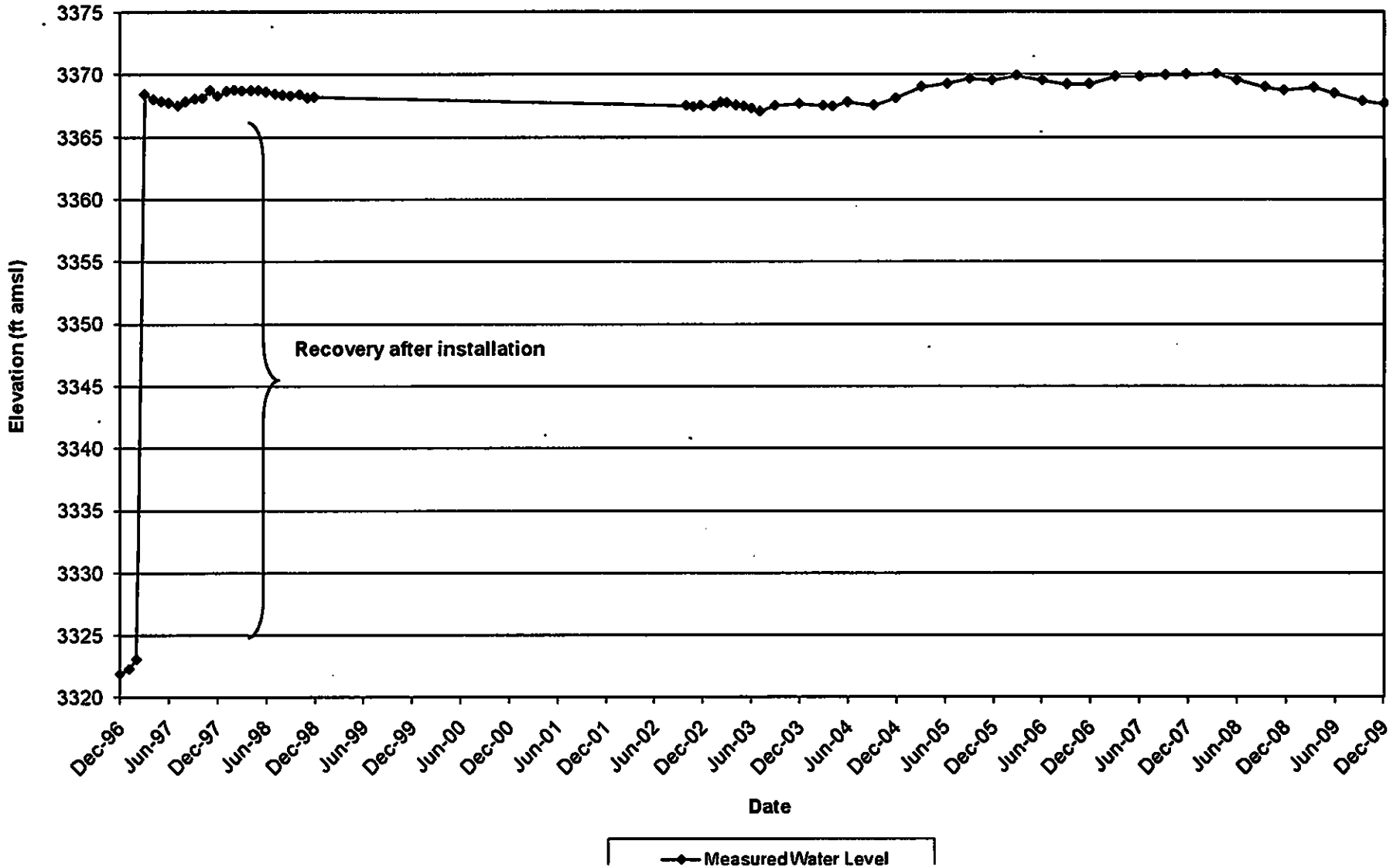


PZ-14, Santa Rosa/Dewey Lake
Historical Water Level Measurements

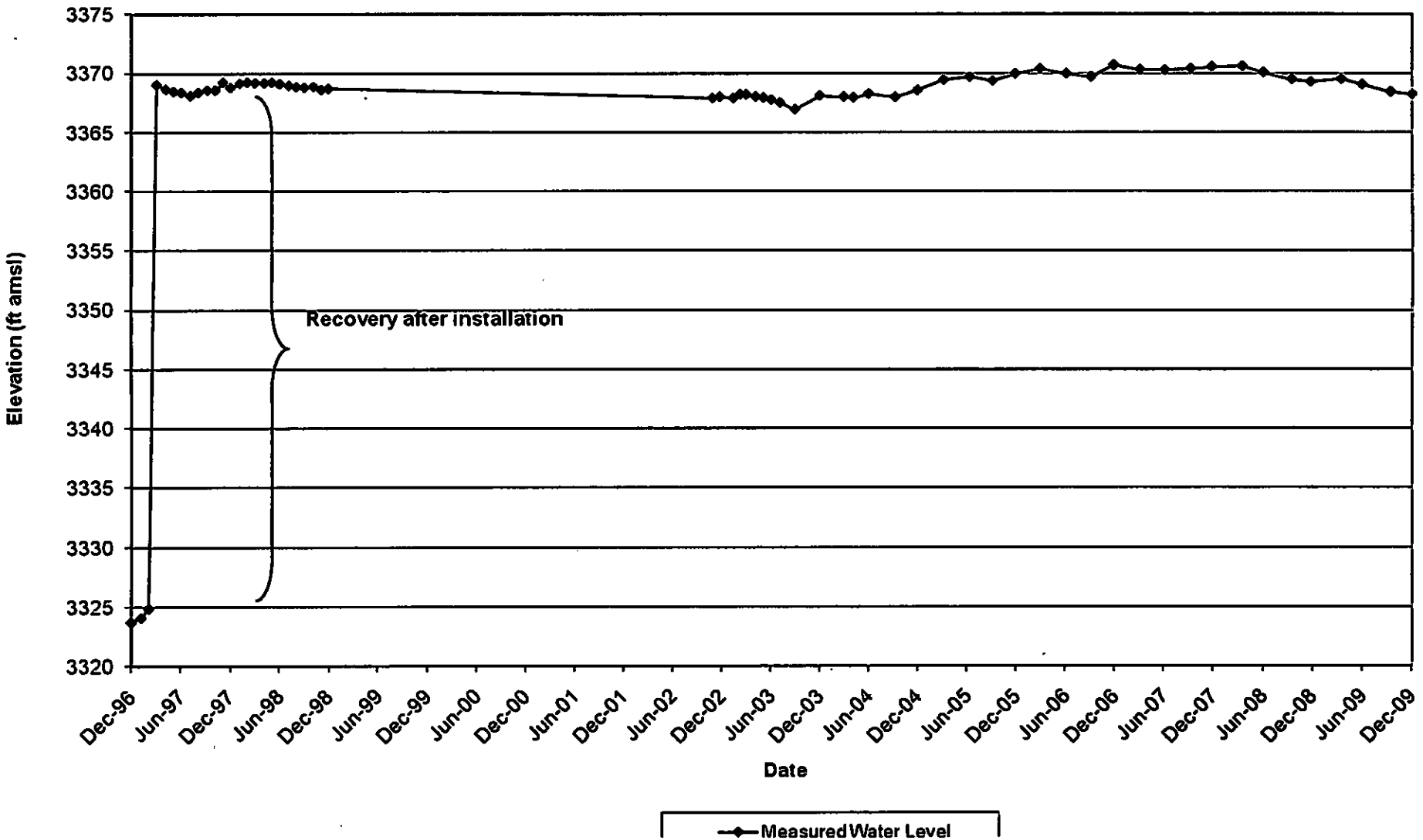



PZ-15, Gatuna
Historical Water Level Measurements
Elevation (ft amsl)
3390
3389
3388
3387
3386
3385
3384
3383
3382
3381
3380
Dec-07
Mar-08
Jun-08
Sep-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Date
Measured Water Level

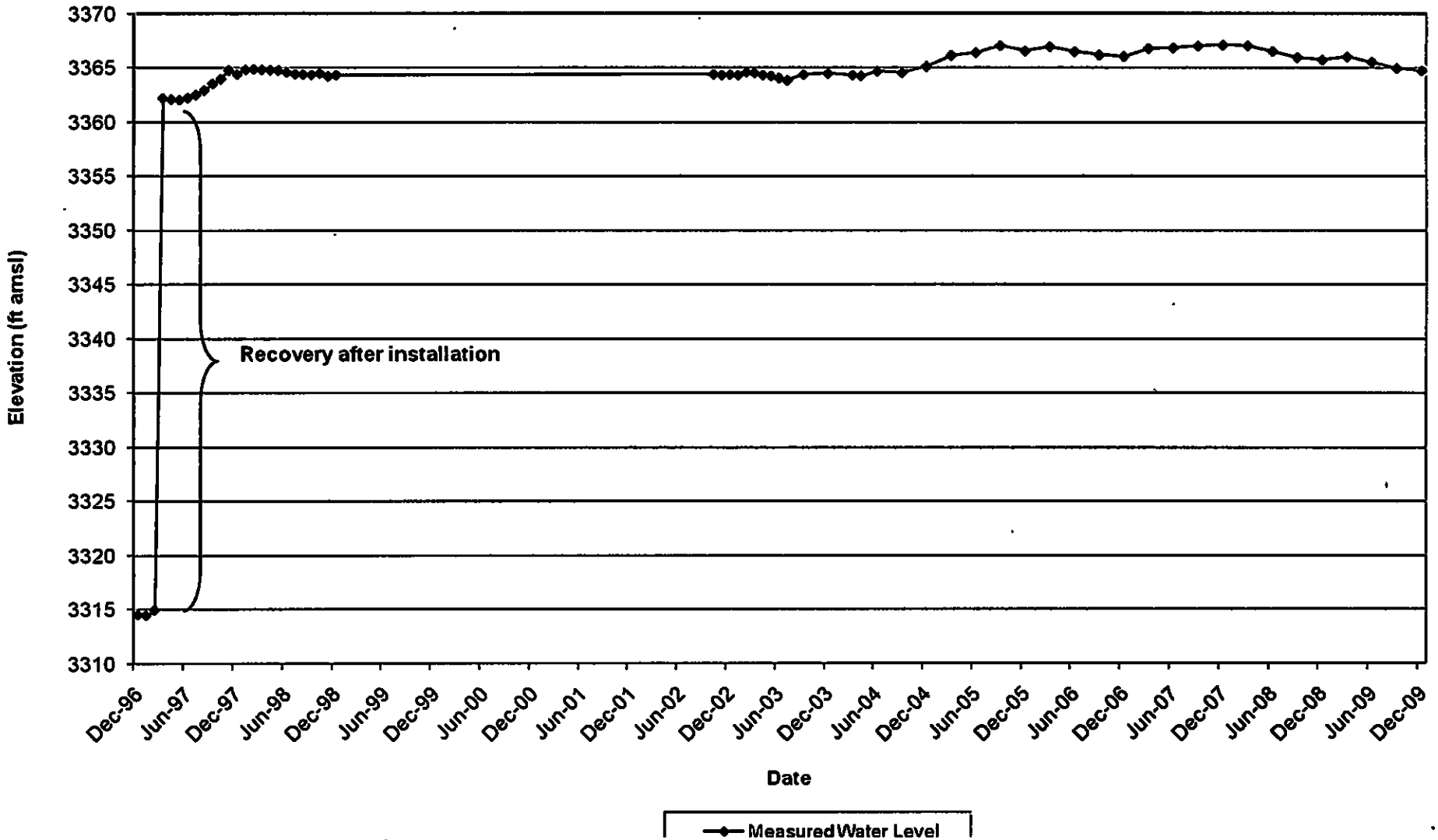
C-2505 Santa Rosa/Dewey Lake
Historical Water Level Measurements

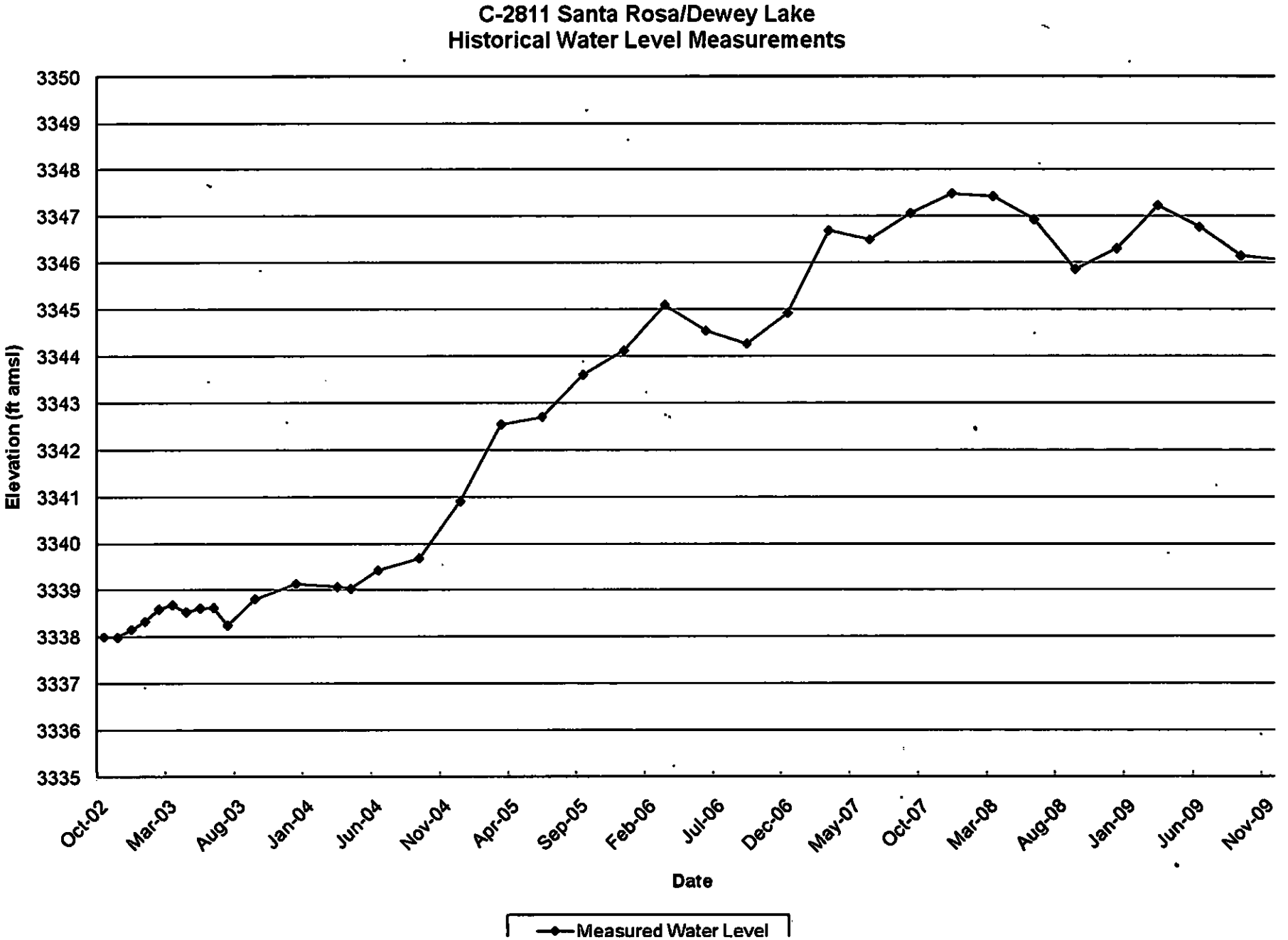


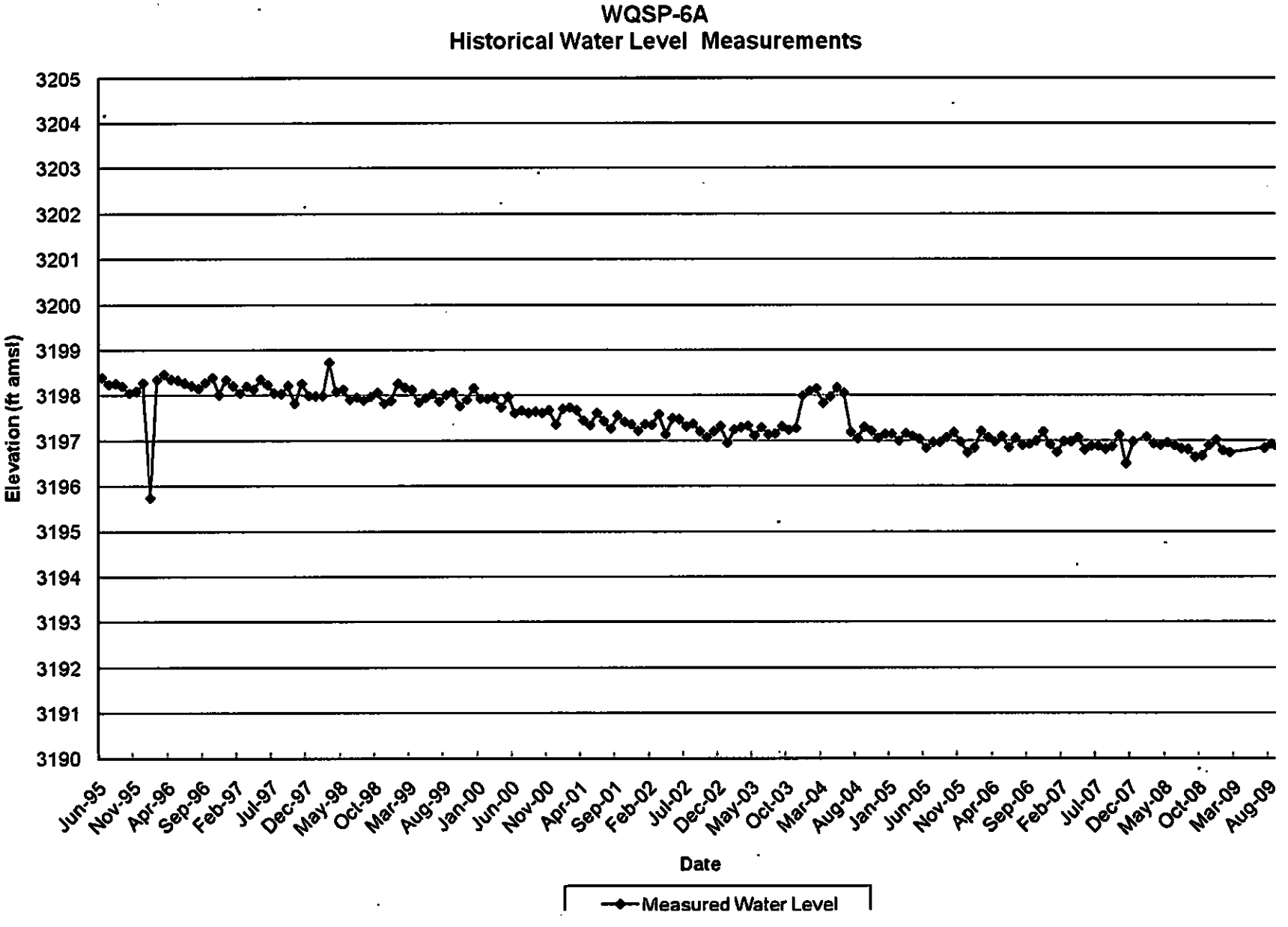
C-2506 Santa Rosa/Dewey Lake
Historical Water Level Measurements



C-2507 Santa Rosa/Dewey Lake
Historical Water Level Measurements




C-2811 Santa Rosa/Dewey Lake
Historical Water Level Measurements
Elevation (ft amsl)
3350
3349
3348
3347
3346
3345
3344
3343
3342
3341
3340
3339
3338
3337
3336
3335
Oct-02
Mar-03
Aug-03
Jan-04
Jun-04
Nov-04
Apr-05
Sep-05
Feb-06
Jul-06
Dec-06
May-07
Oct-07
Mar-08
Aug-08
Jan-09
Jun-09
Nov-09
Date
Measured Water Level


WQSP-6A
Historical Water Level Measurements
Elevation (ft amsl)
3205
3204
3203
3202
3201
3200
3199
3198
3197
3196
3195
3194
3193
3192
3191
3190
Jun-95
Nov-95
Apr-96
Sep-96
Feb-97
Jul-97
Dec-97
May-98
Oct-98
Mar-99
Aug-99
Jan-00
Jun-00
Nov-00
Apr-01
Sep-01
Feb-02
Jul-02
Dec-02
May-03
Oct-03
Mar-04
Aug-04
Jan-05
Jun-05
Nov-05
Apr-06
Sep-06
Feb-07
Jul-07
Dec-07
May-08
Oct-08
Mar-09
Aug-09
Date
Measured Water Level

Appendix B

Historical Chemistry Data for SSW Piezometers/Wells

Shallow Subsurface Water Quality Sampling Results

	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-1	6/21/04	<10	1,530	36,300	79,600	0.0440	<0.00500
PZ-1	11/09/04	1.30	6,530	45,700	85,800	0.106	<0.0100
PZ-1	5/17/05	1.47	2,640	62,300	100,500	0.0600	0.0770
PZ-1	10/11/05	2.59	1,950	54,900	74,800	0.0430	<0.0100
PZ-1	5/16/06	<2.5	2,490	62,400	113,000	0.0510	<0.0100
PZ-1	10/10/06	<1.00	1,390	55,300	70,200	<0.0500	<0.0250
PZ-1	5/09/07	2.70	2,220	63,000	107,000	<0.0500	<0.0250
PZ-1	10/09/07	<1.00	2,820	83,200	99,500	<0.1000	<0.0250
PZ-1	6/5/08	<2.0	2,100	57,000	98,000	0.667	0.00218
PZ-1	10/14/08	NA	2,200	59,000	94,000	NA	NA
PZ-1	05/19/09	NA	2,200	54,000	96,000	NA	NA
PZ-1	10/19/09	NA	2,300	66,000	101,000	NA	NA
PZ-5	6/21/04	20.7	1,340	28,800	55,200	0.0670	<0.00500
PZ-5	11/09/04	<2.50	1,820	47,800	86,000	0.0940	<0.0100
PZ-5	5/17/05	2.96	3,260	46,000	65,400	0.0930	0.0670
PZ-5	10/11/05	5.14	769	14,000	32,800	0.0620	<0.0100
PZ-5	5/16/06	2.56	1,520	18,300	32,600	0.0710	<0.0100
PZ-5	10/10/06	5.04	1,330	28,800	47,400	<0.0500	<0.0250
PZ-5	5/09/07	4.60	1,640	17,300	32,400	<0.0500	<0.0250
PZ-5	10/09/07	<1.00	1,880	19,400	28,700	0.0710	<0.005
PZ-5	6/5/08	5.7	1,500	19,000	33,000	0.0801	0.00317
PZ-5	10/14/08	NA	1,400	13,000	25,000	NA	NA
PZ-5	05/19/09	NA	1,500	13,000	24,000	NA	NA
PZ-5	10/19/09	NA	1,600	14,000	20,200	NA	NA
PZ-6	6/21/04	21.2	2,860	70,500	134,000	0.0170	<0.00500
PZ-6	11/09/04	4.89	13,000	75,400	113,000	0.0600	<0.0100
PZ-6	5/17/05	4.25	3,610	109,000	160,500	0.0500	0.0540
PZ-6	10/11/05	<20.0	2,850	83,800	106,000	0.0210	<0.0100
PZ-6	5/16/06	7.69	3,050	68,800	115,000	<0.0100	<0.0100
PZ-6	10/10/06	252	2,790	79,800	134,000	<0.0500	<0.0250
PZ-6	5/09/07	6.65	2,840	73,500	122,500	<0.0500	<0.0250
PZ-6	10/09/07	<1.00	3,080	81,000	105,000	<0.1000	<0.0250
PZ-6	6/5/08	6.1	2,100	47,000	81,000	0.0412	0.00259
PZ-6	10/14/08	NA	2,500	58,000	87,000	NA	NA
PZ-6	05/19/09	NA	2,700	61,000	89,000	NA	NA
PZ-6	10/19/09	NA	2,300	50,000	83,600	NA	NA
PZ-7	6/21/04	20.7	2,620	53,000	109,000	0.041	<0.00500

Shallow Subsurface Water Quality Sampling Results

	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-7	11/08/04	2.89	7,460	43,600	80,400	0.0880	<0.0100
PZ-7	5/16/05	4.02	2,530	42,100	65,900	0.0820	0.0940
PZ-7	10/10/05	6.37	2,770	61,000	88,000	0.0470	<0.0100
PZ-7	5/15/06	<5.3	3,190	54,100	139,000	0.0680	<0.0100
PZ-7	10/9/06	<1.00	2,890	66,800	81,500	<0.00100	<0.0500
PZ-7	5/07/07	5.15	3,190	64,800	119,000	<0.0200	0.0200
PZ-7	10/08/07	<1.00	2,660	45,600	65,000	0.0640	<0.00500
PZ-7	6/4/08	5.0	2,300	49,000	86,000	0.0635	0.00257
PZ-7	10/13/08	NA	1,700	27,000	42,000	NA	NA
PZ-7	05/18/09	NA	3,700	76,000	120,000	NA	NA
PZ-7	10/20/09	NA	4,200	67,000	106,000	NA	NA
PZ-8	10/15/07	0.677	500	7,440	15,000	0.039	<0.00500
PZ-8	6/6/08	1.8	630	11,000	16,000	0.0655	<0.001
PZ-9	6/21/04	<20.0	3,740	80,200	140,000	<0.0100	<0.00500
PZ-9	11/09/04	1.40	14,500	92,400	144,000	0.0660	<0.0100
PZ-9	5/17/05	2.82	5,090	182,000	164,000	0.0500	0.0710
PZ-9	10/11/05	<20.0	3,930	85,500	107,000	0.0220	<0.0100
PZ-9	5/16/06	3.01	4,350	84,700	153,000	0.0230	<0.0100
PZ-9	10/10/06	<20.0	3,370	102,000	135,000	<0.0500	<0.0250
PZ-9	5/09/07	3.28	4,320	89,600	164,000	<0.0500	<0.0250
PZ-9	10/09/07	<200	4,720	116,000	144,000	<0.0200	<0.0050
PZ-9	6/5/08	2.2	4,400	87,000	150,000	0.0351	0.00492
PZ-9	10/14/08	NA	4,100	96,000	140,000	NA	NA
PZ-9	05/19/09	NA	3,600	94,000	130,000	NA	NA
PZ-9	10/19/09	NA	4,000	77,000	139,000	NA	NA
PZ-10	6/14/04	3.81	469	368	1,714	0.0200	<0.00500
PZ-10	11/08/04	3.69	431	353	1,576	<0.0500	<0.0100
PZ-10	5/16/05	3.63	572	416	1,756	0.0440	0.0370
PZ-10	10/10/05	3.34	515	318	1,720	0.0150	<0.0100
PZ-10	5/15/06	3.42	539	460	1,830	0.0140	<0.0100
PZ-10	10/9/06	5.5	549	350	1,600	<0.00100	<0.0500
PZ-10	5/07/07	14.8	407	274	1,504	<0.0200	0.0200
PZ-10	10/08/07	<1.00	211	186	968	0.0260	<0.0050
PZ-10	6/4/08	4.5	390	300	1,500	0.0144	0.00119
PZ-10	10/13/08	NA	380	290	1,400	NA	NA
PZ-10	05/18/09	NA	530	460	1,800	NA	NA
PZ-10	10/20/09	NA	500	440	1,730	NA	NA
PZ-11	6/21/04	20.8	2,220	58,100	123,000	<0.0100	<0.00500
PZ-11	11/08/04	3.15	13,000	84,100	119,000	<0.0500	<0.0100
PZ-11	5/16/05	4.63	2,890	66,000	100,000	<0.0100	<0.0100

Shallow Subsurface Water Quality Sampling Results

	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-11	10/10/05	<20.0	2,950	84,300	129,000	0.0130	<0.0100
PZ-11	5/15/06	<5.3	3,090	71,000	133,000	<0.0100	<0.0100
PZ-11	10/9/06	<1.00	2,550	85,800	123,000	<0.00100	<0.0500
PZ-11	5/07/07	3.84	2,620	68,700	135,000	<0.0200	<0.0100
PZ-11	10/08/07	<1.00	2,970	94,400	108,000	<0.0200	<0.0050
PZ-11	6/4/08	3.9	2,100	65,000	110,000	0.0149	0.00216
PZ-11	10/13/08	NA	3,000	79,000	110,000	NA	NA
PZ-11	05/18/09	NA	2,500	72,000	110,000	NA	NA
PZ-11	10/20/09	NA	3,200	64,000	112,000	NA	NA
PZ-12	6/14/04	11.2	773	5,320	9,700	0.0770	<0.00500
PZ-12	11/08/04	19.8	879	7,170	9,540	0.0660	<0.0100
PZ-12	5/16/05	8.85	679	3,730	5,890	0.0510	0.0540
PZ-12	10/10/05	426	805	3,790	7,740	0.0200	<0.0100
PZ-12	5/15/06	20.6	866	4,510	8,790	0.0190	<0.0100
PZ-12	10/9/06	13.2	795	5,340	9,150	<0.00100	<0.0500
PZ-12	5/07/07	10.8	831	3,780	7,010	<0.0200	0.0240
PZ-12	10/08/07	<1.00	958	4,310	6,200	0.0260	<0.0050
PZ-12	6/4/08	11	760	3,300	6,800	0.0291	0.00132
PZ-12	10/13/08	NA	850	3,300	7,000	NA	NA
PZ-12	05/18/09	NA	870	4,600	8300	NA	NA
PZ-12	10/20/09	NA	980	6,500	10,100	NA	NA
PZ-13	10/10/07	12.4	2,670	150,000	245,500	<0.100	<0.00500
PZ-13	6/6/08	<200	2,600	170,000	240,000	0.0118	0.00316
PZ-13	10/13/08	NA	2,900	160,000	230,000	NA	NA
PZ-13	05/18/09	NA	3,300	180,000	240,000	NA	NA
PZ-13	10/20/09	NA	3,300	170,000	255,000	NA	NA
PZ-14	10/15/07	1.41	2,140	71,500	106,000	<0.0100	<0.00500
PZ-14	6/6/08	<100	3,300	130,000	180,000	0.0201	0.00168
PZ-15	10/15/07	2.97	169	764	2,060	0.022	<0.00500
PZ-15	6/6/08	12	160	460	1,600	0.00372	<0.001
C-2811	6/14/04	6.06	299	769	2,022	0.0470	<0.00500
C-2811	11/08/04	7.63	305	1,030	1,996	0.0540	<0.0100
C-2811	5/16/05	6.02	524	1,930	3,740	0.0580	0.0530
C-2811	10/10/05	7.48	584	2,250	4,410	0.0340	<0.0100
C-2811	5/15/06	6.94	511	1,760	3,740	0.0310	<0.0100
C-2811	10/9/06	6.05	402	1,310	2,100	<0.00100	<0.0500
C-2811	5/07/07	5.31	516	1,760	4,205	<0.0200	0.0310
C-2811	10/08/07	<1.00	635	2,980	3,860	0.0510	<0.0050
C-2811	6/4/08	5.7	390	1,300	2,800	0.00170	0.0350
C-2811	10/13/08	NA	320	1,000	2,100	NA	NA

Shallow Subsurface Water Quality Sampling Results

	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
C-2811	05/18/09	NA	360	1,200	2,300	NA	NA
C-2811	10/20/09	NA	320	1,000	2,120	NA	NA
C-2507	6/21/04	7.55	717	1,300	3,830	0.029	0.028
C-2507	11/09/04	7.58	824	1,380	3,350	0.0800	0.0140
C-2507	5/17/05	7.94	860	1,370	3,340	0.0780	0.0630
C-2507	10/11/05	6.13	920	1,630	3,240	0.0470	<0.0100
C-2507	5/16/06	7.37	1,040	1,930	5,300	0.0510	<0.0100
C-2507	10/10/06	2.9	943	3,640	1,740	<0.0500	<0.0250
C-2507	5/9/07	6.62	1,110	3,060	5,485	<0.0500	<0.0250
C-2507	10/9/07	<1.00	1,220	3,500	5,540	0.0550	0.007
C-2507	6/5/08	6.9	990	2,800	5,800	0.0637	0.00493
C-2507	10/14/08	NA	940	2,200	5,100	NA	NA
C-2507	5/19/09	NA	950	2,600	5,200	NA	NA
C-2507	10/19/09	NA	930	3,400	5,710	NA	NA
WQSP-6A	7/13/95	7.62	1,905	1,040	11,000	<0.006	<0.025
WQSP-6A	3/28/96	3.98	1,810	507	3,920	<0.013	<0.025
WQSP-6A	7/11/96	2.75	1,971	6,748	4,500	0.020	<0.025
WQSP-6A	4/10/97	4.64	2,240	675	3,960	0.017	<0.025
WQSP-6A	7/10/97	4.04	2,560	660	3,840	<0.050	<0.1000
WQSP-6A	6/10/98	6.19	1,950	644	4,120	0.016	0.0015
WQSP-6A	11/3/98	11.00	2,100	770	4,100	0.220	<0.500
WQSP-6A	5/26/99	7.00	1,900	540	3,800	<0.100	<0.050
WQSP-6A	11/10/99	9.40	1,900	540	3,800	<0.050	<0.050
WQSP-6A	5/24/00	7.50	2,100	530	3,800	0.0129	<0.020
WQSP-6A	11/30/00	6.70	1,900	480	3,700	<0.0130	<0.025
WQSP-6A	6/6/01	6.37	1,900	536	3,680	0.0385	<0.025
WQSP-6A	11/14/01	3.67	1,900	414	4,600	<0.050	<0.010
WQSP-6A	5/22/02	5.52	1,930	487	3,540	<0.050	<0.010
WQSP-6A	11/20/02	5.61	2,090	419	3,685	<0.050	<0.010
WQSP-6A	5/21/03	4.74	1,950	384	3,650	<0.123	<0.050
WQSP-6A	11/19/03	<0.01	1,950	391	3,955	<0.219	<0.025
WQSP-6A	5/26/04	9.61	1,970	416	3,646	<0.025	<0.025
WQSP-6A	11/17/04	6.72	1,960	491	3,655	<0.025	<0.025
WQSP-6A	4/20/05	5.98	1,920	432	3,700	0.057	<0.025
WQSP-6A	10/19/05	<0.01	1,940	360	3,430	<0.025	<0.025
WQSP-6A	5/3/06	2.5	2,210	450	3,200	<0.025	<0.025
WQSP-6A	9/20/06	6.00	2,120	360	3,515	<0.025	<0.025
WQSP-6A	3/7/07	5.78	2,170	484	3,355	<0.025	<0.025
WQSP-6A	9/12/07	5.47	1,950	350	3,400	<0.025	<0.025
WQSP-6A	3/12/08	4.67	2,090	378	3,400	<0.025	<0.025

Shallow Subsurface Water Quality Sampling Results

	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)	
WQSP-6A	9/10/08	5.69	2,030	348	3,150	< 5	
WQSP-6A	3/4/09	5.90	2,100	350	3,500	<1.0	
WQSP-6A	9/10/09	6.30	2,100	350	3,640	<1.0	

Notes:
NA- Not analyzed, parameters not required

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

JUL 23 2009

Mr. Clint Marshall
New Mexico Environment Department
Ground Water Quality Bureau
Mining and Environmental Compliance Section
P.O. Box 26110
Santa Fe, NM 87502

RECEIVED
JUL 27 2009
BY:.....

Subject: Semi-Annual Discharge Monitoring Report For January 1, 2009, Through June 30, 2009

Dear Mr. Marshall:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Discharge Monitoring Report for the period of January 1, 2009, through June 30, 2009. This report is required by Discharge Permit 831.

If you have any questions about this report or require any additional information, please contact me at (575) 234-8128.

Sincerely,

Dan J. Ferguson,
Site Regulatory Specialist

Enclosure

cc: w/o enclosure
J. Bearzi, NMED *ED
J. Kieling, NMED ED
CBFO M&RC
*ED denotes electronic distribution

CBFO:ORC:DJF:SES:09-0290:UFC5487

04454

WASTE ISOLATION PILOT PLANT (WIPP) SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PLAN DP-831

REPORT PERIOD: January 1, 2009 through June 30, 2009

1.0 DISCHARGE VOLUMES:

Table 1
Facultative Lagoon System Discharge Volumes

Month	Facultative Lagoon System Influent (gallons)	Miscellaneous Water Pond B (gallons)	Miscellaneous Water Pond C (gallons)
January	198,830	0	0
February	219,350	0	0
March	303,750	0	0
April	221,880	0	0
May	232,800	0	0
June	288,680*	0	0

* The sewage lagoon influent flow meter was out of service from June 3-24, 2009. The reported volume is the total domestic water used during June.

Table 2
H-19 Evaporation Pond Discharge Volumes

Month	Volume (gallons)
January	4,375
February	1,800
March	7,585
April	1,710
May	7,300
June	5,170

2.0 FACULTATIVE LAGOON AND H-19 EVAPORATION POND MONITORING AND REPORTING

Table 3 contains a summary of the analytical results for the Facultative Lagoon System and the H-19 Evaporation Pond. All miscellaneous non-hazardous water disposed of in the H-19 Evaporation Pond was Exhaust Shaft Fan Condensate, purged water from groundwater monitoring activities, Exhaust Shaft borehole interception water and Waste Shaft water from the underground.

The repair of the erosion on the west end of Settling Pond 1A began in mid-June. Settling Pond 1A repairs were completed on July 10, 2009, which is after this reporting period, but of current interest to your office. Engineering Change Orders and work packages have been prepared for the replacement of liners in Evaporation Ponds A and B at the sewage treatment facility.

Table 3 Sewage Treatment Facility and H-19 Analytical Data Summary				
	Influent Pond 2A	**Pond B**	**Pond C**	**H-19**
Nitrate (mg/l)	ND	NA	NA	NA
TKN (mg/l)	100	NA	NA	NA
TDS (mg/l)	603	**341,000**	**334,000**	**NS**
Sulfate (mg/l)	65.8	**13,400**	**13,400**	**NS**
Chloride (mg/l)	84.8	**221,000**	**15,200**	**NS**

NA-Not Applicable
ND-Not Detected
NS-Not Sampled

INFILTRATION CONTROL ACTIVITIES (DECEMBER 22, 2003 MODIFICATION)

During this reporting period, a Request for Proposals was issued for the construction of a new pond for the Salt Storage Extension Basin (SSEB-II). A survey was conducted of the area where the pond will be located and the centerline of each berm was staked out.

The northeast high density polyethylene (HDPE) lined run-off chute on the covered Salt Storage Area was damaged during the process of removing sediment that accumulated in the chute in June of this reporting period. The HDPE liner was promptly repaired in June. All other construction was routine repair of erosion on the side slopes of the covered salt pile and repairing damaged liner in the run-off ditch around the covered salt pile and other liner tears identified during the monthly inspections.

The services of an engineering firm were procured and the engineer has continued efforts in evaluating various options for the control of erosion of the Salt Pile cover. A survey was conducted of the Salt Pile cover to support the development of the final design due to the Groundwater Quality Bureau (GWQB) in October 2009. The project is on track for submittal of the final design to the GWQB by October 16, 2009.

A survey was conducted of the area south and west of the Salt Pile Evaporation Pond (SPEP) to determine what grading will be necessary to direct water away from the parking area and SPEP once the berm elevation is raised to increase the capacity of the pond while maintaining one foot of freeboard.

4.0 EXHAUST SHAFT WATER SEEPAGE ESTIMATES

In accordance with the Permit Condition IV.7 of the modified discharge permit issued December 29, 2006, DOE submitted a proposal on February 7, 2007, to estimate the volume of shallow subsurface water that seeps into the Exhaust Shaft based on quarterly shaft video inspections. The Exhaust Shaft inspections were conducted on February 18, 2009, and May 20, 2009, both resulting in an estimate of one gallon per minute. The flow rate was estimated as the sum of individual seeps and or seepage cracks and rounded to the nearest half gallon per minute to reflect a resolution that is believed to be a reasonable estimation of the seepage.

5.0 SUMMARY OF ACTIVITIES RELATED TO THE SHALLOW SUBSURFACE WATER (SSW) MONITORING AND SAMPLING PROGRAM

Water levels in the shallow wells (PZ-1 through PZ-15, C-2811, C-2505, C-2506, and C-2507), Figure 1, were obtained March 26 and June 11, 2009, and are included in Table 4. These were taken on the quarterly milestones outlined in Table 2, Ground Water Monitoring Schedule, in the September 9, 2008, DP-831 Modification. Total rainfall in the area of WIPP for this reporting period was 3.82 inches.

All SSW wells, except PZ-8 and C-2811, reported a decrease in elevation for this reporting period. The largest decrease in water level was 0.29 feet identified in PZ-10, east of evaporation pond A. An increase was shown in PZ-8 (+0.08 feet) and C-2811 (+0.14 feet). The average groundwater decrease around the lined ponds (PZ-10, PZ-12, PZ-7, and PZ-11) was 0.12 feet for this reporting period.

WQSP-6A was sampled in March 2009 as part of the WIPP Hazardous Waste Facility Permit Detection Monitoring Program (Table 4). WQSP-6A data for that time are provided in this report.

Sulfate, nitrate, chloride, and total dissolved solids (TDS) concentrations were detected in WQSP-6A samples at concentrations exceeding standards of 20.6.2.3103 NMAC, *Standards for Ground Water of 10,000 mg/L TDS Concentration or Less* for Human Health and Domestic Water Supply, but less than background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285). Total Kjeldahl nitrogen (TKN) was below the detection limit of 1 mg/L. Based on these results, the DOE has concluded that shallow subsurface water identified at the WIPP site has not impacted the Dewey Lake groundwater in WQSP-6A.

The SSW piezometers were sampled for field and general chemistry parameters in May 2009 as required by the September 9, 2008, modification to DP-831. Six piezometers were sampled on May 18, and five on May 19, 2009. Results for the field sampling parameters and laboratory analyses are presented in Table 4. Chloride concentrations exceeded values listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply in all shallow piezometers sampled. The maximum chloride concentration was 183,000 mg/L in PZ-13, while the minimum concentration was 457 mg/L in PZ-10. Total dissolved solids concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in all shallow piezometers sampled, with the maximum concentration of 242,000 mg/L in PZ-13. Sulfate concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in 9 of 11 piezometers sampled with a maximum concentration of 3,690 mg/L in PZ-7.

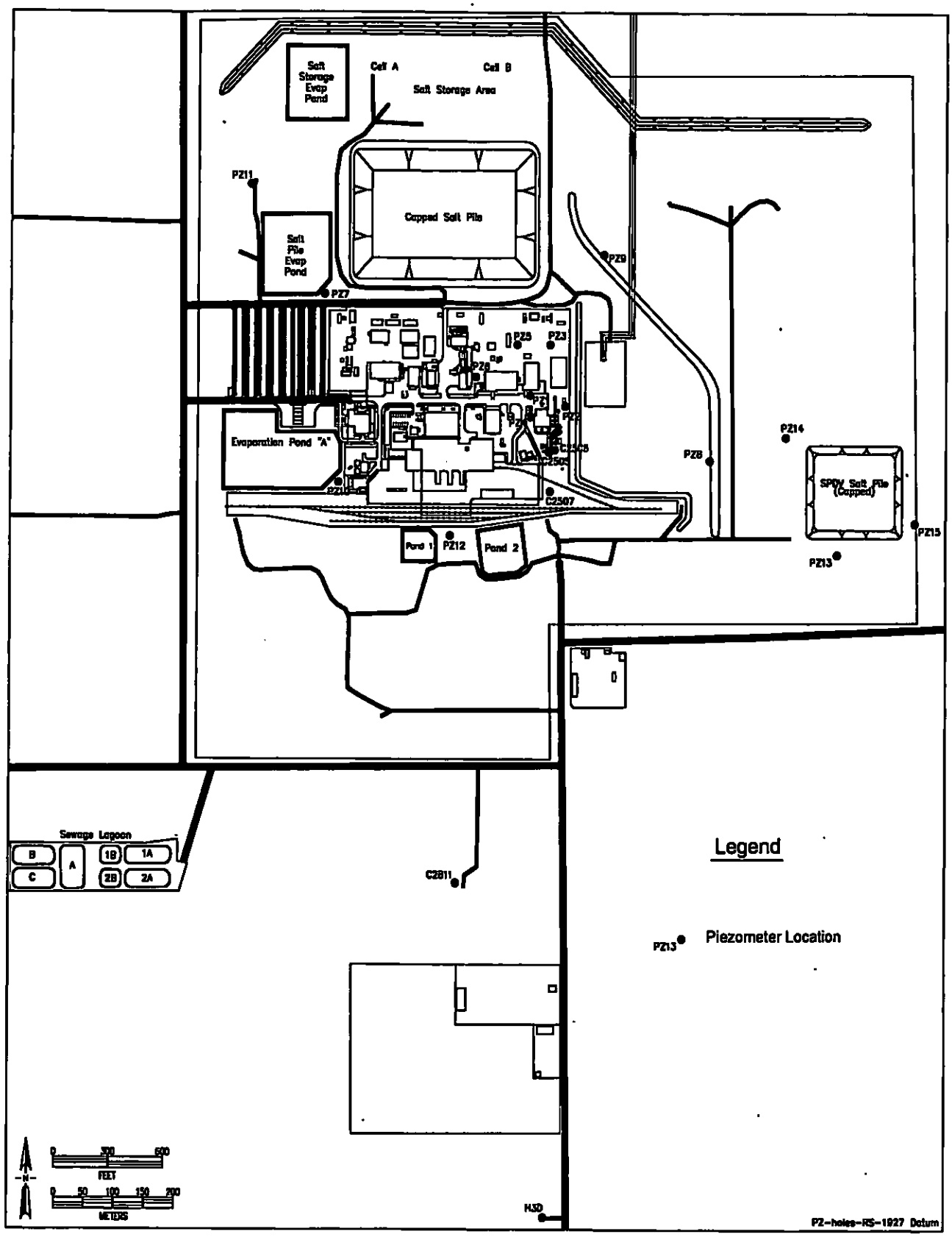


Figure 1 Map of WIPP Facility Operations Area

Table 4: Subsurface Shallow Water Monitoring Data											
	Water Level Monitoring (Ft AMSL)		Field Parameters			General Chemistry Parameters					Other
Monitoring Site	3/26/09	6/11/09	pH (SU)	Temp. (^{0}C)	Specific Conductivity @25 ^{0}C (µS/cm)	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)
PZ-1	3372.39	3372.04	6.55	24.1	116,400	05/19/09	NS	**2,180**	**53,600**	**95,700**	NS
PZ-2	3372.39	3371.83	NA	NA	NA	NS	NS	NS	NS	NS	NS
PZ-3	3373.68	3373.20	NA	NA	NA	NS	NS	NS	NS	NS	NS
PZ-4	3367.56	3366.98	NA	NA	NA	NS	NS	NS	NS	NS	NS
PZ-5	3374.32	3373.78	7.11	22.9	31,250	05/19/09	NS	**1,550**	**13,000**	**23,600**	NS
PZ-6	3371.16	3370.66	6.60	23.3	114,100	05/19/09	NS	**2,660**	**60,500**	**89,200**	NS
PZ-7	3378.14	3377.59	6.34	23.6	130,800	05/18/09	NS	**3,690**	**76,000**	**115,000**	NS
PZ-8	3355.73	3355.86	NA	NA	NA	NS	NS	NS	NS	NS	NS
PZ-9	3364.97	3364.57	6.48	21.2	154,100	05/19/09	NS	**3,580**	**93,900**	**130,000**	NS
PZ-10	3369.79	3369.13	7.18	23.9	2,641	05/18/09	NS	531	**457**	**1,780**	NS
PZ-11	3375.50	3375.02	6.37	25.8	135,100	05/18/09	NS	**2,500**	**71,500**	**110,000**	NS
PZ-12	3359.02	3358.25	6.83	23.0	13,610	05/18/09	NS	**868**	**4,560**	**8,280**	NS
PZ-13	3357.69	3357.35	6.11	26.2	>200,000	05/18/09	NS	**3,250**	**183,000**	**242,000**	NS
PZ-14	3354.13	3353.86	NA	NA	NA	NS	NS	NS	NS	NS	NS
PZ-15	3384.67	3384.31	NA	NA	NA	NS	NS	NS	NS	NS	NS
C-2811	3347.24	3346.78	7.22	21.2	3,970	05/18/09	NS	360	**1,150**	**2,270**	NS
C-2505	3368.96	3368.49	NA	NA	NA	NS	NS	NS	NS	NS	NS
C-2506	3369.49	3369.02	NA	NA	NA	NS	NS	NS	NS	NS	NS
C-2507	3366.05	3365.57	7.16	21.1	9,270	05/19/09	NS	**945**	**2,640**	**5,210**	NS
WQSP-6a (Round 28)	NM	NM	7.44	22.2	3,900	03/04/09	**5.9**	**2,100**	**350**	**3,500**	<1.0

Explanation:

NS: Not Sampled as per permit conditions
"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply
NM: Not Measured because obstruction in well

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

JAN 30 2009

RECEIVED
FEB 02 2009
BY

Mr. Clint Marshall
New Mexico Environment Department
Ground Water Quality Bureau
P.O. Box 26110
Santa Fe, NM 87502

Subject: Semi-Annual Discharge Monitoring Report for July 1, 2008, through December 31, 2008

Dear Mr. Marshall:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Discharge Monitoring Report for the period of July 1, 2008, through December 31, 2008. This report is required by Discharge Permit 831.

If you have any questions about this report or require any additional information, please contact me at (575) 234-7462.

Sincerely,

David C. Moody
Manager

Enclosure

cc: w/o enclosure
J. Bearzi, NMED *ED
J. Kieling, NMED ED
S. Zappe, NMED ED
*ED denotes electronic distribution

CBFO:OP&C:HLP:KJB:09-0210:UFC5486

WASTE ISOLATION PILOT PLANT (WIPP) SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PLAN DP-831 JULY 1, 2008 THROUGH DECEMBER 31, 2008

SPECIFIC REQUIREMENTS OF DP-831

1.0 DISCHARGE VOLUMES:

Month	Facultative Lagoon System Influent Volume (gallons)[1]	Miscellaneous Water Pond B Volume (gallons)[2]	Miscellaneous Water Pond C Volume (gallons)[2]
July	265,900	0	0
August	287,650	0	0
September	288,770	0	0
October	366,450	0	0
November	137,410	0	0
December	166,080	500,000	500,000

[1] As measured by the effluent totalizing flow meter

[2] Volume calculated based on the water level (4 feet deep) and pond dimensions.

Miscellaneous non-hazardous water discharged to Evaporations Ponds B and C was approximately 1,000,000 gallons of water from the Salt Storage Extension Basin (SSEB) to restore freeboard and initiate corrective actions to mitigate the water level overlapping the berm between the SSEB and the Salt Storage Extension (SSE) as explained in the December 5, 2008 letter *Modified Corrective Action Plan for Loss of Freeboard in the Salt Storage Extension Basin.*

H-19 Evaporation Pond	
Month	Volume (gallons)[3]
July	8,650
August	800
September	5,615
October	7,800
November	2,180
December	2,265

[3] Volumetric measurement of transport container

All miscellaneous non-hazardous water disposed of in the H-19 Evaporation Pond was 700 Fan condensate purged water from groundwater monitoring activities, and 40 gallons of rainwater removed the 474 Area secondary containment sump.

2.0 FACULTATIVE LAGOON AND H-19 EVAPORATION POND MONITORING AND REPORTING

Table 1 contains a summary of the analytical results for the Facultative Lagoon System and the H-19 Evaporation Pond.

WASTE ISOLATION PILOT PLANT (WIPP) SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PLAN DP-831 JULY 1, 2008 THROUGH DECEMBER 31, 2008

SPECIFIC REQUIREMENTS OF DP-831

1.0 DISCHARGE VOLUMES:

Month	Facultative Lagoon System Influent Volume (gallons)[1]	Miscellaneous Water Pond B Volume (gallons)[2]	Miscellaneous Water Pond C Volume (gallons)[2]
July	265,900	0	0
August	287,650	0	0
September	288,770	0	0
October	366,450	0	0
November	137,410	0	0
December	166,080	500,000	500,000

[1] As measured by the effluent totalizing flow meter

[2] Volume calculated based on the water level (4 feet deep) and pond dimensions.

Miscellaneous non-hazardous water discharged to Evaporations Ponds B and C was approximately 1,000,000 gallons of water from the Salt Storage Extension Basin (SSEB) to restore freeboard and initiate corrective actions to mitigate the water level overlapping the berm between the SSEB and the Salt Storage Extension (SSE) as explained in the December 5, 2008 letter *Modified Corrective Action Plan for Loss of Freeboard in the Salt Storage Extension Basin.*

H-19 Evaporation Pond	
Month	Volume (gallons)[3]
July	8,650
August	800
September	5,615
October	7,800
November	2,180
December	2,265

[3] Volumetric measurement of transport container

All miscellaneous non-hazardous water disposed of in the H-19 Evaporation Pond was 700 Fan condensate purged water from groundwater monitoring activities, and 40 gallons of rainwater removed the 474 Area secondary containment sump.

2.0 FACULTATIVE LAGOON AND H-19 EVAPORATION POND MONITORING AND REPORTING

Table 1 contains a summary of the analytical results for the Facultative Lagoon System and the H-19 Evaporation Pond.

Table 1 Sewage Treatment Facility and H-19 Analytical Data Summary					
	Date	Influent Pond 2A	Pond B	Pond C	H-19
Nitrate (mg/l)	11-11-08	0.1	NA	NA	NA
TKN (mg/l)	11-11-08	93.5	NA	NA	NA
TDS (mg/l)	11-11-08	536	95,000	119,000	210,000
Sulfate (mg/l)	11-11-08	61.4	4,810	6040	1,210
Chloride (mg/l)	11-11-08	103	49,000	65,900	119,000
Water Depth (ft)/Volume (gallons)	11-11-08	NA	~0.5*/(51,000)*	~0.5*/(51,000)	~0.5*/(51,000)

NA: not analyzed, parameters not required
Bold: Concentration exceeds the standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply
*Evaporation Ponds B and C of the sewage treatment facility were not in use at the time samples were collected. They were being allowed to dry pending liner replacement or repair in 2009. The water depth and volume are estimates.

During this reporting period the following activities were conducted as required by your letter dated December 22, 2005, *Conditional Approval of the Corrective Action Plan based on the Sewage Lagoon Leak Testing Results and Liner Integrity Evaluation.*

Settling Ponds 1A and 2A and Polishing Ponds 1B and 2B had new liners installed during past reporting periods. Evaporation Pond A has been emptied and removed from service for the entire reporting period in preparation for replacing the liner. Evaporation Ponds A and B are scheduled for liner replacement in the spring/summer of 2009 pending contractor availability.

3.0 INFILTRATION CONTROL ACTIVITIES (DECEMBER 22, 2003, MODIFICATION)

In accordance with the Permit Condition IV.7 of the modified discharge permit issued December 29, 2006, DOE submitted a proposal on February 7, 2007 to estimate the volume of shallow subsurface water that seeps into the Exhaust Shaft based on quarterly shaft video inspections. The Exhaust Shaft inspections were conducted on August 20, 2008 and November 19, 2008 both resulting in an estimate of one gallon per minute. The flow rate was estimated as the sum of individual seeps and/or seepage cracks and rounded to the nearest half gallon per minute to reflect a resolution that is believed to be a reasonable estimation of the seepage.

Table 2 contains the analytical results for the Salt Pile Evaporation Pond, Salt Storage Extension Evaporation Basin and Ponds 1, 2 and A.

Table 2 Infiltration Controls Analytical Data Summary					
Evaporation Pond	Date	Chloride (mg/l)	Sulfate (mg/l)	TDS (mg/l)	Water Depth (ft)/Volume (gallons)
Salt Pile Evaporation Pond	11-11-08	11,100	104	19,900	0.8/(825,600)
Salt Storage Extension Evaporation Basin	11-11-08	185,000	13,900	326,000	7.2/(3,650,000)
Pond 1	11-11-08	54.6	25.6	229	3.1/(357,700)
Pond 2	11-11-08	217	9.64	430	5.7/(1,700,000)
Pond A	11-11-08	252	26.4	234	5.8/(6,671,000)

Bold: Concentration exceeds the standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply

During this reporting period repairs were made to localized areas of erosion using straw bales and native soils. Soil that had accumulated in the Salt Pile Run-off Ditches as the result of wind and water run-off was removed and this work has continued into January 2009.

The corrective actions for the water level overtopping the berm between the SSE and the SSEB submitted in the December 5, 2008 letter which involved pumping water to Evaporation Ponds B and C at the Sewage Treatment Facility resulted in mitigating the overtopping and restoring freeboard to greater than one foot. The liner contractor is not available to install the liner of the SSE to the SSEB until the last week of January 2009. On December 10, 2008, six holes were cored with an auger to determine if any water had infiltrated the berm. The holes could only be augured to a depth of 36 inches before hitting caliche and all holes were dry. With the small localized surface area and only inches of head on the water available to possibly infiltrate to the subsurface and indications of fairly continuous caliche, we believe minimal impact to the shallow subsurface water zone occurred during the overtopping.

Two consulting engineers visited the site on December 30, 2008 to evaluate the erosion on the Salt Pile and provide options for the plan for controlling storm water and minimizing erosion of the earthen cover on the Salt Pile as required by the September 9, 2009 Discharge Permit Renewal. This plan is due for submittal to the NMED by March 7, 2009. These engineers will also propose options for providing additional water containment capacity for the SSE run-off.

4.0 SUMMARY OF ACTIVITIES RELATED TO THE SHALLOW SUBSURFACE WATER (SSW) MONITORING AND SAMPLING PROGRAM

Water levels in the shallow wells (PZ-1 through PZ-15, C-2811, C-2505, C-2506, and C-2507), Figure 4-1, were obtained September 24-25 and December 3-4, 2008, and are included in Table 3. These were taken on the quarterly milestones outlined in Table 2, Ground Water Monitoring Schedule, in the September 9, 2008, DP-831 Modification. Total rainfall in the area of WIPP for this reporting period was 10.16 inches compared to 10.08 inches for the same time period in 2007.

The largest decrease in water level was 1.75 feet identified in PZ-14, north of the Site and Preliminary Design Validation pile. The smallest decrease in water level over this period was -0.07 feet in PZ-9, inclusive of all SSW monitoring points. The average groundwater decrease around the lined ponds (PZ-10, PZ-12, PZ-7, PZ-11) was 0.39 feet for this reporting period. All SSW wells reported a decrease in elevation for all of 2008. Figure 4-2 presents a potentiometric surface map of water level elevations recorded in the SSW monitoring points for December 2008. Appendix A presents historical hydrographs of all SSW monitoring points since installation.

WQSP-6A was sampled in September 2008 as part of the WIPP Hazardous Waste Facility Permit Detection Monitoring Program (Table 3). Data for WQSP-6A are provided in this report in Table 3.

Sulfate, nitrate, chloride, and total dissolved solids (TDS) concentrations were detected in WQSP-6A samples at concentrations exceeding the standards of 20.6.2.3103 NMAC, *Standards for Ground Water of 10,000 mg/L TDS Concentration or Less for Human Health and Domestic Water Supply*. Although the concentrations were higher than the standards, they are less than background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285). Total Kjeldahl nitrogen (TKN) was below the detection limit of 5 mg/L. The shallow subsurface water identified at the WIPP site has not impacted the Dewey Lake groundwater in WQSP-6A based on the consistency of analyzed parameters in WQSP-6A.

The SSW piezometers were sampled for field and general chemistry parameters in October 2008 as required by the September 9, 2008, modification to DP-831. Six piezometers were sampled on October 13, 2008, and five on October 14, 2008. Results for the field sampling parameters and laboratory analyses are presented in Table 3. Chloride concentrations exceeded values listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply in all shallow piezometers sampled. The maximum chloride concentration was 160,000 mg/L in PZ-13, while the minimum concentration was 290 mg/L in PZ-10. Total dissolved solids concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in all shallow piezometers sampled, with the maximum concentration of 230,000 mg/L in PZ-13. Sulfate concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in 9 of 11 piezometers sampled with a maximum concentration of 4,100 mg/L in PZ-9.

Appendix B presents all historical chemical analysis results for the SSW monitoring points obtained since incorporation into the DP-831 permit. Appendix B presents all historical chemical analysis results for the SSW monitoring points obtained since incorporation into the DP-831 permit, collected in accordance with the *WIPP Shallow Subsurface Water and Evaporation Basin Monitoring Plan dated July 25, 2003.*

TABLE 3
SUMMARY OF SHALLOW SUBSURFACE WATER LEVELS, FIELD PARAMETERS AND ANALYTICAL RESULTS

	Water Level Monitoring (Ft AMSL)		Field Parameters			General Chemistry Parameters					Other
Monitoring Site	9/24-25/08	12/3-4/08	pH (SU)	Temp. (^{0}C)	Specific Conductivity @25 ^{0}C (µS/cm)	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)
PZ-1	3,372.58	3,372.30	6.47	21.3	114,900	10/14/08	NS	**2,200**	**59,000**	**94,000**	NS
PZ-2	3,372.31	3,372.00	NA	NA	NA	NS	NS	NS	NS	NS	NS
PZ-3	3,373.67	3,373.39	NA	NA	NA	NS	NS	NS	NS	NS	NS
PZ-4	3,367.41	3,367.17	NA	NA	NA	NS	NS	NS	NS	NS	NS
PZ-5	3,374.34	3,374.03	7.26	18.7	36,230	10/14/08	NS	**1,400**	**13,000**	**25,000**	NS
PZ-6	3,371.31	3,371.11	6.48	20.4	112,400	10/14/08	NS	**2,500**	**58,000**	**87,000**	NS
PZ-7	3,377.80	3,377.93	6.4	24.7	59,800	10/13/08	NS	**1,700**	**27,000**	**42,000**	NS
PZ-8	3,355.60	3,355.61	NA	NA	NA	NS	NS	NS	NS	NS	NS
PZ-9	3,364.49	3,364.74	6.33	18.7	161,100	10/14/08	NS	**4,100**	**96,000**	**140,000**	NS
PZ-10	3,370.17	3,370.08	7.15	22.3	2,066	10/13/08	NS	**380**	**290**	**1,400**	NS
PZ-11	3,375.04	3,375.16	6.24	22.4	135,900	10/13/08	NS	**3,000**	**79,000**	**110,000**	NS
PZ-12	3,358.99	3,359.03	6.74	21.4	11,620	10/13/08	NS	**850**	**3,300**	**7,000**	NS
PZ-13	3,357.69	3,357.71	6.09	24.1	>200,000	10/13/08	NS	**2,900**	**160,000**	**230,000**	NS
PZ-14	3,354.03	3,354.15	NA	NA	NA	NS	NS	NS	NS	NS	NS
PZ-15	3,384.48	3,384.76	NA	NA	NA	NS	NS	NS	NS	NS	NS
C-2811	3,345.87	3,346.31	7.12	21.0	3,711	10/13/08	NS	**320**	**1,000**	**2,100**	NS
C-2505	3,369.00	3,368.74	NA	NA	NA	NS	NS	NS	NS	NS	NS
C-2506	3,369.47	3,369.24	NA	NA	NA	NS	NS	NS	NS	NS	NS
C-2507	3,365.99	3,365.76	7.06	19.0	8,260	10/14/08	NS	**940**	**2,200**	**5,100**	NS
WQSP-6a (Round 27)	3,196.63[1]	3,197.01[2]	7.16	22.8	3,908	9/10/08	**5.69**	**2,030**	**348**	**3,150**	<5

Explanation: [1] **Water Level Measurement Taken on 9/24/08**

[2] **Water Level Measurement Taken on 12/03/08**

NS: Not Sampled as per permit conditions

"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply

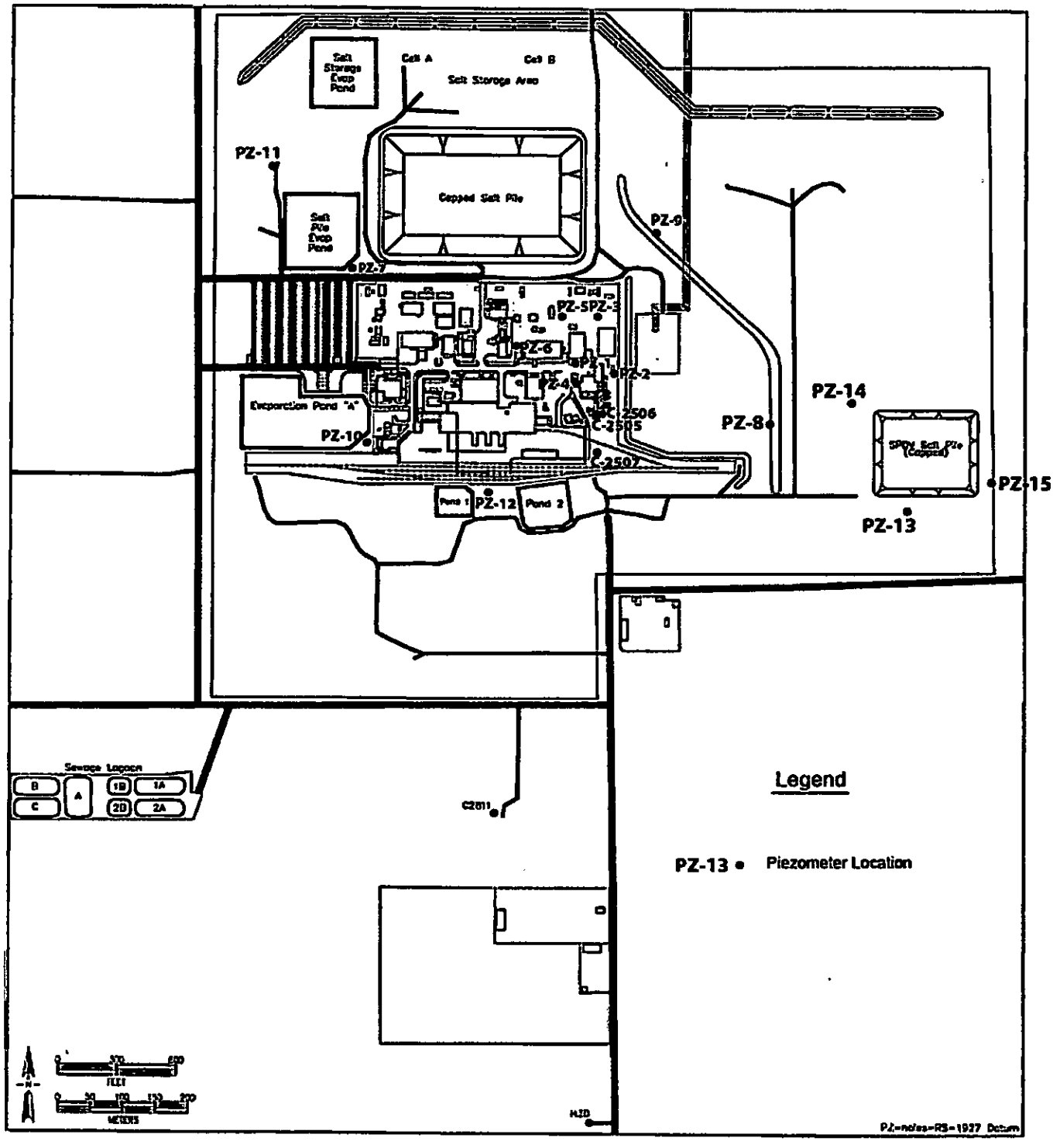
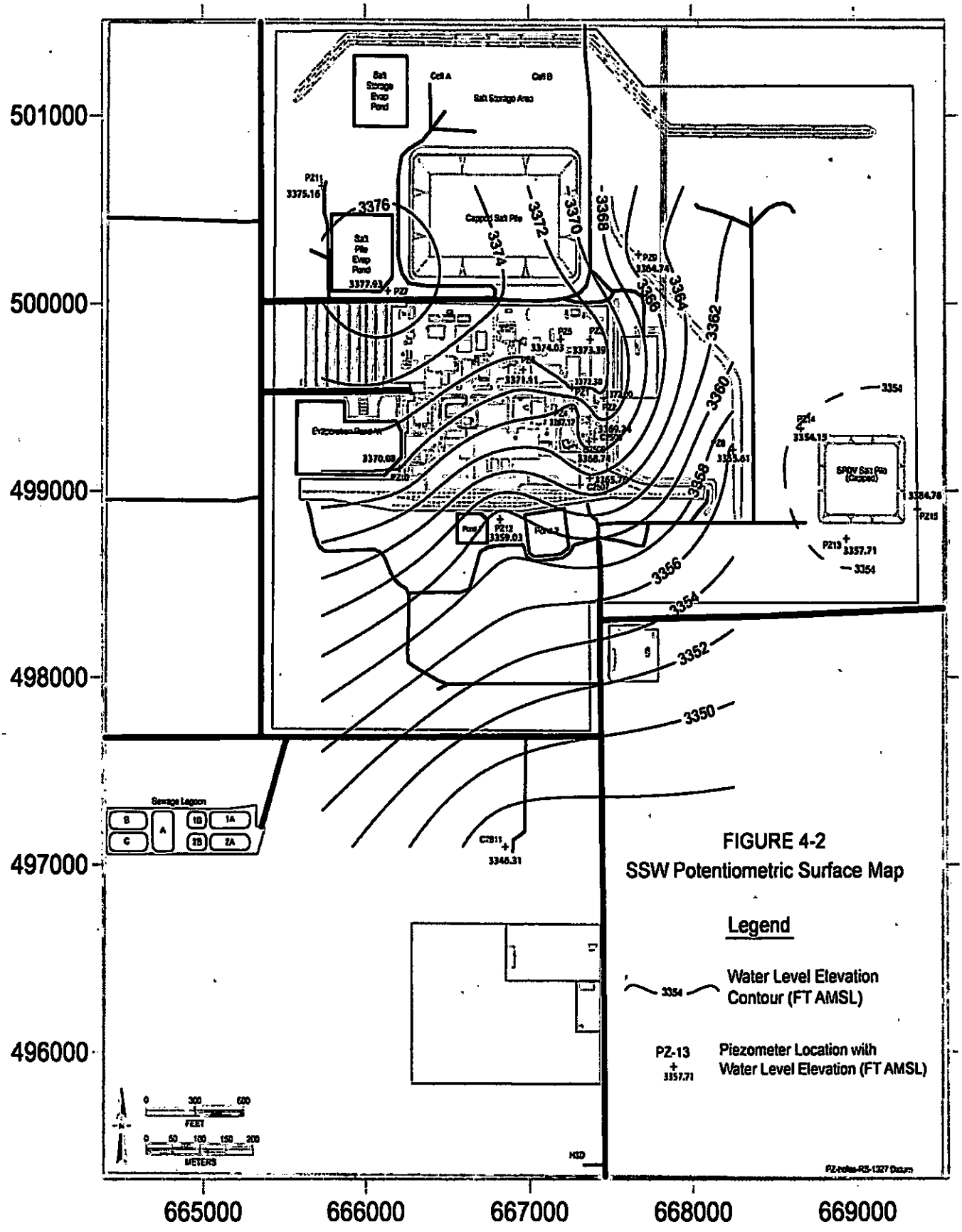


Figure 4-1 WIPP Site Map

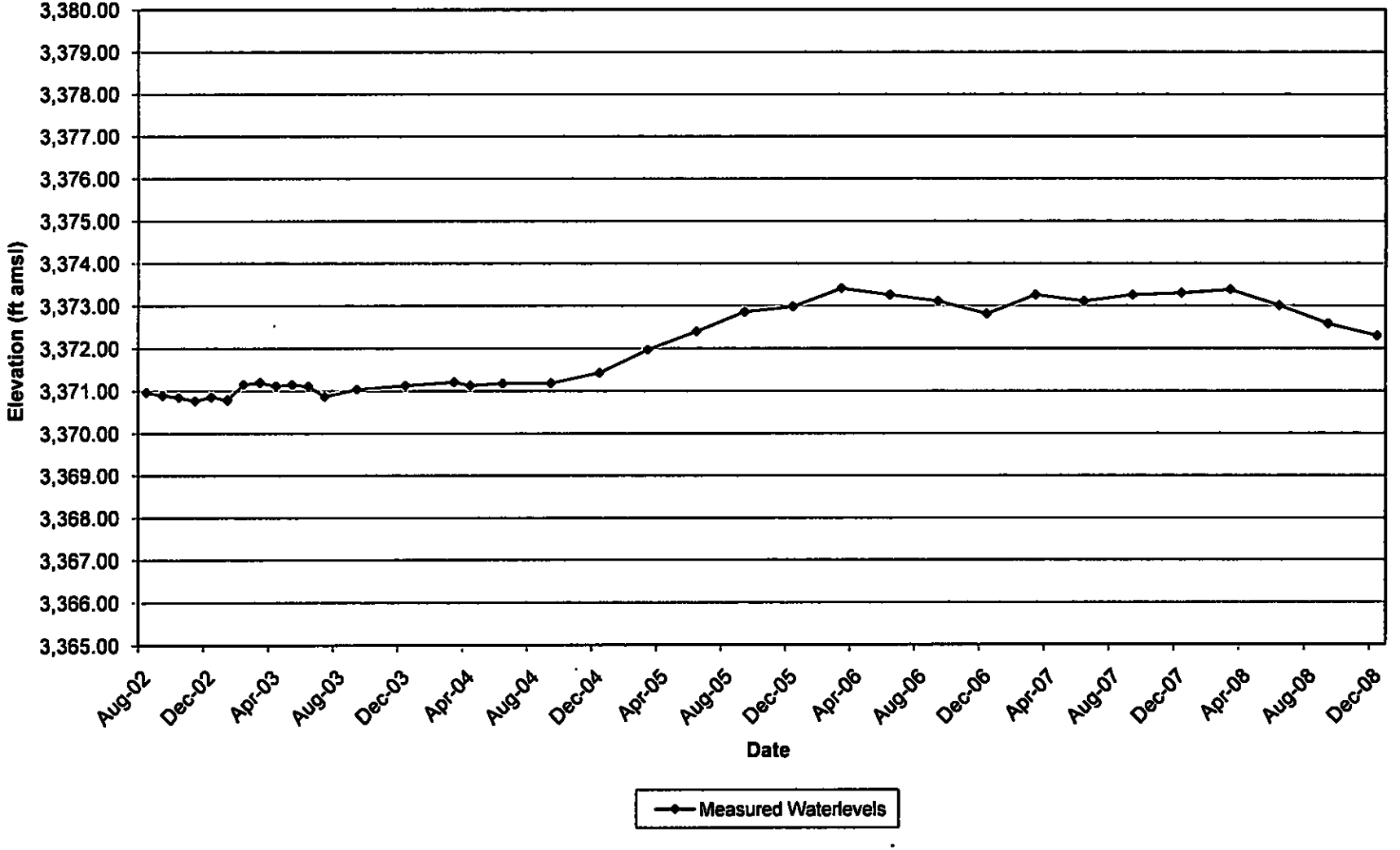

501000
500000
499000
498000
497000
496000
665000
666000
667000
668000
669000
Salt Storage Evap Pond
Cell A
Cell B
Salt Storage Area
Capped Salt Pile
Salt Pile Evap Pond
PZ11
3375.16
3376
3374
3372
3370
3368
3366
3364
3362
3360
3358
3356
3354
3352
3350
PZ9
3364.74
PZ5
3374.03
PZ6
3373.39
PZ7
3372.39
PZ8
3371.61
PZ1
PZ2
PZ10
3370.08
PZ12
3359.03
Pond 1
Pond 2
PZ14
3354.15
SPDV Salt Pile (Capped)
3354.76
PZ15
PZ13
3357.71
Sewage Lagoon
S
C
A
1B
1A
2B
2A
C2B11
3346.31
FIGURE 4-2
SSW Potentiometric Surface Map
Legend
3354
Water Level Elevation Contour (FT AMSL)
PZ-13
3357.71
Piezometer Location with Water Level Elevation (FT AMSL)
0 300 600
FEET
0 50 100 150 200
METERS

04469

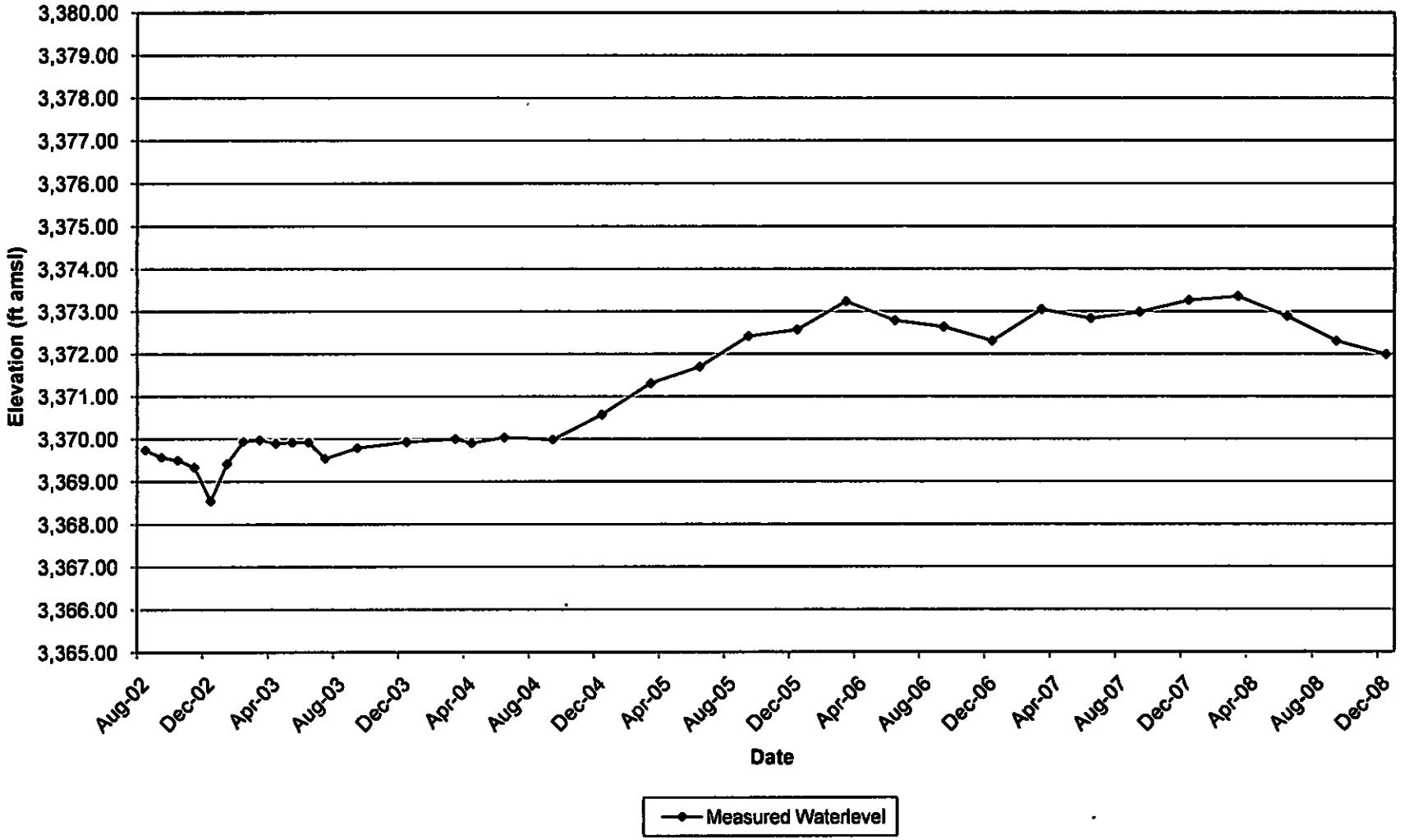
Appendix A

Historical Hydrographs for SSW Piezometers/Wells

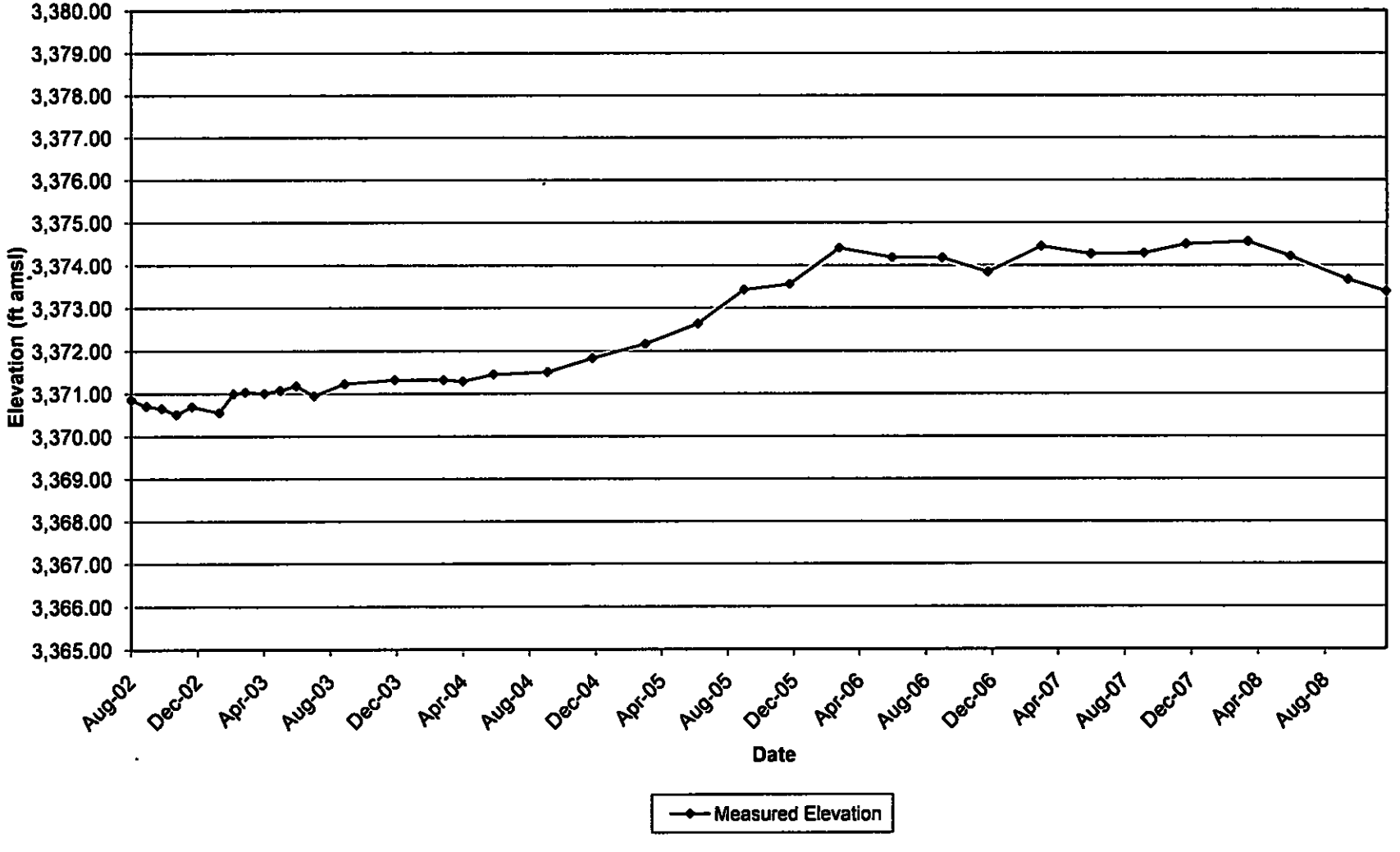
PZ-01, Santa Rosa/Dewey Lake
Historical Waterlevel Measurements



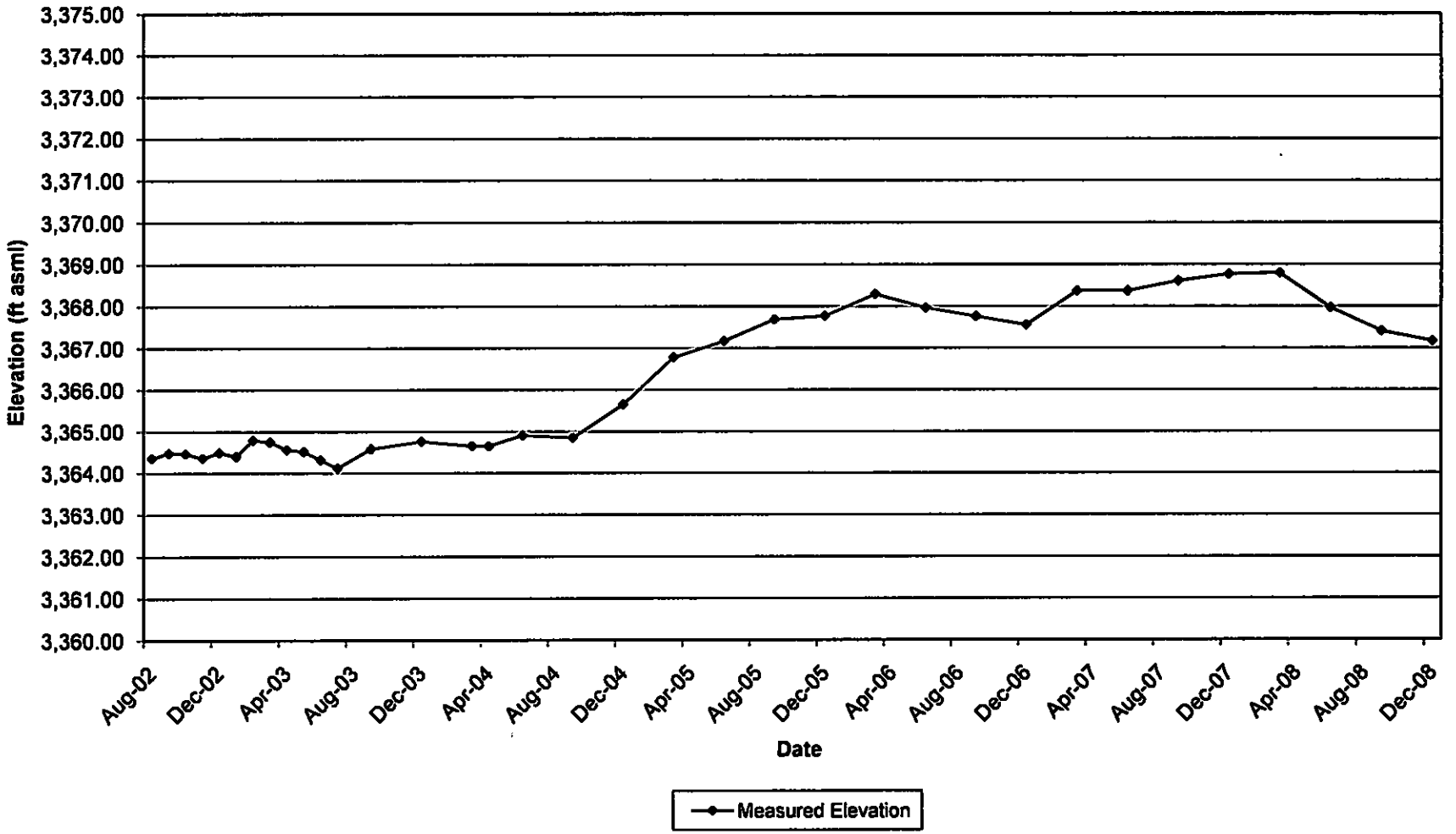
PZ-02, Santa Rosa/Dewey Lake
Historical Waterlevel Measurements



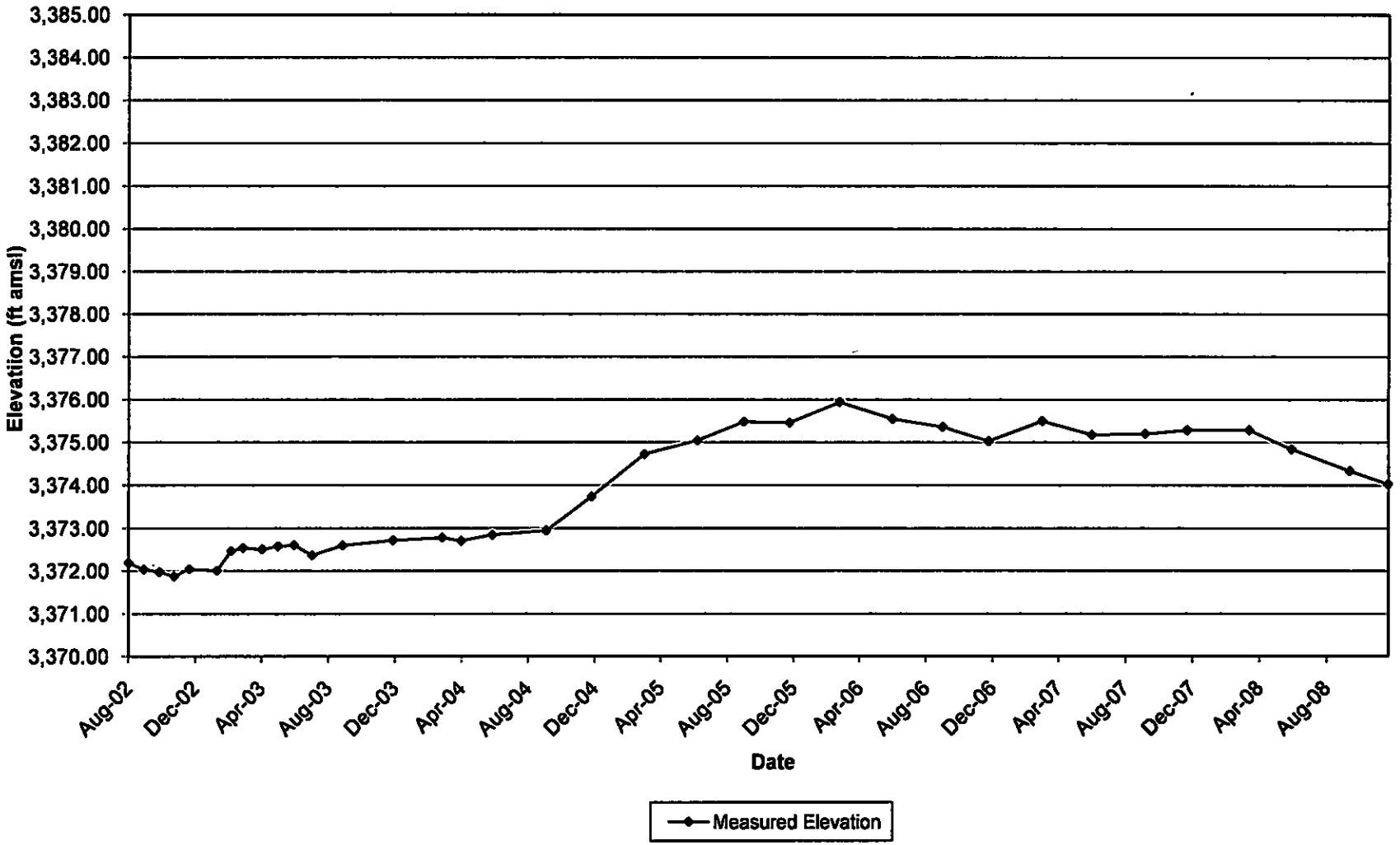
PZ-03 Santa Rosa/Dewey Lake
Historical Waterlevel Measurements



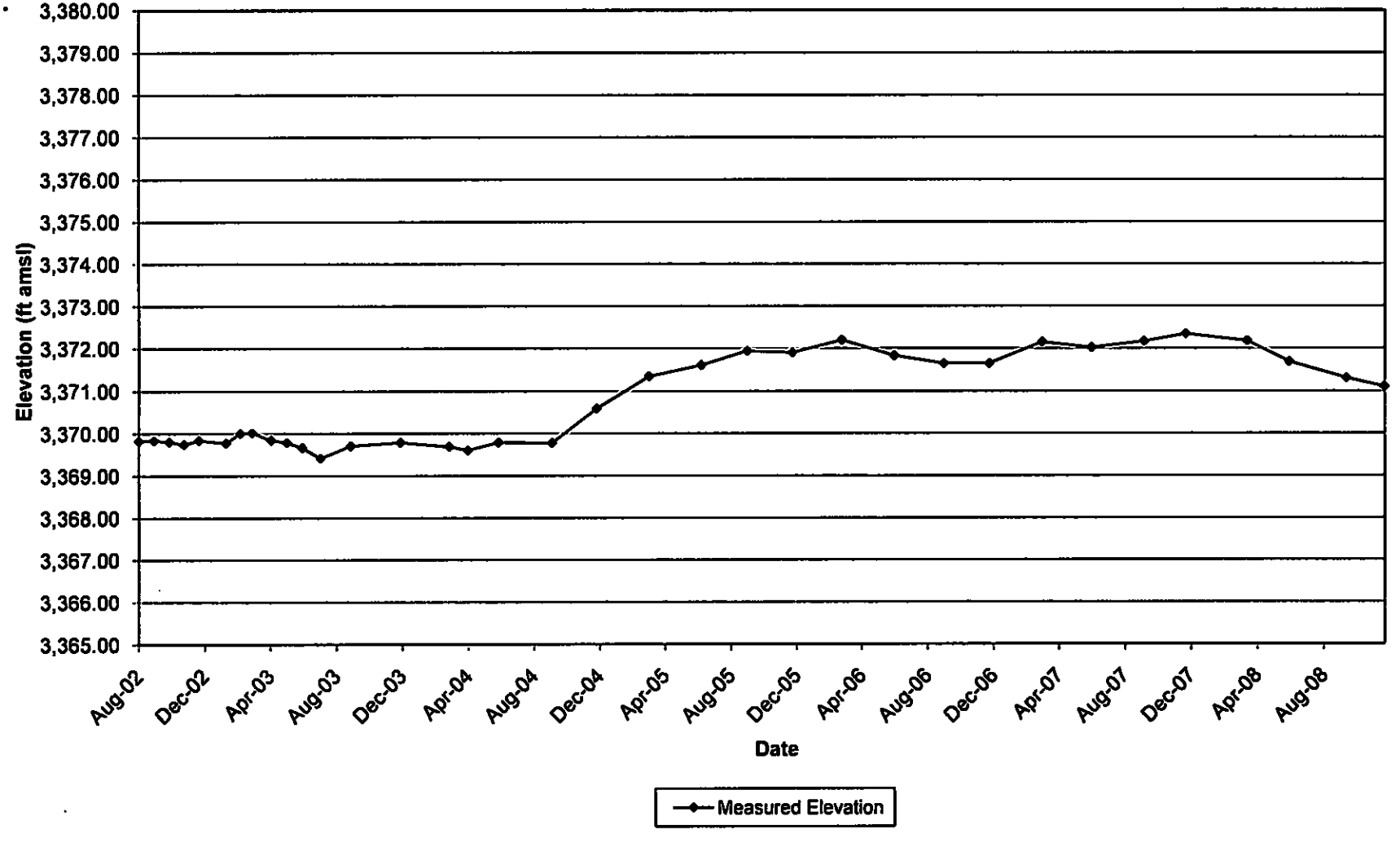
PZ-04 Santa Rosa/Dewey Lake
Historical Waterlevel Measurements



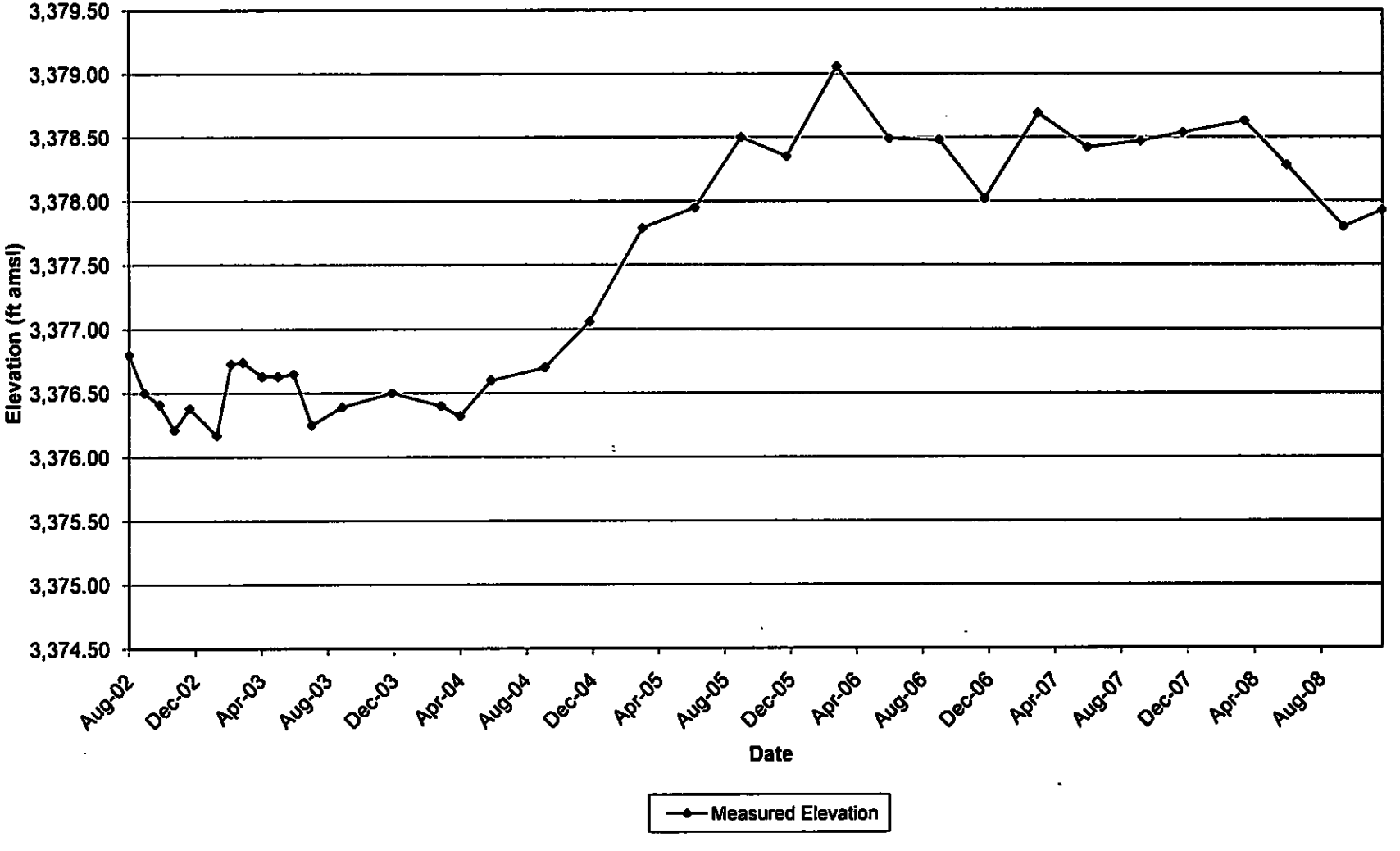
PZ-05 Santa Rosa/Dewey Lake
Histroical Waterlevel Measurements



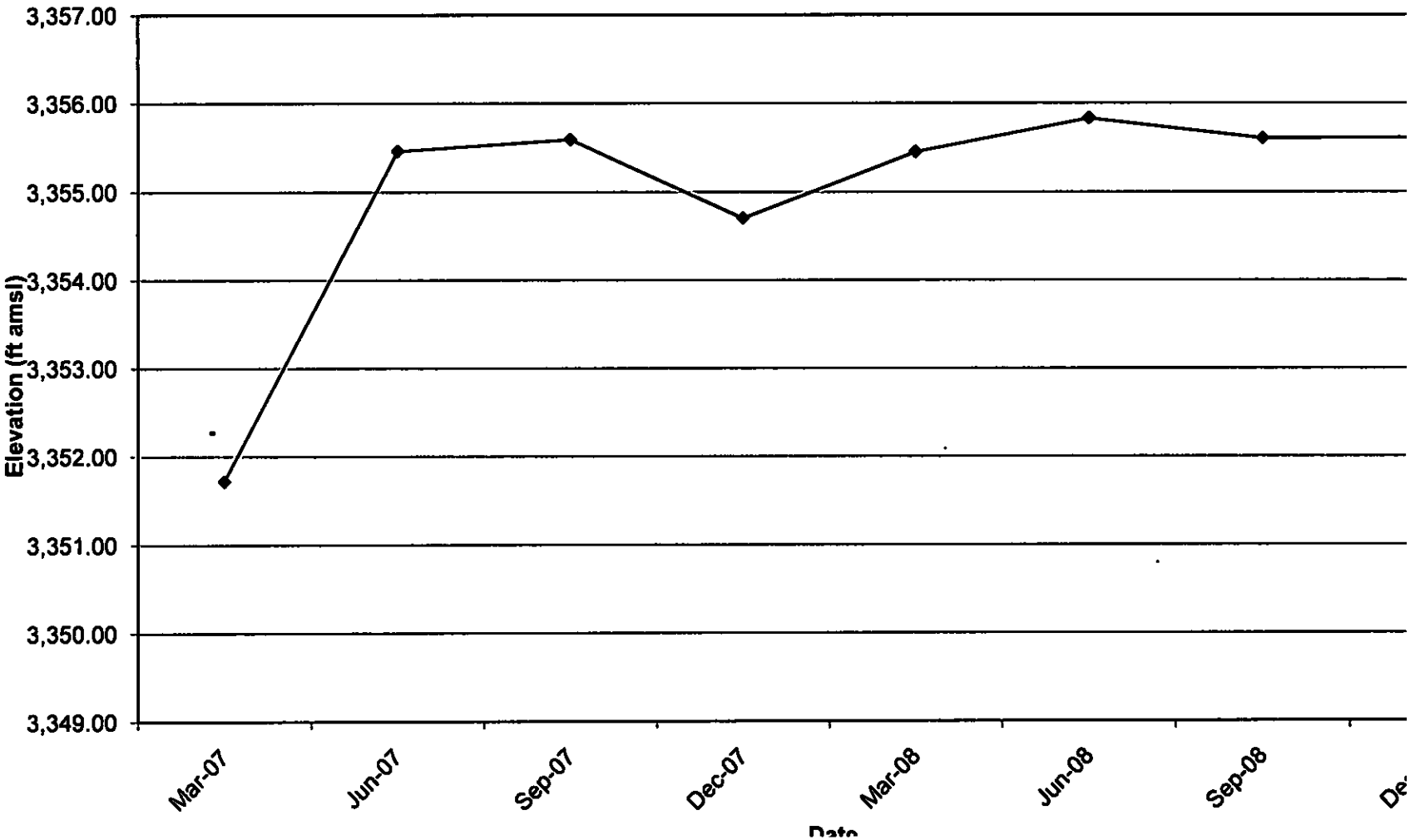
PZ-06 Santa Rosa
Historical Waterlevel Measurements



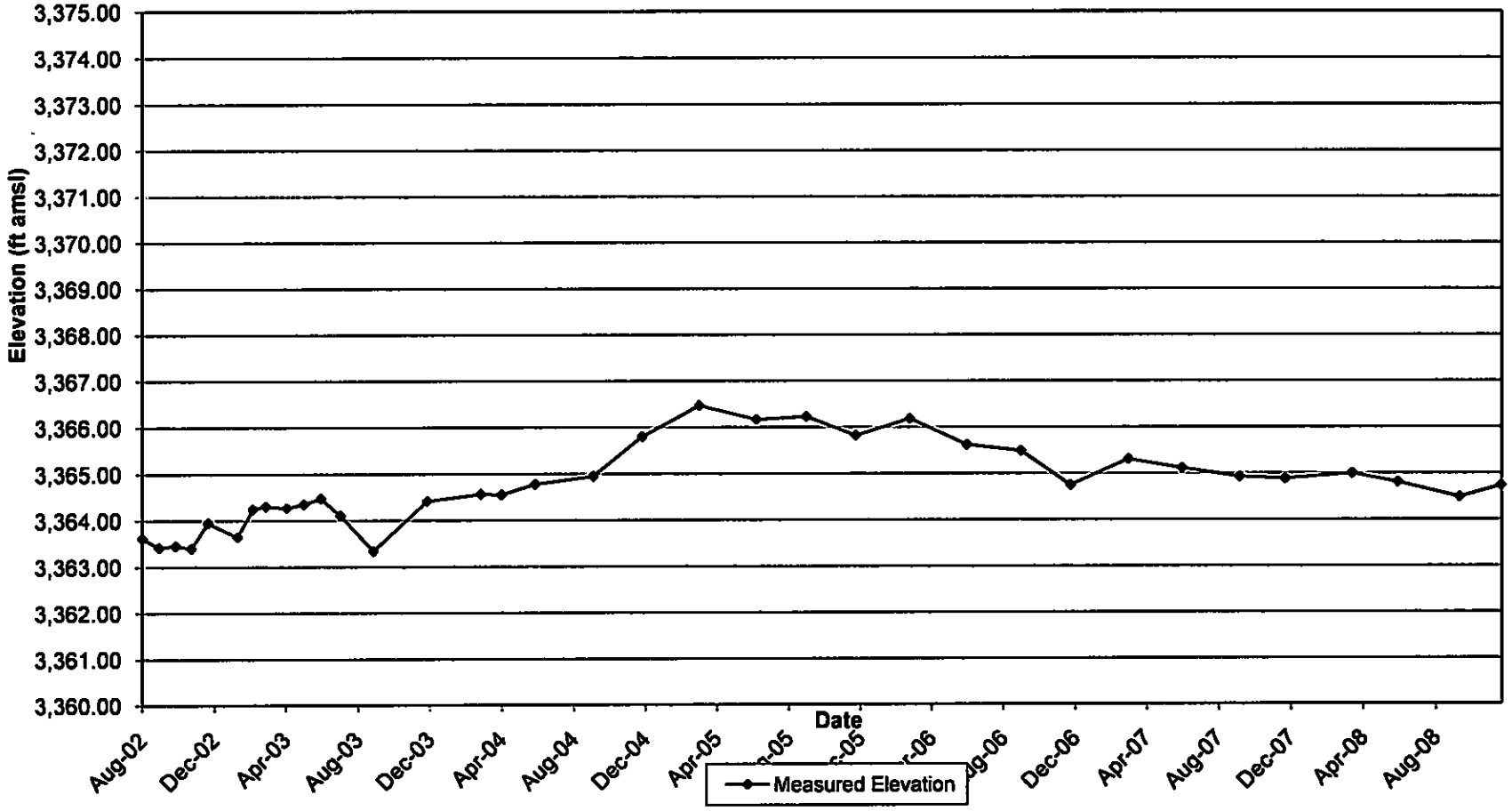
PZ-07 Santa Rosa/Dewey Lake
Historical Waterlevel Measurements



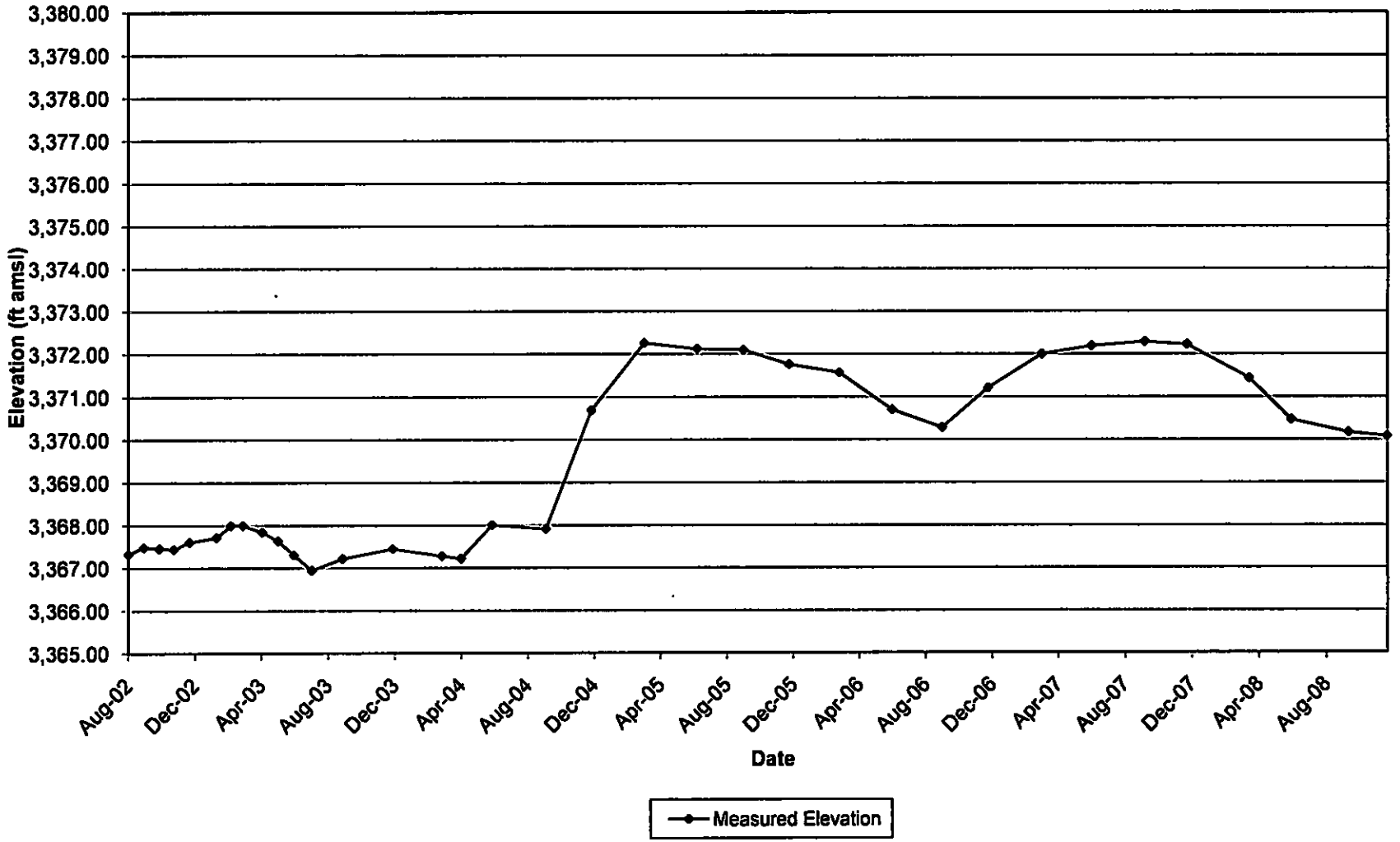
PZ-08 Santa Rosa/Dewey Lake
Historical Waterlevel Measurements



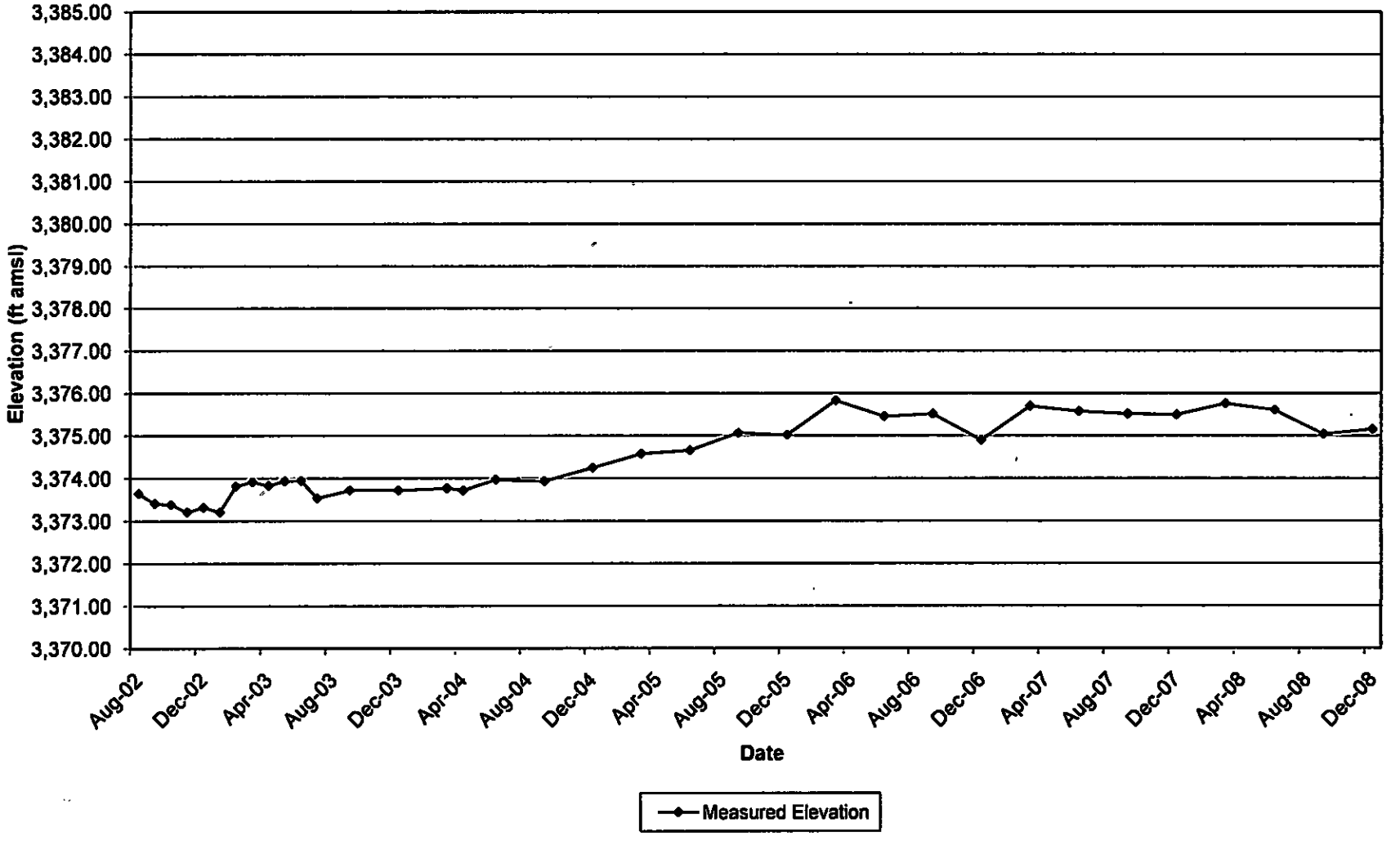
PZ-09 Santa Rosa/Dewey Lake
Historical Waterlevel Measurements



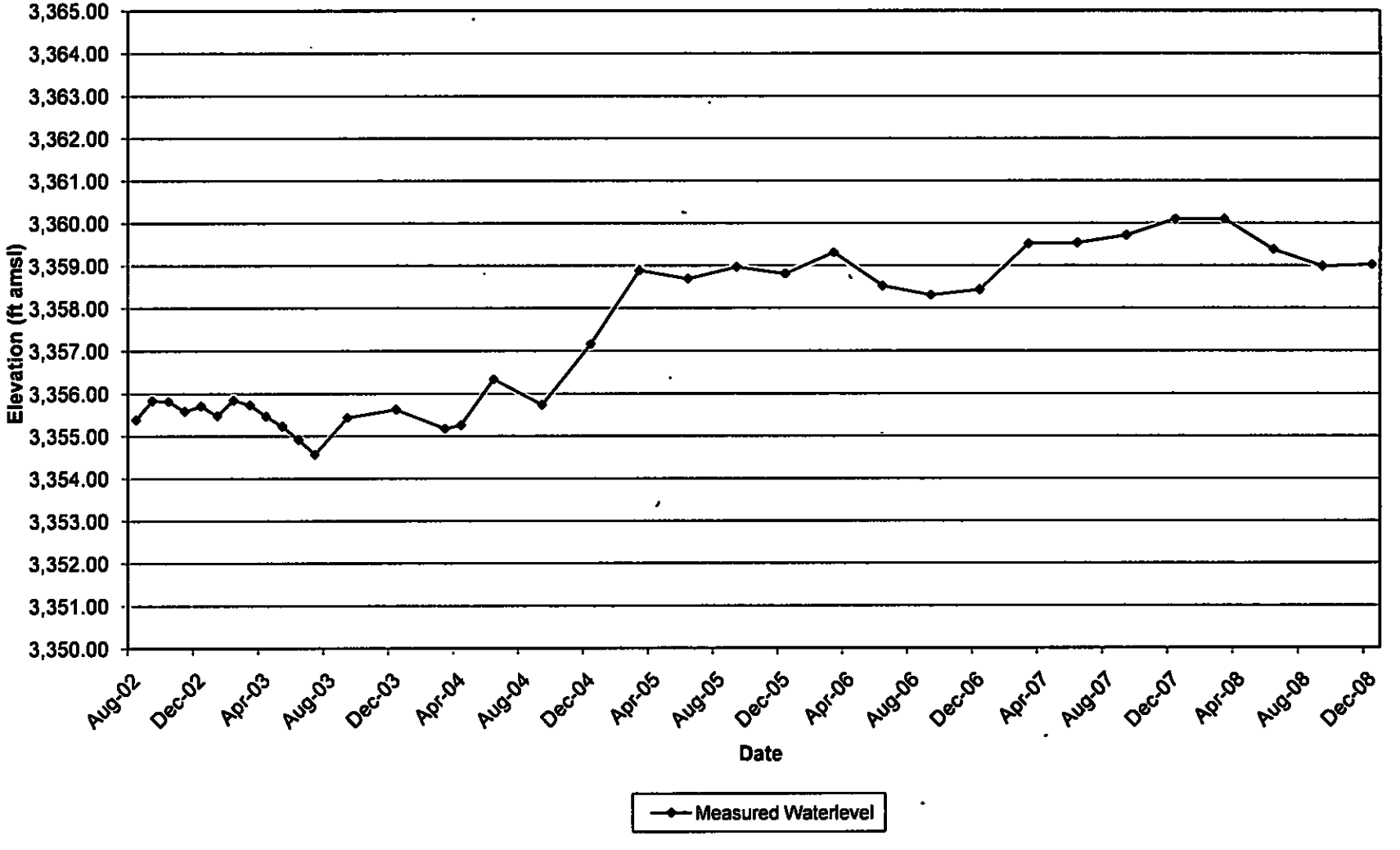
PZ-10 Santa Rosa/Dewey Lake
Historical Waterlevel Measurements



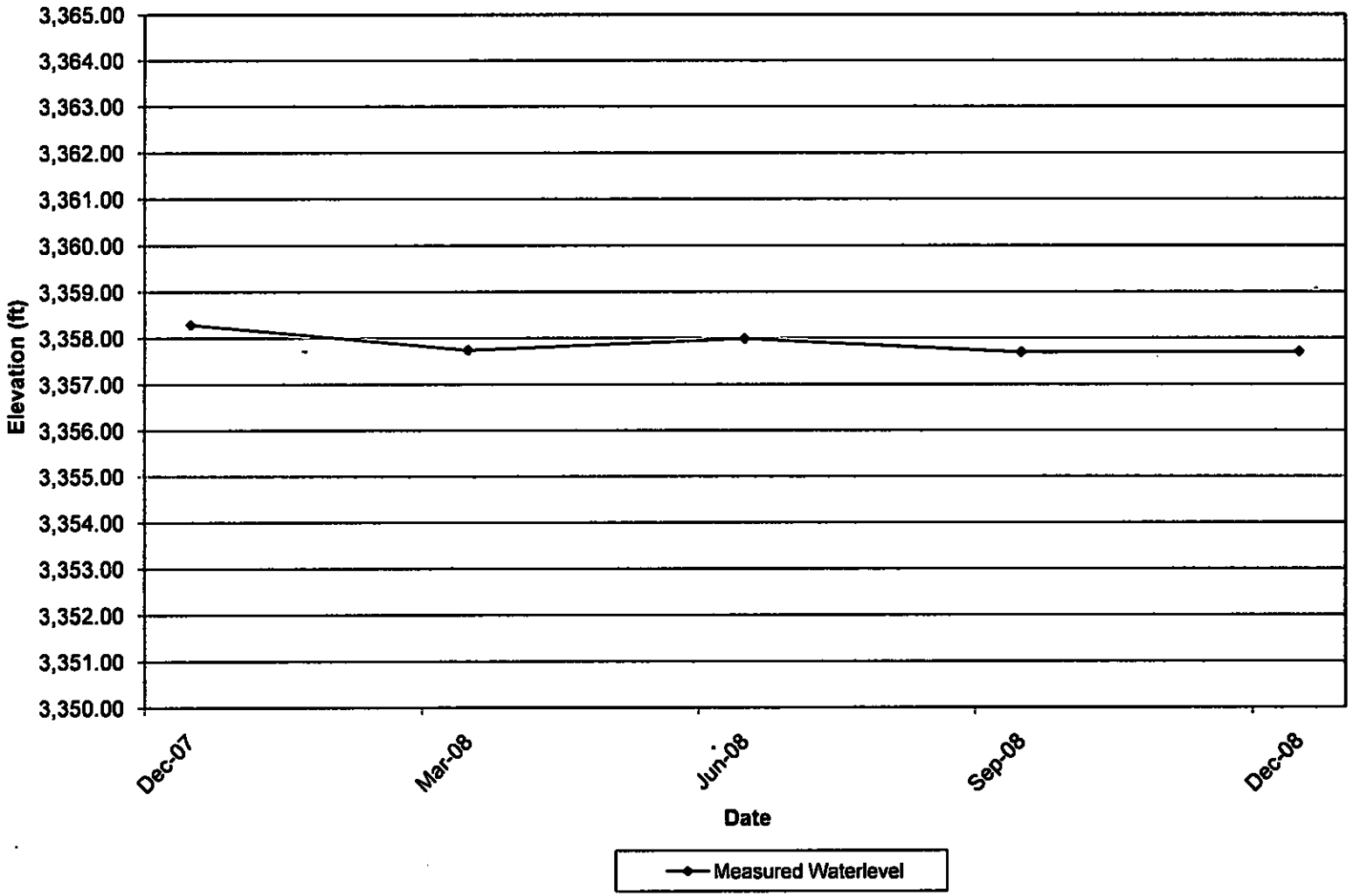
PZ-11 Santa Rosa/Dewey Lake
Historical Waterlevel Measurements



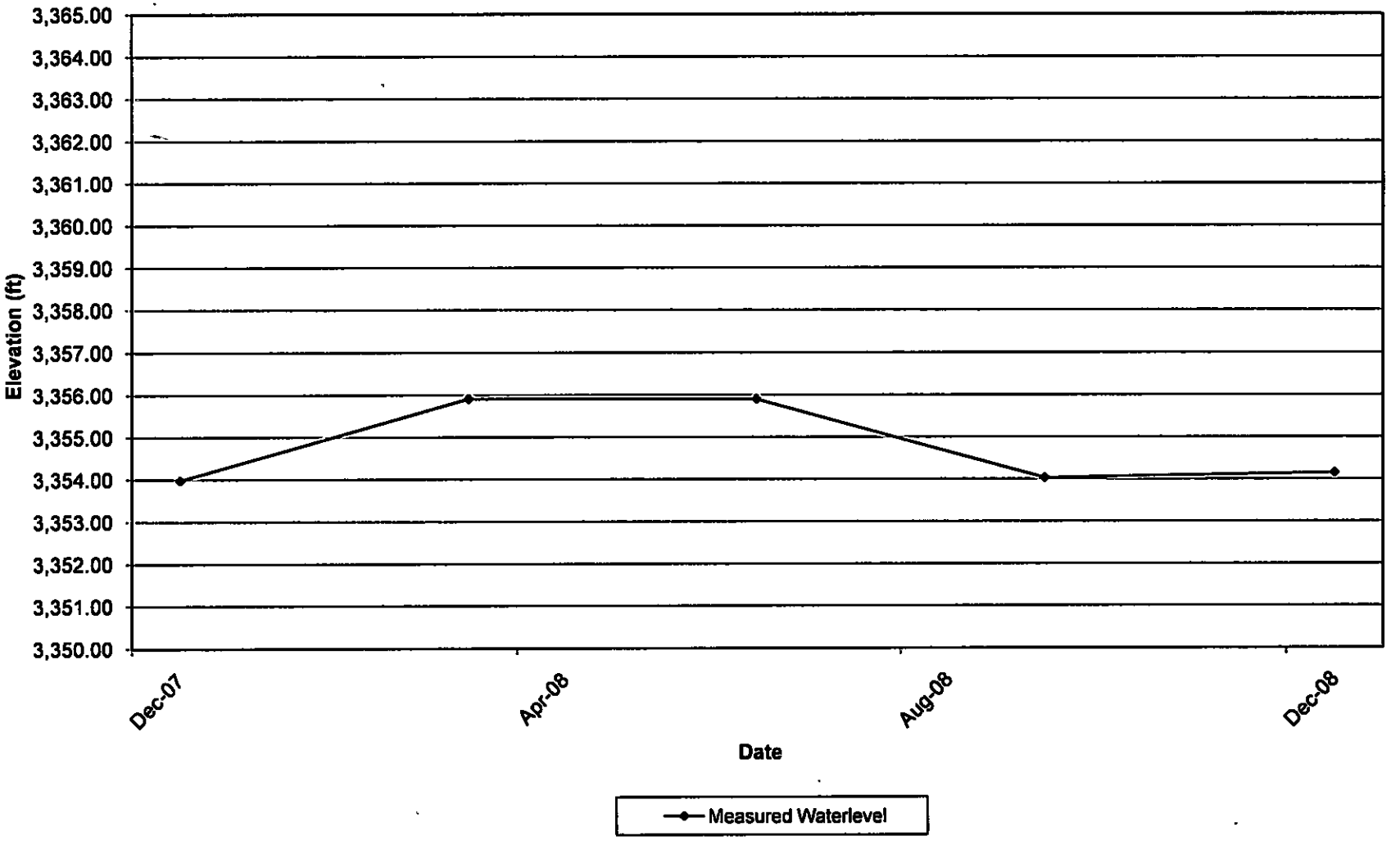
PZ-12 Santa Rosa/Dewey Lake
Historical Waterlevel Measurements



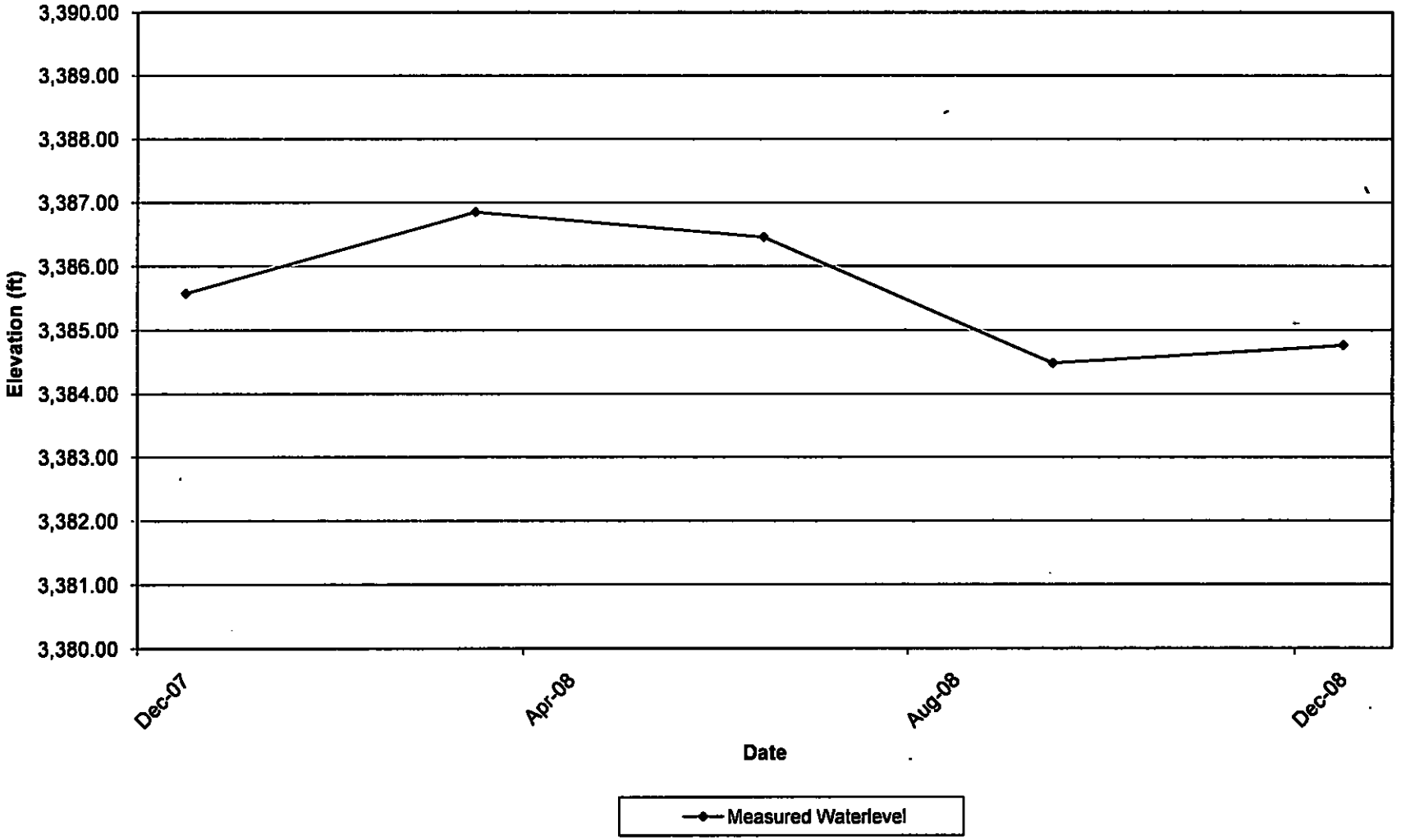
PZ-13, Santa Rosa/Dewey Lake
Historical Waterlevel Measurements



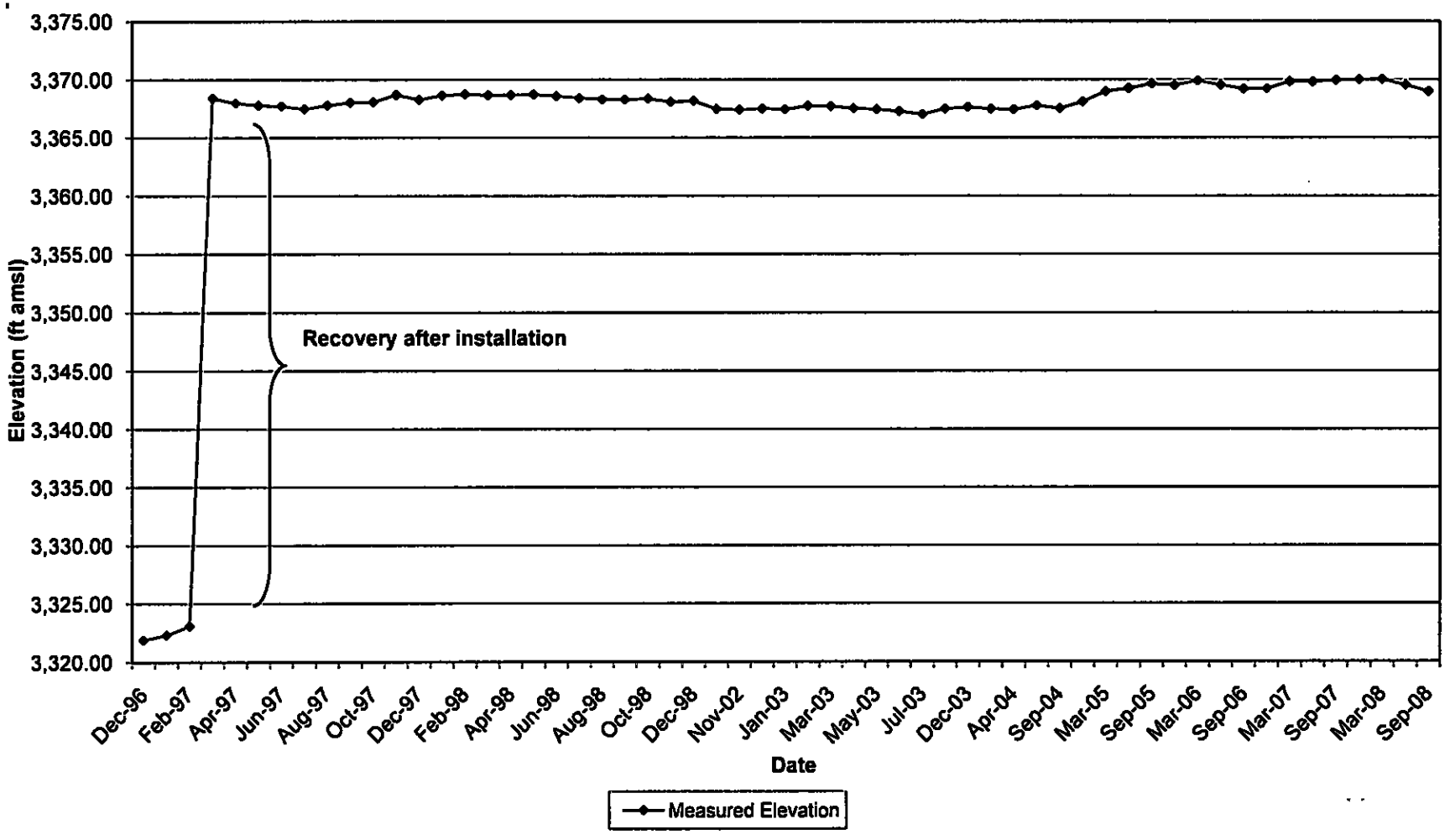
PZ-14, Santa Rosa/Dewey Lake
Historical Waterlevel Measurements



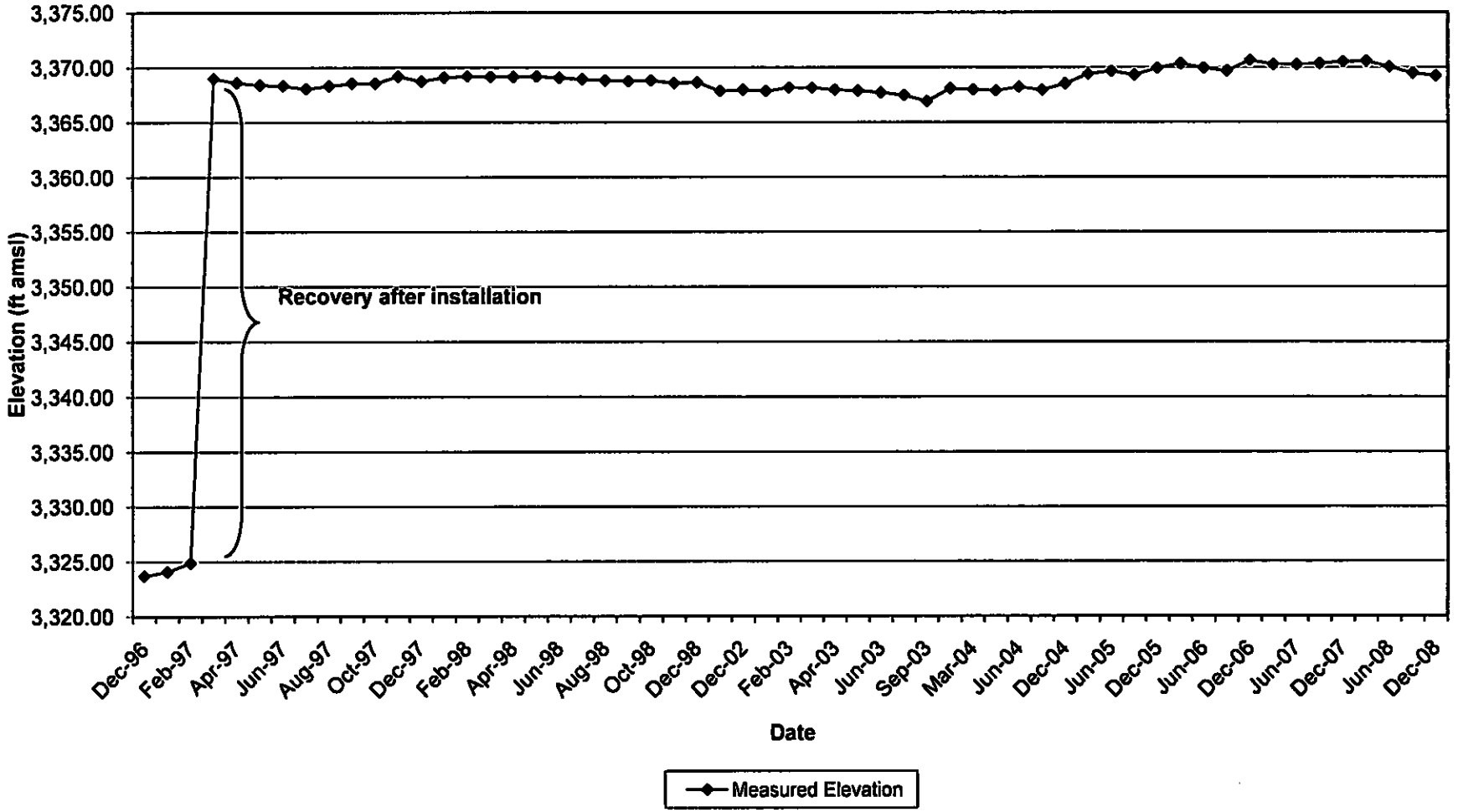
PZ-15, Gatuna
Historical Waterlevel Measurements



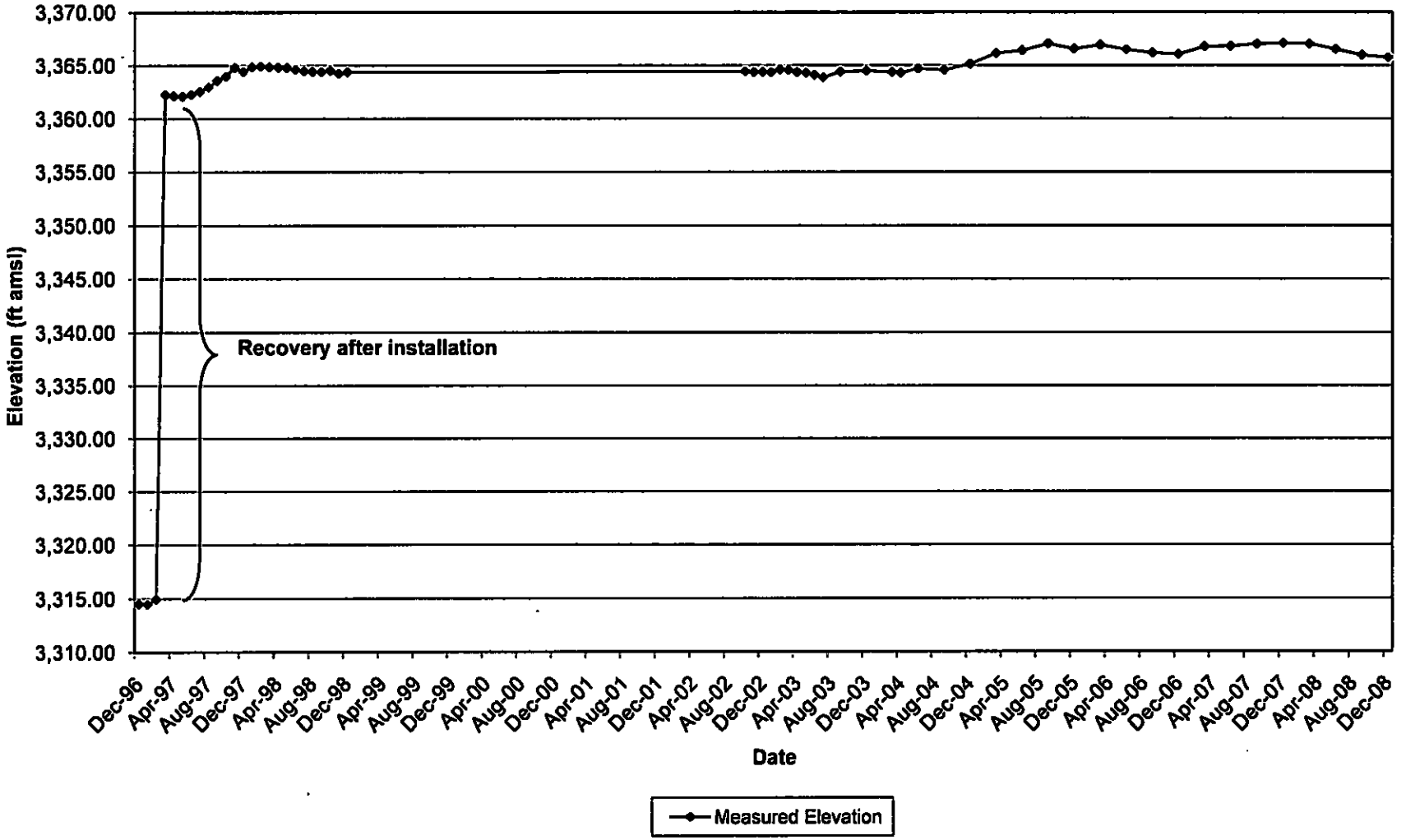
C-2505 Santa Rosa/Dewey Lake
Historical Waterlevel Measurements



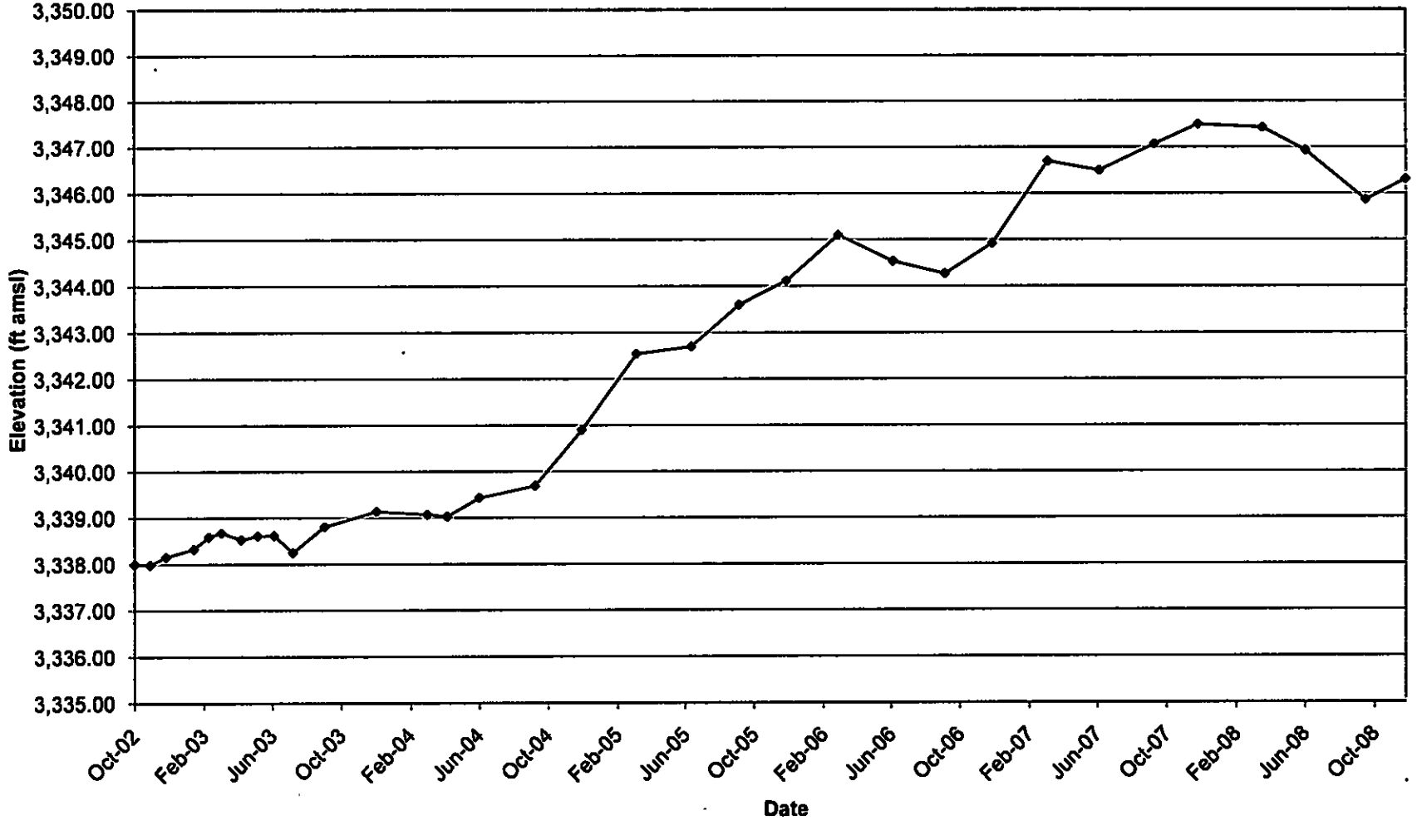
C-2506 Santa Rosa/Dewey Lake
Historical Waterlevel Measurements



C-2507 Santa Rosa/Dewey Lake
Historical Waterlevel Measurements



C-2811 Santa Rosa/Dewey Lake
Historical Waterlevel Measurements



Appendix B

Historical Chemistry Data for SSW Piezometers/Wells

HISTORICAL CHEMISTRY DATA FOR SSW PIEZOMETERS/WELLS

Shallow Subsurface Water Quality Sampling Results

	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-1	6/21/04	<10	1,530	36,300	79,600	0.0440	<0.00500
PZ-1	11/09/04	1.30	6,530	45,700	85,800	0.106	<0.0100
PZ-1	5/17/05	1.47	2,640	62,300	100,500	0.0600	0.0770
PZ-1	10/11/05	2.59	1,950	54,900	74,800	0.0430	<0.0100
PZ-1	5/16/06	<2.5	2,490	62,400	113,000	0.0510	<0.0100
PZ-1	10/10/06	<1.00	1,390	55,300	70,200	<0.0500	<0.0250
PZ-1	5/09/07	2.70	2,220	63,000	107,000	<0.0500	<0.0250
PZ-1	10/09/07	<1.00	2,820	83,200	99,500	<0.1000	<0.0250
PZ-1	6/5/08	<2.0	2,100	57,000	98,000	0.667	0.00218
PZ-1	10/14/08	NS	2,200	59,000	94,000	NS	NS
PZ-5	6/21/04	20.7	1,340	28,800	55,200	0.0670	<0.00500
PZ-5	11/09/04	<2.50	1,820	47,800	86,000	0.0940	<0.0100
PZ-5	5/17/05	2.96	3,260	46,000	65,400	0.0930	0.0670
PZ-5	10/11/05	5.14	769	14,000	32,800	0.0620	<0.0100
PZ-5	5/16/06	2.56	1,520	18,300	32,600	0.0710	<0.0100
PZ-5	10/10/06	5.04	1,330	28,800	47,400	<0.0500	<0.0250
PZ-5	5/09/07	4.60	1,640	17,300	32,400	<0.0500	<0.0250
PZ-5	10/09/07	<1.00	1,880	19,400	28,700	0.0710	<0.005
PZ-5	6/5/08	5.7	1,500	19,000	33,000	0.0801	0.00317
PZ-5	10/14/08	NS	1,400	13,000	25,000	NS	NS
PZ-6	6/21/04	21.2	2,860	70,500	134,000	0.0170	<0.00500
PZ-6	11/09/04	4.89	13,000	75,400	113,000	0.0600	<0.0100
PZ-6	5/17/05	4.25	3,610	109,000	160,500	0.0500	0.0540
PZ-6	10/11/05	<20.0	2,850	83,800	106,000	0.0210	<0.0100
PZ-6	5/16/06	7.69	3,050	68,800	115,000	<0.0100	<0.0100
PZ-6	10/10/06	252	2,790	79,800	134,000	<0.0500	<0.0250
PZ-6	5/09/07	6.65	2,840	73,500	122,500	<0.0500	<0.0250
PZ-6	10/09/07	<1.00	3,080	81,000	105,000	<0.1000	<0.0250
PZ-6	6/5/08	6.1	2,100	47,000	81,000	0.0412	0.00259
PZ-6	10/14/08	NS	2,500	58,000	87,000	NS	NS
PZ-7	6/21/04	20.7	2,620	53,000	109,000	0.041	<0.00500
PZ-7	11/08/04	2.89	7,460	43,600	80,400	0.0880	<0.0100
PZ-7	5/16/05	4.02	2,530	42,100	65,900	0.0820	0.0940
PZ-7	10/10/05	6.37	2,770	61,000	88,000	0.0470	<0.0100
PZ-7	5/15/06	<5.3	3,190	54,100	139,000	0.0680	<0.0100
PZ-7	10/9/06	<1.00	2,890	66,800	81,500	<0.00100	<0.0500
PZ-7	5/07/07	5.15	3,190	64,800	119,000	<0.0200	0.0200
PZ-7	10/08/07	<1.00	2,660	45,600	65,000	0.0640	<0.00500
PZ-7	6/4/08	5.0	2,300	49,000	86,000	0.0635	0.00257
PZ-7	10/13/08	NS	1,700	27,000	42,000	NS	NS

Shallow Subsurface Water Quality Sampling Results

	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-8	10/15/07	0.677	500	7,440	15,000	0.039	<0.00500
PZ-8	6/6/08	1.8	630	11,000	16,000	0.0655	<0.001
PZ-9	6/21/04	<20.0	3,740	80,200	140,000	<0.0100	<0.00500
PZ-9	11/09/04	1.40	14,500	92,400	144,000	0.0660	<0.0100
PZ-9	5/17/05	2.82	5,090	182,000	164,000	0.0500	0.0710
PZ-9	10/11/05	<20.0	3,930	85,500	107,000	0.0220	<0.0100
PZ-9	5/16/06	3.01	4,350	84,700	153,000	0.0230	<0.0100
PZ-9	10/10/06	<20.0	3,370	102,000	135,000	<0.0500	<0.0250
PZ-9	5/09/07	3.28	4,320	89,600	164,000	<0.0500	<0.0250
PZ-9	10/09/07	<200	4,720	116,000	144,000	<0.0200	<0.0050
PZ-9	6/5/08	2.2	4,400	87,000	150,000	0.0351	0.00492
PZ-9	10/14/08	NS	4,100	96,000	140,000	NS	NS
PZ-10	6/14/04	3.81	469	368	1,714	0.0200	<0.00500
PZ-10	11/08/04	3.69	431	353	1,576	<0.0500	<0.0100
PZ-10	5/16/05	3.63	572	416	1,756	0.0440	0.0370
PZ-10	10/10/05	3.34	515	318	1,720	0.0150	<0.0100
PZ-10	5/15/06	3.42	539	460	1,830	0.0140	<0.0100
PZ-10	10/9/06	5.5	549	350	1,600	<0.00100	<0.0500
PZ-10	5/07/07	14.8	407	274	1,504	<0.0200	0.0200
PZ-10	10/08/07	<1.00	211	186	968	0.0260	<0.0050
PZ-10	6/4/08	4.5	390	300	1,500	0.0144	0.00119
PZ-10	10/13/08	NS	380	290	1,400	NS	NS
PZ-11	6/21/04	20.8	2,220	58,100	123,000	<0.0100	<0.00500
PZ-11	11/08/04	3.15	13,000	84,100	119,000	<0.0500	<0.0100
PZ-11	5/16/05	4.63	2,890	66,000	100,000	<0.0100	<0.0100
PZ-11	10/10/05	<20.0	2,950	84,300	129,000	0.0130	<0.0100
PZ-11	5/15/06	<5.3	3,090	71,000	133,000	<0.0100	<0.0100
PZ-11	10/9/06	<1.00	2,550	85,800	123,000	<0.00100	<0.0500
PZ-11	5/07/07	3.84	2,620	68,700	135,000	<0.0200	<0.0100
PZ-11	10/08/07	<1.00	2,970	94,400	108,000	<0.0200	<0.0050
PZ-11	6/4/08	3.9	2,100	65,000	110,000	0.0149	0.00216
PZ-11	10/13/08	NS	3,000	79,000	110,000	NS	NS
PZ-12	6/14/04	11.2	773	5,320	9,700	0.0770	<0.00500
PZ-12	11/08/04	19.8	879	7,170	9,540	0.0660	<0.0100
PZ-12	5/16/05	8.85	679	3,730	5,890	0.0510	0.0540
PZ-12	10/10/05	426	805	3,790	7,740	0.0200	<0.0100
PZ-12	5/15/06	20.6	866	4,510	8,790	0.0190	<0.0100
PZ-12	10/9/06	13.2	795	5,340	9,150	<0.00100	<0.0500
PZ-12	5/07/07	10.8	831	3,780	7,010	<0.0200	0.0240
PZ-12	10/08/07	<1.00	958	4,310	6,200	0.0260	<0.0050
PZ-12	6/4/08	11	760	3,300	6,800	0.0291	0.00132
PZ-12	10/13/08	NS	850	3,300	7,000	NS	NS

HISTORICAL CHEMISTRY DATA FOR SSW PIEZOMETERS/WELLS

Shallow Subsurface Water Quality Sampling Results

	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-13	10/10/07	12.4	2,670	150,000	245,500	<0.100	<0.00500
PZ-13	6/6/08	<200	2,600	170,000	240,000	0.0118	0.00316
PZ-13	10/13/08	NS	2,900	160,000	230,000	NS	NS
PZ-14	10/15/07	1.41	2,140	71,500	106,000	<0.0100	<0.00500
PZ-14	6/6/08	<100	3,300	130,000	180,000	0.0201	0.00168
PZ-15	10/15/07	2.97	169	764	2,060	0.022	<0.00500
PZ-15	6/6/08	12	160	460	1,600	0.00372	<0.001
C-2811	6/14/04	6.06	299	769	2,022	0.0470	<0.00500
C-2811	11/08/04	7.63	305	1,030	1,996	0.0540	<0.0100
C-2811	5/16/05	6.02	524	1,930	3,740	0.0580	0.0530
C-2811	10/10/05	7.48	584	2,250	4,410	0.0340	<0.0100
C-2811	5/15/06	6.94	511	1,760	3,740	0.0310	<0.0100
C-2811	10/9/06	6.05	402	1,310	2,100	<0.00100	<0.0500
C-2811	5/07/07	5.31	516	1,760	4,205	<0.0200	0.0310
C-2811	10/08/07	<1.00	635	2,980	3,860	0.0510	<0.0050
C-2811	6/4/08	5.7	390	1,300	2,800	0.00170	0.0350
C-2811	10/13/08	NS	320	1,000	2,100	NS	NS
C-2507	6/21/04	7.55	717	1,300	3,830	0.029	0.028
C-2507	11/09/04	7.58	824	1,380	3,350	0.0800	0.0140
C-2507	5/17/05	7.94	860	1,370	3,340	0.0780	0.0630
C-2507	10/11/05	6.13	920	1,630	3,240	0.0470	<0.0100
C-2507	5/16/06	7.37	1,040	1,930	5,300	0.0510	<0.0100
C-2507	10/10/06	2.9	943	3,640	1,740	<0.0500	<0.0250
C-2507	5/9/07	6.62	1,110	3,060	5,485	<0.0500	<0.0250
C-2507	10/9/07	<1.00	1,220	3,500	5,540	0.0550	0.007
C-2507	6/5/08	6.9	990	2,800	5,800	0.0637	0.00493
C-2507	10/14/08	NS	940	2,200	5,100	NS	NS
WQSP-6A	7/13/95	7.62	1,905	1,040	11,000	<0.006	<0.025
WQSP-6A	3/28/96	3.98	1,810	507	3,920	<0.013	<0.025
WQSP-6A	7/11/96	2.75	1,971	6,748	4,500	0.020	<0.025
WQSP-6A	4/10/97	4.64	2,240	675	3,960	0.017	<0.025
WQSP-6A	7/10/97	4.04	2,560	660	3,840	<0.050	<0.1000
WQSP-6A	6/10/98	6.19	1,950	644	4,120	0.016	0.0015
WQSP-6A	11/3/98	11.00	2,100	770	4,100	0.220	<0.500
WQSP-6A	5/26/99	7.00	1,900	540	3,800	<0.100	<0.050
WQSP-6A	11/10/99	9.40	1,900	540	3,800	<0.050	<0.050
WQSP-6A	5/24/00	7.50	2,100	530	3,800	0.0129	<0.020
WQSP-6A	11/30/00	6.70	1,900	480	3,700	<0.0130	<0.025
WQSP-6A	6/6/01	6.37	1,900	536	3,680	0.0385	<0.025
WQSP-6A	11/14/01	3.67	1,900	414	4,600	<0.050	<0.010
WQSP-6A	5/22/02	5.52	1,930	487	3,540	<0.050	<0.010
WQSP-6A	11/20/02	5.61	2,090	419	3,685	<0.050	<0.010

Shallow Subsurface Water Quality Sampling Results

	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
WQSP-6A	5/21/03	4.74	1,950	384	3,650	<0.123	<0.050
WQSP-6A	11/19/03	<0.01	1,950	391	3,955	<0.219	<0.025
WQSP-6A	5/26/04	9.61	1,970	416	3,646	<0.025	<0.025
WQSP-6A	11/17/04	6.72	1,960	491	3,655	<0.025	<0.025
WQSP-6A	4/20/05	5.98	1,920	432	3,700	0.057	<0.025
WQSP-6A	10/19/05	<0.01	1,940	360	3,430	<0.025	<0.025
WQSP-6A	5/3/06	2.5	2,210	450	3,200	<0.025	<0.025
WQSP-6A	9/20/06	6.00	2,120	360	3,515	<0.025	<0.025
WQSP-6A	3/7/07	5.78	2,170	.484	3,355	<0.025	<0.025
WQSP-6A	9/12/07	5.47	1,950	350	3,400	<0.025	<0.025
WQSP-6A	3/12/08	4.67	2,090	378	3,400	<0.025	<0.025
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)	
WQSP-6A	9/10/08	5.69	2,030	348	3,150	< 5	

Notes:
NS - Not Sampled for Analytical Parameter

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

JUL 26 2016

Ms. Michelle Hunter, Bureau Chief
New Mexico Environment Department
Ground Water Quality Bureau
Harold Runnels Building
1190 Saint Francis Drive
P.O. Box 5469
Santa Fe, NM 87502

Subject: Semi-Annual Discharge Monitoring Report for January 1, 2016 through June 30, 2016, Discharge Permit 831

Dear Ms. Hunter:

This letter is to transmit to you the Waste Isolation Pilot Plant Discharge Monitoring Report, including the required enclosures on compact disc, for the period of January 1, 2016, through June 30, 2016. This report is required by Discharge Permit 831.

If you have any questions about this report or require any additional information, please contact me at (575) 234-7488.

Sincerely,

Russell Patterson for

George T. Basabilvazo, Director
Environmental Protection Division

Enclosures (2)

cc:
CBFO M&RC

CBFO:EPD:GTB:TC:16-0549 UFC 5486.00

04495

Waste Isolation Pilot Plant Semi-Annual Discharge Monitoring Report for Discharge Permit DP-831 for Reporting Period January 1, 2016 through June 30, 2016

U.S. Department of Energy

July 2016

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR
DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JANUARY 1, 2016 THROUGH JUNE 30, 2016

REPORTING REQUIREMENTS OF DP-831 OPERATIONAL PLAN

Part B. Applicable to the Facultative Lagoon System

Condition 8. – The permittee shall measure the thickness of the sludge blanket in each pond of the Facultative Lagoon System once within the effective term of this Discharge Permit, but before the end of 2018. When sludge accumulation exceeds 1/3 of the total depth of any pond, the permittee shall remove the sludge in a manner, which is protective of the pond liner. Removed solids shall be contained, transported, and disposed of in accordance with all local, state, and federal regulations. The permittee shall maintain solids blanket measurements and solids disposal manifests for solids transported from the facility for off-site disposal. The permittee shall submit all measurements and manifests to NMED in the semi-annual monitoring report immediately following the solids thickness measurement.

No sludge measurements occurred during this reporting period. These measurements will be performed prior to the end of 2018.

Part D. Applicable to the Storm Water Runoff Impoundments in Contact with Salt Stockpiles (Salt Storage Ponds 1, 2, and 3) and Salt Stockpiles (Salt Cells 1, 2, and 3).

Condition 9. – The permittee shall measure the thickness of the solids blanket in each impoundment once within the effective term of this Discharge Permit, but before the end of 2018. Removed solids shall be contained, transported, and disposed of in accordance with all local, state, and federal regulations. The permittee shall maintain solids blanket measurements and solids disposal manifests for solids transported from the facility for off-site disposal. The permittee shall submit all measurements and manifests to NMED in the semi-annual monitoring report immediately following the solids thickness measurement.

No sludge measurements occurred during this reporting period. These measurements will be performed prior to the end of 2018.

Condition 10. – The permittee shall inspect the leak detection systems for Salt Storage Ponds 2 and 3 on a monthly basis for the presence of liquid. The permittee shall keep a log of the inspection findings and repairs made. The inspection log, including a statement whether or not liquids were observed in the leak detection systems, shall be submitted to NMED in the semi-annual monitoring reports.

Monthly inspections of the Salt Storage Pond 2 and 3 leak detection systems occurred during this reporting period. Liquid was observed in the leak detection systems. Due to its design, the sump associated with the leak detection system cannot be fully pumped dry during water removal. Therefore, the presence of some water will remain in the sump at all times. Trending of water accumulation in the sump leak detection system is ongoing

to establish a removal frequency. For January through June, there were no changes in water level in the sump exceeding the EPA limits for liners (EPA 530-R-92-004, NTIS #PB 92-128 214).

In March, an Engineering subcontractor performed an Action Leakage Rate study on Salt Storage Ponds 2 and 3 in accordance with EPA methods and standards for liners. It was determined that no leakage in either pond was occurring outside of EPA standards (EPA 530-R-92-004, NTIS #PB 92-128 214) for the design of ponds 2 and 3.

There were no repairs required to the leak detection system during this reporting period. A Portable Document Format (PDF) file of the inspection log can be found on attached CD "Salt Pond Sump Inspection 1st half 2015.pdf." Inspection logs measure distance from the top of the Sump access pipe to the water.

Condition 11. – The permittee shall conduct regular maintenance of the earthen cover on the Salt Cell 1, and SPDV material pile. Inspections shall be conducted monthly and after storm events of 2 inches or greater in a 24-hour period to evaluate potential erosion and vegetation success of the cover. In the event of significant erosion or failure of vegetative success, the permittee shall provide a plan and schedule for repair within 90 days of discovery. General observations and cover repair shall be reported to NMED.

The earthen cover of the Salt Cell 1 and the Site and Preliminary Design Validation (SPDV) material pile were inspected monthly for January through June. Both piles' synthetic covering were noted as needing repair. The subcontract for the liner repairs on Salt Cell 1 was reviewed in August 2015 and the work was completed in April 2016. The areas of repair were recovered and reseeded with native grasses. A separate subcontract for repairs to the SPDV liner is under review for completion and subcontract award finalization. No storm event resulted in greater than 2 inches in a 24-hour period.

REQUIREMENTS OF DP-831 MONITORING AND REPORTING SECTION

Part B. Applicable to the Facultative Sewage Lagoon System

Condition 15. – The volume of domestic influent discharged to the Facultative lagoon System shall be measured monthly using a totalizing flow meter on the influent line to the system or the totalizing meter that measures total domestic water usage. Volumes of other authorized discharges to the Facultative Lagoon System shall be calculated by a time/volume method or volumetric measurement of the transport container(s). NMED may require comprehensive laboratory analyses of such wastewater prior to discharge when NMED determines that additional information is needed. Monthly meter readings, the units of measurement, monthly discharge volumes and other volumetric calculations for the previous 6-month period shall be submitted to NMED semi-annually in the monitoring reports.

Facultative Lagoon System

Table 1 shows the volume of water discharged to the Facultative Lagoon System for this reporting period. Discharge water volume is based on total domestic water use. No miscellaneous non-hazardous water was discharged to Evaporation Lagoons B or C.

Table 1 – Discharge to Facultative Lagoon System

Month	Volume (gallons)
January	555,032
February	363,359
March	413,787
April	343,770
May	356,801
June	515,914
Total	**2,548,663**

Weekly meter readings of the domestic water meter are found on the attached CD as a pdf file named "Domestic Water Usage 1st Half of 2016.pdf."

No water other than non-hazardous sewage water with some non-hazardous condensate from compressors was discharged into the Facultative Lagoon System.

Condition 16. – The permittee shall collect a wastewater sample on a semi-annual basis (once every six months) from the influent to the Facultative Lagoon System. The grab sample shall be analyzed for TKN, NO_3-N, SO_4, TDS, and Cl. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.

Table 2 – Facultative Lagoon System Analytical Data

Analyte	Sample Date	Settling Lagoon 2A
TKN (mg/L)	03/31/16	112
NO_3-N (mg/L)	03/31/16	ND
SO_4 (mg/L)	03/31/16	41.8
TDS (mg/L)	03/31/16	530
Cl (mg/L)	03/31/16	76.6

TKN: Total Kjeldahl nitrogen
TDS: total dissolved solids
ND: Not detected, analyte below the method detection limit

Laboratory analytical results and QA/QC Summary Report for the Sewage Lagoon System are found as a pdf file on the attached CD named "Facultative Lagoon and H-19 Analytical and QA-QC.pdf."

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR
DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JANUARY 1, 2016 THROUGH JUNE 30, 2016

Part C. Applicable to the Evaporation Pond H-19 and Storm Water Impoundments Not in Contact with Salt Stockpiles (Storm Water Ponds 1, 2, and 3)

Condition 17. – The volume and origin of all wastewater discharged to the Evaporation Pond H-19 that is derived from miscellaneous non-hazardous sources shall be measured monthly and reported to NMED. Discharge volumes to the Evaporation Pond H-19 shall be calculated by a time/volume method or volumetric measurement of the transport container(s). NMED may require comprehensive laboratory analyses of such wastewater prior to discharge when NMED determines that additional information is needed. Monthly discharge volumes and other volumetric calculations for the previous 6-month period shall be submitted to NMED semi-annually in the monitoring reports.

Table 3 shows the volume of miscellaneous non-hazardous water discharged to Evaporation Pond H-19 for this reporting period. This water is from groundwater well pumping, condensate from the Exhaust Shaft ductwork, and removal of Waste Shaft sump water.

Table 3 – Discharge to H-19 Evaporation Pond

Month	Volume (gallons)	Water Origin
January	1,890	ES & WS
February	5,637	ES & WS
March	3,750	GW & WS
April	10,165	GW & WS
May	980	GW
June	160	GW
Total	**22,582**	

ES – Exhaust Shaft ductwork water
GW – Groundwater well pumping water
WS – Waste Shaft sump water

Condition 18. – A sample shall be collected semi-annually from the Evaporation Pond H-19 and analyzed for SO_4, Cl, and TDS. Samples shall be collected annually after a significant storm event from each of the storm water ponds, Storm Water Ponds 1, 2, and 3 and analyzed for SO_4, Cl, and TDS. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring report.

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

Table 4 shows results for analytical parameters associated with Evaporation Pond H-19. Storm Water Ponds 1, 2, and 3 were not sampled since no significant rain event occurred during this reporting period. Evaporation Pond H-19 was sampled on March 31, 2016.

Table 4 – Storm Water Ponds and Evaporation Pond H-19 (EP H-19) Analytical Data

Analyte	Sample Date	Evaporation Pond H-19	Storm Water Pond 1	Storm Water Pond 2	Storm Water Pond 3
SO_4 (mg/L)	03/31/16 for EP H-19	2,130	NS	NS	NS
Cl (mg/L)	03/31/16 for EP H-19	293,000	NS	NS	NS
TDS (mg/L)	03/31/16 for EP H-19	414,000	NS	NS	NS

NS: Not Sampled – No significant storm event occurred this reporting period

Laboratory analytical results and QA/QC Summary Report for Evaporative Pond H-19 are found as a pdf file on the attached CD named "Facultative Lagoon and H-19 Analytical and QA-QC.pdf."

Condition 19. – The water depth shall be measured monthly to the nearest tenth of a foot (0.1 ft) in the Storm Water ponds 1, 2, and 3. The approximate volume of storm water shall be calculated and submitted to NMED in the semi-annual monitoring reports.

Table 5 – Storm Water Ponds Depths and Volumes

	January 01/18/16	February 02/22/16	March 03/10/16	April 04/21/16	May 05/11/16	June 06/9/16
Storm Water Pond 1						
Water Depth (ft)	0.6	0.5	0.5	0.3	0.0	0.0
Water Volume (gal)	83,477	69,594	69,594	41,738	0	0
Storm Water Pond 2						
Water Depth (ft)	5.4	5.1	5.0	4.6	4.0	3.6
Water Volume (gal)	1,855,906	1,752,800	1,718,432	1,580,957	1,374,745	1,237,271
Storm Water Pond 3						
Water Depth (ft)	4.3	4.2	4.1	3.7	3.2	2.3
Water Volume (gal)	6,202,291	6,058,052	5,913,813	5,336,855	4,615,659	3,317,505

Part D. Applicable to the Storm Water Runoff Impoundments in Contact with Salt Stockpiles (Salt Storage Ponds 1, 2, and 3) and Salt Stockpiles (Salt Cells 1, 2, and 3)

Condition 20. – A sample shall be collected annually after a significant storm event from each of the Salt Storage Cells 1, 2, and 3 and analyzed for SO_4, Cl, and TDS. Samples shall be properly

prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

No significant rainfall event occurred during this reporting period. Therefore, Salt Storage Ponds 1, 2, and 3 were not sampled.

Condition 21. The water depth shall be measured monthly to the nearest tenth of a foot (0.1 ft) in the Salt Storage Ponds 1, 2, and 3. The approximate volume of storm water shall be calculated and submitted to NMED in the semi-annual monitoring reports.

Table 6 – Salt Storage Ponds Depths and Volumes

	January 01/18/16	**February 02/22/16**	**March 03/10/16**	**April 04/21/16**	**May 05/11/16**	**June 06/22/15**
Salt Storage Pond 1						
Water Depth (ft)	1.4	1.1	0.9	0.3	0.0	0.0
Water Volume (gal)	1,593,892	1,252,344	1,024,645	341,548	0	0
Salt Storage Pond 2						
Water Depth (ft)	6.8	6.7	6.7	6.4	5.8	5.7
Water Volume (gal)	2,435,659	2,399,840	2,399,840	2,292,385	2,077,474	2,041,655
Salt Storage Pond 3						
Water Depth (ft)	14.1	14.0	14.0	13.6	13.1	12.7
Water Volume (gal)	16,131,331	16,016,924	16,016,924	15,559,298	14,987,265	14,529,638

Ground Water Monitoring and Reports

Condition 22. – Depth to the water table shall be measured to the nearest hundredth of a foot (0.01 ft) quarterly in the piezometers/monitoring wells:

- *PZ-1. PZ-2, PZ-3, PZ-4, PZ5, PZ-6, PZ-7, PZ-8, PZ-9, PZ-10, PZ-11, PZ-12, PZ-13, PZ-14 and PZ-15*
- *C-2505, C-2506, C-2507, C-2811, and WQSP-6A*

Three piezometer/monitoring wells (PZ-2, C-2505 and C-2506) were not accessible for the first quarter of 2016 due to construction in the area of these wells. Safety concerns prevented access to these wells.

For depth to the water tables of the piezometer and monitoring wells, see Table 7 – Subsurface Water Well Water Levels and Chemical Analyses.

Condition 23. – The permittee shall perform semi-annual ground water sampling in the following piezometers/monitoring wells and analyze the samples for temperature, pH, specific conductance, SO4, TDS, and Cl:

- *Piezometers: PZ-1, PZ-5, PZ-6, PZ-7, PZ-9, PZ-10, PZ-11, PZ-12, and PZ-13*
- *Monitoring Wells: C-2507, C-2811, and WQSP-6A*

Ground water sample collection, preservation, transport and analysis shall be performed according to the following procedure:

a) Measure the depth-to-most-shallow ground water from the top of the well casing to the nearest hundredth of a foot.
b) Purge three well volumes of water from the well prior to sample collection.
c) Obtain samples from the well for analysis.
d) Properly prepare, preserve and transport samples.
e) Analyze samples in accordance with the methods authorized in this Discharge Permit.

Depth-to-most-shallow ground water measurements, analytical results, including the laboratory QA/QC summary report, and a facility layout map showing the location and number of each well shall be submitted to NMED in the semi-annual monitoring reports.

Three piezometer/monitoring wells (PZ-2, C-2505 and C-2506) were not accessible for the first quarter of 2016 due to construction in the area of these wells. Safety concerns prevented access to these wells.

Water levels in the shallow wells (PZ-1 through PZ-15, C-2811, and C-2507) were obtained March 14-21, 2016. The water levels in all of the shallow wells were obtained in June 7-30, 2016. Both water level measuring events are included in Table 7 Subsurface Water Well Water Levels and Chemical Analyses. These were taken in accordance with quarterly milestones outlined in the Ground Water Monitoring Schedule, in the July 29, 2014, DP-831 Modification. During the reporting period, the long-term water level trend for the shallow subsurface water (SSW) monitoring points was an average increase in elevation of 0.28 feet. Long term water level elevation trends indicate that the liners are reducing infiltration enough to see an effect. The slight rise in water elevation over this reporting period is due to higher than average precipitation toward the end of 2015.

The SSW piezometers, required to be sampled according to Condition 23, were sampled for field and general chemistry parameters in May 2016. Five piezometers were sampled on May 24, 2016, two on May 25, 2016, and four piezometers were sampled on May 31, 2016. Results for the field sampling parameters and laboratory analyses are presented in Table 7.

Laboratory analytical results and QA/QC Summary Report are found as a pdf file on the attached CD named "Shallow Surface Water Analytical and QA-QC.pdf".

Condition 24. – The permittee shall perform semi-annual ground water sampling from monitoring well WQSP-6A and analyzed for TKN and NO3. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

WQSP-6A was sampled on May 25, 2016. Sulfate, chloride, and total dissolved solids were detected in WQSP-6A samples at concentrations above standards of 20.6.2.3103 NMAC, Standards for Ground Water of 1,000 mg/L TDS concentration or less for Human Health and Domestic Water Supply. Although the concentrations were higher than the standards, they are less than background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285). Nitrate was also detected but did not exceed the standards. Total Kjeldahl nitrogen was below the detection limit of 1 mg/L. The SSW identified at the WIPP site has not impacted the Dewey Lake groundwater in WQSP-6A based on the consistency of analyzed parameters in WQSP-6A.

For WQSP-6A analytical results, see Table 7 – Subsurface Water Well Water Levels and Chemical Analyses.

Laboratory analytical results and QA/QC Summary Report for WQSP-6A samples are found as a pdf file on the attached CD named "Shallow Surface Water Analytical and QA-QC.pdf".

Condition 25. – Hydrographs shall be submitted annually for all monitoring wells and piezometers covered under Condition 22 of this Discharge Permit. At a minimum, graphs shall include the previous five years of water level data, or for recently installed wells, all data since the well was installed. Data for several wells may be included on one graph.

The hydrographs of all monitoring wells and piezometers will be included in the second 2016 semi-annual report which is due February 1, 2017.

Condition 26. – A potentiometric map for facility area shall be submitted annually. The map shall incorporate the most recent water level data for all monitoring wells and piezometers installed in the shallow subsurface water (SSW).

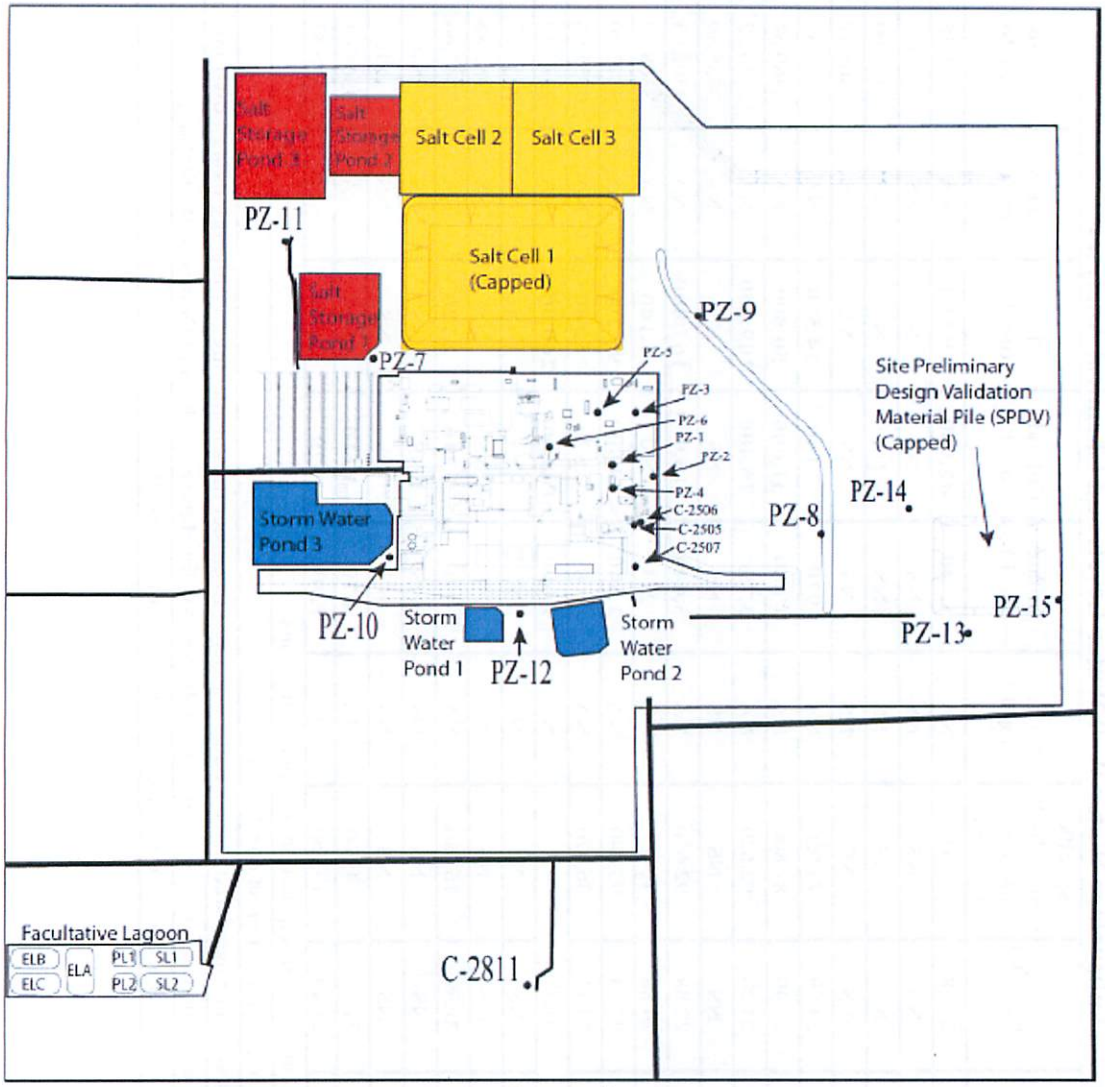
The potentiometric map that incorporates the most recent water level data for all monitoring wells and piezometers installed in the shallow subsurface water will be included in the second 2016 semi-annual report which is due February 1, 2017.

Condition 27. – A single table in a paper and electronic format (EXCEL spreadsheet) of water level measurements and water quality data with only those constituents analyzed and water levels measured during a single event shown in columns. Tabulated field measurements to include temperature, pH, and electrical conductivity corrected to 25 degrees Celsius. Monitoring sites shall be shown in rows. The second column shall contain the date of the sampling event. Values exceeding standards shall be bolded. Any constituent not analyzed for a particular site shall be shown as "NA", any site not sampled shall be shown as "NS" with an associated reason, and any site not measured for water levels shall be shown as "NM" with an associated reason.

Table 7 – Subsurface Water Well Water Levels and Chemical Analyses is attached in paper form to this report and in electronic Excel format on the attached CD. The file name on the CD is "Table 7 Jan-June 2016 WIPP DMR for DP-831."

Condition 28. – A single table that includes all available ground water data to date shall be submitted annually. For each monitoring well, the name of the well shall be entered in the far left column in a row by itself. Sampling events, beginning with the earliest event first, shall be entered in subsequent rows with the sampling date in the second column and the corresponding analytical data in columns further to the right. Each new sampling event shall be added as an additional row to the existing spreadsheet with the corresponding date of the sampling event noted in the second column next to the monitoring well name.

The table that includes all available ground water data to date will be included in the second 2016 semi-annual report which is due February 1, 2017.



Legend

Salt Cells	Salt Storage Ponds	Storm Water Ponds	Faculatative Lagoon
Salt Cell 1	Salt Storage Pond 1 (SSP1)	Storm Water Pond 1 (SWP1)	Settling Lagoon 1 (SL1)
Salt Cell 2	Salt Storage Pond 2 (SSP2)	Storm Water Pond 2 (SWP2)	Settling Lagoon 2 (SL2)
Salt Cell 3	Salt Storage Pond 3 (SSP3)	Storm Water Pond 3 (SWP3)	Polishing Lagoon 1 (PL1)
			Polishing Lagoon 2 (PL2)
			Effluent Lagoon A (ELA)
			Effluent Lagoon B (ELB)
			Effluent Lagoon C (ELC)

0 200 m

04506

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JANUARY 1, 2016 THROUGH JUNE 30, 2016

Table 7 – Subsurface Water Well Water Levels and Chemical Analyses

Monitoring Site	Sample Date	pH	Temp. (^{0}C)	Specific Conductivity @25 ^{0}C (µS/cm)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)	3/14/16-3/21/16	6/7/16-6/15/16
PZ-1	5/31/2016	6.27	25.18	89,930	NA	**1,740**	**42,900**	**79,600**	NA	3371.38	3371.71
PZ-2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NR	3371.18
PZ-3	NS	NS	NS	NS	NS	NS	NS	NS	NS	3370.99	3371.40
PZ-4	NS	NS	NS	NS	NS	NS	NS	NS	NS	3365.77	3366.31
PZ-5	5/31/2016	7.05	24.59	73,050	NA	**970**	**7,180**	**14,500**	NA	3371.37	3372.01
PZ-6	5/31/2016	6.59	26.40	87,800	NA	**1,680**	**31,000**	**50,500**	NA	3369.64	3370.13
PZ-7	5/24/2016	6.19	24.20	92,620	NA	**3,790**	**75,400**	**109,000**	NA	3376.22	3376.43
PZ-8	NS	NS	NS	NS	NS	NS	NS	NS	NS	3355.49	3355.51
PZ-9	5/25/2016	6.13	22.88	92,650	NA	**5,640**	**115,000**	**167,000**	NA	3362.03	3362.13
PZ-10	5/24/2016	7.35	24.88	6,427	NA	274	200	**1,100**	NA	3368.19	3368.32
PZ-11	5/24/2016	6.36	23.63	93,640	NA	**2,640**	**54,900**	**93,200**	NA	3372.20	3372.51
PZ-12	5/24/2016	7.06	24.11	36,470	NA	560	**2,570**	**6,100**	NA	3355.98	3356.43
PZ-13	5/25/2016	Bailed			NA	**1,600**	**168,000**	**260,000**	NA	3355.38	3355.61
PZ-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	3352.37	3352.51
PZ-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	3382.88	3383.01
C-2811	5/24/2016	7.23	21.59	16,480	NA	491	**1,210**	**2,720**	NA	3347.66	3347.92
C-2505	NS	NS	NS	NS	NS	NS	NS	NS	NS	NR	3368.03
C-2506	NS	NS	NS	NS	NS	NS	NS	NS	NS	NR	3368.67
C-2507	5/31/2016	7.01	21.26	34,760	NA	**679**	**3,110**	**6,620**	NA	3364.61	3364.99
WQSP-6A	5/25/2016	7.04	23.40	13,760	4.91	**1,900**	**379**	**3,380**	<1.0	3195.87	3195.85

Explanation:	NA: Not Analyzed, parameter not required, per permit conditions.
	NS: Not Sampled, not required per permit conditions
	PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty using Low-Flow pumps
	"**Bold**" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply
	NR: Water levels were not recorded for this period, as wells were not accessible

Discharge to Facultative Lagoon System
July through December 2016

Date	Gallons Domestic	Gallons for the Month	Avg. Gal per day
1/1 - 1/3	53,713		
1/4 - 1/10	174,626		
1/11 - 1/17	119,533		
1/18 - 1/24	102,887		
1/25 - 1/31	104,273	555,032	17,904
2/1 - 2/7	95,329		
2/8 - 2/14	91,845		
2/15 - 2/21	87,583		
2/22 - 2/28	88,602	363,359	12,977
2/29 - 3/6	86,429		
3/7 - 3/13	89,445		
3/14 - 3/20	68,253		
3/21 - 3/27	95,058		
3/28 - 4/3	74,602	413,787	11,822
4/4 - 4/10	80,270		
4/11 - 4/17	95,658		
4/18 - 4/24	83,785		
4/25 - 5/1	84,057	343,770	12,278
5/2 - 5/8	88,770		
5/9 - 5/15	85,699		
5/16 - 5/22	93,389		
5/23 - 5/29	88,943	356,801	12,743
5/30 - 6/5	89,482		
6/6 - 6/12	87,053		
6/13 - 6/19	94,375		
6/20 - 6/26	192,088		
6/27 - 7/3	52,916	515,914	14,740
	Total Flow	2,548,663	

* - Flow for these four days is estimated.

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Master Copy

Start Date: 1/4/16 End Date: 1/10/16

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

		SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
	DAY															
	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
	START TIME								N/A							
	END TIME								N/A							
	REVIEWER			ACC						N	ACC	A	ACC	A	ACC	A
	FOT	C/O		RDS							LD		RDS		RDS	9-13
ITEM	MIN	NORM	MAX													
458, GUARD & SECURITY BUILDING																
412 ODOR ABS MOD FILTER (PDI-07)			0.5	①	STBY											
412 ODOR ABS CHAR FILTER (PDI-08)			0.5	↓	↓											
412 ODOR ABS MOD FILTER (PDI-09)			0.5													
403 AHU LOW FILTER (PDI-03)			0.5													
403 AHU MOD FILTER (PDI-04)			0.5													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY					✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																
DOMESTIC WATER PRESS (PIC-01)	60	65	70	67	66	65	67	64	62	64	66	65	64	65	67	67
456-FIY-010-001 WATER FLOW METER																
RAW WATER GALLONS	RESET MONDAY [A]			①		125,1166										
DOMESTIC WATER GALLONS	RESET MONDAY [A]			↓		174,1626										
456-FM-045-001 SEWAGE FLOW METER																
SEWAGE FLOW GALLONS		[B]	23,000	0		100		0		0		600		0		100		100
HACH TEST KIT																
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	.74		.92		.86		.78		.75		.78		.84		.87

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT

[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]

[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS

[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS: ① INCLEMENT WEATHER

APPROVED FOR USE/DATE: 08/16/15

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Paper Copy

Start Date: 01/11/16 End Date: 01/17/16

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

ITEM	MIN	NORM	MAX	SUN 2	MON 1	MON 2	TUES 1	TUES 2	WED 1	WED 2	THURS 1	THURS 2	FRI 1	FRI 2	SAT 1	SAT 2	SUN 1	SUN 2
DAY																		
SHIFT				2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
START TIME										N/A								
END TIME										N/A								
REVIEWER																		
FOT				C/O														
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07)			0.5	STBY	0													
412 ODOR ABS CHAR FILTER (PDI-08)			0.5		0													
412 ODOR ABS MOD FILTER (PDI-09)			0.5		.1													
403 AHU LOW FILTER (PDI-03)			0.5		STBY													
403 AHU MOD FILTER (PDI-04)			0.5		↓													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
DOMESTIC WATER PRESS (PIC-01)	60	65	70	67	67	67	TAG	67	67	66	66	66	66	62	62	62	62	62
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS	RESET MONDAY [A]			125,166		0												
DOMESTIC WATER GALLONS	RESET MONDAY [A]			174,626		119533.19												
456-FM-045-001 SEWAGE FLOW METER																		
SEWAGE FLOW GALLONS		[B]	23,000	100		100		200		700		1,000		6,000		9500		0
HACH TEST KIT																		
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	.87		.79		.79		.87		0.71		.77		.78		.7

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT

[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]

[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS

[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS:

APPROVED FOR USE/DATE: Rick 0816KS

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Start Date: 1-18-15 End Date: 1-24-15

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

ITEM	MIN	NORM	MAX	SUN 2	MON 1		TUES 1		WED 1		THURS 1		FRI 1		SAT 1		SUN 1	
						TUES 2		WED 2		THURS 2		FRI 2		SAT 2		SUN 2		
START TIME										N/A								
END TIME										N/A								
REVIEWER					AMC		AMC		AMC									
FOT				C/O	LD				RDS		LD					RM		
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07)			0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)			0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)			0.5	-1	-1													
403 AHU LOW FILTER (PDI-03)			0.5	STBY	STBY													
403 AHU MOD FILTER (PDI-04)			0.5	↓	↓													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
DOMESTIC WATER PRESS (PIC-01)	60	65	70	62	68	67	66	67	68	69	68	68	69	67	68	68	64	65
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS	RESET MONDAY [A]			0		0												
DOMESTIC WATER GALLONS	RESET MONDAY [A]			119533		103886.98												
456-FM-045-001 SEWAGE FLOW METER																		
SEWAGE FLOW GALLONS		[B]	23,000	0		1800		700		100		5900		16700		1300		2000
HACH TEST KIT																		
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	-7		1.0		1.06		1.09		1.06		1.09		1.03		.99

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT

[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]

[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS

[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS:

APPROVED FOR USE/DATE: 08/16/15

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Master Copy

Start Date: 1-25-16 End Date: 1-31-16

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
START TIME								N/A							
END TIME								N/A							
REVIEWER		A	NL	A	JR	A	JR	A	NL	NL	AW	NL	AW	NL	AW
FOT	C/O	2	R.T.					9-3	RKL	TDP		DT	MTL		LD

ITEM	MIN	NORM	MAX	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07)			0.5	0	STBY													
412 ODOR ABS CHAR FILTER (PDI-08)			0.5	0														
412 ODOR ABS MOD FILTER (PDI-09)			0.5	.1														
403 AHU LOW FILTER (PDI-03)			0.5	Stby														
403 AHU MOD FILTER (PDI-04)			0.5	↓	↓				✓				✓		✓			
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY					✓		—		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
DOMESTIC WATER PRESS (PIC-01)	60	65	70	65	65	66	67	66	64	66	63	65	65	67	67	67	68	67
456-FIY-010-001 WATER FLOW METER				RT 1-24-16														
RAW WATER GALLONS		RESET MONDAY [A]		N/A 0		0												
DOMESTIC WATER GALLONS		RESET MONDAY [A]		102886		104273												
456-FM-045-001 SEWAGE FLOW METER																		
SEWAGE FLOW GALLONS		[B]	23,000	2000		1300		2800		2900		13100		700		900		1200
HACH TEST KIT																		
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	.99		.96		.98		1.02		.98		.72		1.14		1.01

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT

[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]

[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS

[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS:

APPROVED FOR USE/DATE: 0816KS

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Master Copy

Start Date: 2-1-16 End Date: 2-7-16

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

ITEM	MIN	NORM	MAX	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				START TIME	←						N/A								→
				END TIME	←						N/A								→
				REVIEWER															
				FOT	C/O			R.T.					KM	RDS		CO		MC	
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)			0.5		STBY	STBY													
412 ODOR ABS CHAR FILTER (PDI-08)			0.5																
412 ODOR ABS MOD FILTER (PDI-09)			0.5																
403 AHU LOW FILTER (PDI-03)			0.5																
403 AHU MOD FILTER (PDI-04)			0.5																
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
DOMESTIC WATER PRESS (PIC-01)	60	65	70		67	63	67	67	67	64	68	65	65	65	68	68	68	68	67
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS		RESET MONDAY [A]			0		0												
DOMESTIC WATER GALLONS		RESET MONDAY [A]			104273		95389												
456-FM-045-001 SEWAGE FLOW METER																			
SEWAGE FLOW GALLONS		[B]	23,000		1250		900		1000		3900		9000		1800		6900		2000
HACH TEST KIT																			
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2		1.01		.98		1.08		.91		.87		1.11		1.09		1.07

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT

[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]

[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS

[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS:

APPROVED FOR USE/DATE: 08/16/15

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY
Master Copy

Start Date: 020814 End Date: 021414

Location: 458, GUARD & SECURITY BUILDING 456, PUMPHOUSE BUILDING	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
	START TIME	N/A														
	END TIME	N/A														
	REVIEWER															
	FOT	C/O														

ITEM	MIN	NORM	MAX	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07)			0.5	STBY	STBY													
412 ODOR ABS CHAR FILTER (PDI-08)			0.5	↓	↓													
412 ODOR ABS MOD FILTER (PDI-09)			0.5															
403 AHU LOW FILTER (PDI-03)			0.5															
403 AHU MOD FILTER (PDI-04)			0.5	↓	↓													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
DOMESTIC WATER PRESS (PIC-01)	60	65	70	67	65	67	65	65	66	66	65	65	64	68	68	68.5	68	68
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS		RESET MONDAY [A]		0		96769												
DOMESTIC WATER GALLONS		RESET MONDAY [A]		95329		96845												
456-FM-045-001 SEWAGE FLOW METER																		
SEWAGE FLOW GALLONS		[B]	23,000	2000		4400		400		1,400		1020		1600		1400		700
HACH TEST KIT																		
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	1.07		1.11		1.2		1.14		1.11		1.2		1.11		1.06

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT

[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]

[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS

[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS:

APPROVED FOR USE/DATE: 08165

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Master Copy

Start Date: 021516 End Date: 022116

Location: 458, GUARD & SECURITY BUILDING 456, PUMPHOUSE BUILDING	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
	START TIME	N/A														
	END TIME	N/A														
	REVIEWER		AMC	mm	mc		AMC		AMC							
	FOT	C/O	MC/mc				RDS		LD							

ITEM	MIN	NORM	MAX	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07)			0.5	STBY	STBY													
412 ODOR ABS CHAR FILTER (PDI-08)			0.5															
412 ODOR ABS MOD FILTER (PDI-09)			0.5															
403 AHU LOW FILTER (PDI-03)			0.5															
403 AHU MOD FILTER (PDI-04)			0.5															
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
DOMESTIC WATER PRESS (PIC-01)	60	65	70	68	68	6654	65	66	66	68	67	68	67	68	69	70	70	70
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS		RESET MONDAY [A]		96769		106437												
DOMESTIC WATER GALLONS		RESET MONDAY [A]		91845		87583												
456-FM-045-001 SEWAGE FLOW METER																		
SEWAGE FLOW GALLONS		[B]	23,000	700		0		900		1000		700		19400		6300		8800
HACH TEST KIT																		
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	1.06		0.84		1.12		1.11		1.10		1.01		1.07		1.09

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT

[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]

[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS

[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS:

APPROVED FOR USE/DATE: 0816K

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY
Master Copy

Start Date: 2/22/16 End Date: 2/28/16

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

ITEM	MIN	NORM	MAX	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
DAY				SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
SHIFT				2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
START TIME				N/A														
END TIME				N/A														
REVIEWER																		
FOT				C/O		R.T.								MC			R.T.	RDS
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07)			0.5	STBY	STBY													
412 ODOR ABS CHAR FILTER (PDI-08)			0.5															
412 ODOR ABS MOD FILTER (PDI-09)			0.5															
403 AHU LOW FILTER (PDI-03)			0.5															
403 AHU MOD FILTER (PDI-04)			0.5															
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY					✓		✓		✓				✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
DOMESTIC WATER PRESS (PIC-01)	60	65	70	70	68	69	68	69	49	68	68	68	68	68	67	67	67	69
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS		RESET MONDAY [A]		196437		70188												
DOMESTIC WATER GALLONS		RESET MONDAY [A]		87583		88602												
456-FM-045-001 SEWAGE FLOW METER																		
SEWAGE FLOW GALLONS		[B]	23,000	8800		2000		200		1200		2300		15700		20400		4800
HACH TEST KIT																		
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	1.09		1.08		1.07		1.09		1.05		1.06		1.07		1.40 [D]

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT
[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]
[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS
[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS: (1) Water to be added as space is available, FSM notified, out of spec.

APPROVED FOR USE/DATE: 08/16/15

Facility Operations Bldg 458 / 456 Round Sheet

Master Copy
INFORMATION ONLY

Start Date: 022916 End Date: 030616

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

ITEM	MIN	NORM	MAX	SUN 2	MON 1	MON 2	TUES 1	TUES 2	WED 1	WED 2	THURS 1	THURS 2	FRI 1	FRI 2	SAT 1	SAT 2	SUN 1	SUN 2
DAY																		
SHIFT				2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
START TIME										N/A								
END TIME										N/A								
REVIEWER																		
FOT				C/O		LD				RM		ET	MK				LD	
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07)			0.5	STBY	STBY													
412 ODOR ABS CHAR FILTER (PDI-08)			0.5															
412 ODOR ABS MOD FILTER (PDI-09)			0.5															
403 AHU LOW FILTER (PDI-03)			0.5															
403 AHU MOD FILTER (PDI-04)			0.5															
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY					✓		✓		✓		✓		✓		✓		②	
456-CP-010-01 CONTROL PANEL																		
DOMESTIC WATER PRESS (PIC-01)	60	65	70	69	68	68	68	68	68	68	66	68	66	68	68	68	68	68
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS		RESET MONDAY [A]		70188		57120												
DOMESTIC WATER GALLONS		RESET MONDAY [A]		28602		86429												
456-FM-045-001 SEWAGE FLOW METER																		
SEWAGE FLOW GALLONS		[B]	23,000	4800		7500		3500		1100		16400		8900		17900		5600
HACH TEST KIT																		
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2	1.40		1.41 ①		1.33		1.3 ②		1.16		1.19		1.12		.96

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT
[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]
[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS
[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS: ① Water to be added as space becomes available, FSM notified out of spec. ② Added water
② Internet not AVAILABLE due to power outage at 3WB

APPROVED FOR USE/DATE: 0816KS

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Start Date: 030716 End Date: 031316

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

ITEM	MIN	NORM	MAX	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				START TIME	←					N/A									→
				END TIME	←					N/A									→
				REVIEWER															
				FOT	C/O														
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)			0.5		STBY	0													
412 ODOR ABS CHAR FILTER (PDI-08)			0.5			0													
412 ODOR ABS MOD FILTER (PDI-09)			0.5			.04													
403 AHU LOW FILTER (PDI-03)			0.5			STBY													
403 AHU MOD FILTER (PDI-04)			0.5			↓													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
DOMESTIC WATER PRESS (PIC-01)	60	65	70		68	67	67	67	68	66	67	66	67	68	68	68	CC	67	70
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS		RESET MONDAY [A]			57120		110224.69												
DOMESTIC WATER GALLONS		RESET MONDAY [A]			86429		89444.61												
456-FM-045-001 SEWAGE FLOW METER																			
SEWAGE FLOW GALLONS		[B]	23,000		5600		3000		1500		0		1000		13600		24,400		16700
HACH TEST KIT																			
COLORIMETER FREE CL2 (PPM)	0.7	[C]	1.2		.96		.94		.91		0.91		1.01		.89		.89		1.17

NOTES: [A] - RESET METER AFTER TAKING THE READING ON MONDAY SECOND SHIFT
[B] - ($) REQUIRED FOR COMPLIANCE WITH NMED DISCHARGE PERMIT DP-831 -- IF MAX LIMIT OF 23,000 GPD IS EXCEEDED CONTACT FSM [NMED, DP-831]
[C] - ADJUST CHLORINE LEVELS BY EITHER ADDING WATER (CHLORINE ABOVE 1.2) OR ADDING CHLORINE (CHLORINE BELOW .7) TO MAINTAIN SPECIFICATIONS
[D] - IF SYSTEM OPERABILITY SAT ENTER CHECK MARK. IF UNSAT NOTIFY FSM TO INITIATE AR

COMMENTS: ① Out of Spec. FSM Notified

APPROVED FOR USE/DATE: 0816K

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Start Date: 03/14/16 End Date: 03/20/16

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER		AM	JC	AM	EM	MCD	EM	AM	EM	JC	RT	RT	RT	JC	EM
		FOT	C/O	LD	JC	LD	AM	SD	TV	SD	TB	JC	R.T.	JC	R.T.	JC	EM
ITEM	**MIN**	**NORM**	**MAX**														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	0	sec												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	0	↓												
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	.04	✓												
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		✓		✓		✓		WR#2		✓
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	70	69	67	67	68	67	69	67	66	67	66	WR#2	65	66	66
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)	RESET MONDAY [A]			16226.69		67540											
DOMESTIC WATER GALLONS (gal)	RESET MONDAY [A]			89444.61		68253											
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	167		1		47		49		132		51		26		14
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	16700		100		4700		4900		13200		5100		2600		1400
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	1.17		1.07		1.20		1.26 C		1.11		1.12		1.11		1.08

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① ADD WATER AS TANK SPACE ALLOWS
② Power Outage

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Master

Start Date: 3/21/16 **End Date:** 3/27/16

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O														
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	SEC	SEC													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	↓	↓													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5															
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓		①		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	66	63	64	66	67	64	67	67	70	68	68	69	68	68	68
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			62540		33618												
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			68253		95058												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	14		80		6		114		104		133		106		48
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	1400		8000		600		11400		10400		13300		10600		4800
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	1.08		1.1		1.1		1.1		.90		.90		.91		.86

NOTES: **[A] - RESET meter after taking the reading on Monday second shift.**
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① AR# ~~Tank #2 Low level Cl2 not illuminating~~ 3-22-16, RM

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Start Date: 032816 End Date: 040316

Location:				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
456, PUMPHOUSE BUILDING				REVIEWER		AEC	AEC												
				FOT	C/O				F.T.		KM		R.T.	RDS		LD		MK	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	SEC	STBY													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5															
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5															
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		SEC		~~✓~~ (3) mk 4/6/16	MIC 4/3/16 ✓
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	68	68	67	67	66	65	66	66	65	65	67	67	67	68	63
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			33018		68,550												
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			95058		7462												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	48		150		38		①		72 ①		79		14		194
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	4800		15000		3800		↓		7200		7900		1400		19600
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.86		.93		.87		.90		.83		1.57 ②		1.46 ②		1.43 ②

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
① AR# 161400 - Not working - km
② ADD WATER AS TANK SPACE ALLOWS - FSM INFORMED
③ ~~Could not restore FSM Notified~~ MIC 4/3/16 Restored

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

INFORMATION ONLY

Master

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 040416 End Date: 041016

Location:				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
456, PUMPHOUSE BUILDING				REVIEWER		mc	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	mc	[illegible]	mc	[illegible]	[illegible]	[illegible]
				FOT	C/O	R.T.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ITEM	MIN	NORM	MAX																
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5		STBY	Stby													
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5		↓	↓													
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5		↓	↓													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS [F]		SAT [G]			✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70		68	67	67	66	67	61	67	67	67	69	67	67	67	68	68
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS (gal)		RESET MONDAY [A]			68,550		113902												
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]			74612		80270												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING	N/A	[B]	230		196		72		86	3	56 4 E E		4		4		2.7		6
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000		19600		7200		8600	30	9600 L H E E		400		1800		13000		3900
HACH TEST KIT																			
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2		1.45		1.39		1.19		1.17		.95		.91		.96		.95

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: 1) Adding water FSM notified

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Start Date: 041116 **End Date:** 041716

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		AMC	JRC	AMC	A	AMC	PJP	AMC	A	JRC	NT	JRC	NT	JRC	NT
				FOT	C/O	MK	JRC	O	N	RDS	D	CD	GB	JRC	JRM	JRC	RT	JRC	O
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	STBY	STBY													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	↓	↓													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	↓	↓													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	68	66	67	67	67	67	67	68	67	68	66	66	66	67	67
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			113902		86495												
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			80270		95658												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	39		10		62		56		2		83		47		102
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	3900		10000		6200		5600		200		8300		4700		10200
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.95		.87		.94		.79		.79		.79		.72		.95

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

INFORMATION ONLY

Master

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 4/18/16 **End Date:** 4/24/16

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER															
		FOT	C/O														RDS
ITEM	**MIN**	**NORM**	**MAX**														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	STBY	STBY												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5														
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5														
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓	✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		✓		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	68	67	66	66	67	66	67	67	67	67	67	66	66	67
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)		RESET MONDAY [A]		86495		76736											
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		95658		83785											
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	102		110		2		47		410		229		52	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	10200		11000		200		4700		21000		22900		5200	
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.95		.92		.78		.79		.89		0.71		.89		.85

04 24 16 RDS

NOTES:
- **[A] - RESET meter after taking the reading on Monday second shift.**
- **[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].**
- **[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.**
- **[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.**
- **[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.**
- **[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.**
- **[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.**

COMMENTS: ① LAL-006-03B doesn't illuminate - AR # 16197763

② 456-FM-045-001 had no reading - had to reset, FMS notified

APPROVED FOR USE/DATE: Scott Sitter 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Start Date: 042516 End Date: 050116

Location:	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
456, PUMPHOUSE BUILDING	REVIEWER															
	FOT	C/O														

ITEM	MIN	NORM	MAX	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	STBY	STBY													
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	↓	↓													
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5															
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		①		①		①		①		①		✓		✓		
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	67	67	67	66	67	67	67	66	67	67	67	67	67	67	67
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)	RESET MONDAY [A]			76736	71600													
DOMESTIC WATER GALLONS (gal)	RESET MONDAY [A]			83785	84051													
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	②	49		93		93		0		10		55		1	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	②	4900		9300		9300		0		1000		5500		100	
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.85	.84		.71		.38 ③		1.04		1.10		.98		.97	

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① LAL-0016-033 doesn't illumanate - AR 16187163.
② 456-FM-045-001 had no reading - had to reset; FSM notified.
③ Adding Cl_2 in Recirc. line, fsm notified

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Start Date: 050214 **End Date:** 050814

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER		[illegible]	AJP	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	AJP	[illegible]	AJP	[illegible]	[illegible]	[illegible]
		FOT	C/O	[illegible]	9-13	R.T.	LD	[illegible]	[illegible]	[illegible]	[illegible]	9-	07	[illegible]	[illegible]	[illegible]	[illegible]
ITEM	**MIN**	**NORM**	**MAX**														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	STBY	STBY												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	↓	↓ 0												
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	↓	↓ 0												
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					~~0~~ [illegible]	✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	67	67.6	68	67	67	64	67	67	67	67	67	67	67	67
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)		RESET MONDAY [A]		71400		8440											
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		84057		88770											
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	1		86		0		27		16		44		32		30
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	100		8600		0		2700		1600		4400		3200		3000
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.97		.91		.81		.80		.78		.91		.79		.90

NOTES:
- **[A] - RESET meter after taking the reading on Monday second shift.**
- **[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].**
- **[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.**
- **[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.**
- **[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.**
- **[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.**
- **[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.**

COMMENTS:

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Start Date: 5/9/16 End Date: 5/15/16

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	2	2	2	2	2	2	1	2	2	2	2	2
		REVIEWER		AMC													
		FOT	C/O	RDS		MK				CD			RT				km
ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	STBY	STBY												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	↓	↓												
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5														
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		✓		✓		✓		✓		(3) ✓
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	67	68	67	67	67	65	67	70	67	64	65	66	67	65
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)		RESET MONDAY [A]		95440		118040.7											
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		88770		95699											
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	30		172		49		113		Ø (1)		133		150		61
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	3000		17266		4900		11300		Ø ↓		13300		15000		6100
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.90		.8		.81		.80		.72		.68 (2)		.71 (3)		.93

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) FSM INFORMED. "RESET TOTALS" AS IS PERFORMED NIGHTLY - 4-20 ~~ALARMS~~ RELAY & ALARMS SET, INDICATED IN "STATUS" - AR SUBMITTED - # 1619784 R 051216 ENERGIZED
(2) Added Chlorine
(3) UNSAT/ FSM NOTIFIED.

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Master

Start Date: 051616 **End Date:** 052216

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER															
		FOT	C/O		R.T.							R.T.					
ITEM	**MIN**	**NORM**	**MAX**														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	STBY	STBY												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5														
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5														
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		✓		✓		✓		✓		✓
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	65	65	65	65	67	67	65	67	67	67	67	67	67	68.9
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)		RESET MONDAY [A]		118040.7		89666											
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		85699		93389											
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	61		3		62		123		1		97		80	10
[NMED, DP-831] **Max 23,000 gal** (Reading × 100)			23,000	6100		300		6200		12300		100		9700		8000	100
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.93		.81		.80		.54 ①		1.4 ①		1.5 ②		1.3 ②	1.21

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① ADDED Chlorine
② ADDED WATER / FSM NOTIFIED

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Start Date: 052316 End Date: 052916

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER															MP
		FOT	C/O		MK		RT									MK	
ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	STBY	0												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5		0												
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5		.06												
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		✓		(3)		(3)		(3)		(3)
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		✓		✓		✓			(2)		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	68.9	64	68	67	67	66	68	67	68	68	67	62	65	68	68
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)		RESET MONDAY [A]		8966.6		93350											
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		93389		88943											
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	10		55		35		82		0		67		4		53	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	100		5500		3500		8200		0		6700		400		5300	
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	MK 5/23/16 (2) 1.21 (1)		0.99		1.11		.99		.94		.95		.94		.97	

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Added H_2O FSM notified ② Tank #2 No light indication of alarm window - A.R. was submitted long time ago.
③ FSM + COG Eng. notified.

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Start Date: 053014 End Date: 060514

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER		[illegible]	PJP	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	PJP	[illegible]	PJP	[illegible]	PJP	[illegible]
		FOT	C/O	[illegible]	[illegible]	[illegible]	MK	[illegible]	[illegible]	[illegible]	RDS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	0	STBY												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	0	↓												
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	.02													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		✓		✓		✓		✓		✓
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	68	68	67	66	67	68	68	63	67	68	68	67	67	68	64
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)	RESET MONDAY [A]			93350		132684											
DOMESTIC WATER GALLONS (gal)	RESET MONDAY [A]			88943		89482											
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	53		47		50		21		32		12		1		0
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	5300		4700		5000		2100		3,200		1200		100		0
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.87		.86		1.1		.81		.71		.89		.84		.8

NOTES:
- **[A] - RESET meter after taking the reading on Monday second shift.**
- **[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].**
- **[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.**
- **[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.**
- **[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.**
- **[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.**
- **[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.**

COMMENTS:

APPROVED FOR USE/DATE: Scott Sitter 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Master

Start Date: 6/13/16 End Date: 6/19/16

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		PM		PM											
				FOT	C/O										RDS		LD		MK
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	STBY	STBY													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5															
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5															
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	69	69	69	69	69	67	69	67	69	69	68	69	69	69	66
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			72014		~~74915~~ 93738												
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			87053		94375												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	224		749		299		255		~~595~~		116 06/17/16 COS		105		59
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	22400		74900		29900		25500		57500		11600		10500		5900
HACH TEST KIT															06/17/16 RDS				
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	1.2		1.2		1.2		1.2		1.06		1.03		.97		.84

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① FSM notified.

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

INFORMATION ONLY

Start Date: 06/20/16 End Date: ~~07/03/16~~ 06/26/16 mk 06/20/16

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
DAY																		
SHIFT				2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
REVIEWER					AM	AM	JR	NJ	MKD	KP	MK	NJ	AM	PJP	AM	PJP	AM	PJP
FOT				C/O	R	[illegible]	R	[illegible]	R	[illegible]	[illegible]	[illegible]	RDS	[illegible]	CD	9-13	[illegible]	MC
ITEM	**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	STBY	0													
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	↓	0													
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	↓	.1													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	66	65	66	65	66	65	66	65	66	65	64	67	68	68	69
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		153738		243050												
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		94375		192080												
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	59		86		84		87		48		24		268 (3)		329 (3)
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	5900		8600		8400		8700		4800		2600		26800		32900
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.84		.89		.81		.73		1.28 (1)		1.3 (2)		1.27 (3)		1.19

NOTES:
- [A] - RESET meter after taking the reading on Monday second shift.
- [B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
- [C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
- [D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
- [E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
- [F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
- [G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) adding Cl-2
(2) adding water
(3) OUT OF SPEC FSM NOTIFIED

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

April 19, 2016

Greg Jungclaus
Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL:
FAX

RE: Env Monit (DP-831 Sewage) OrderNo.: 1604010

Dear Greg Jungclaus:

Hall Environmental Analysis Laboratory received 8 sample(s) on 4/1/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Workorder Sample Summary

WO#: **1604010**
19-Apr-16

CLIENT: Waste Isolation Pilot Plant
Project: Env Monit (DP-831 Sewage)

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1604010-001	EC-SL2-20160331-1.3		3/31/2016 9:12:00 AM	4/1/2016 9:00:00 AM	Aqueous
1604010-002	EC-SL2-20160331-2.3		3/31/2016 9:08:00 AM	4/1/2016 9:00:00 AM	Aqueous
1604010-003	EC-SL2-20160331-3.3		3/31/2016 9:05:00 AM	4/1/2016 9:00:00 AM	Aqueous
1604010-004	EC-ELB-20160331-1.2		3/31/2016 8:52:00 AM	4/1/2016 9:00:00 AM	Aqueous
1604010-005	EC-ELB-20160331-2.2		3/31/2016 8:52:00 AM	4/1/2016 9:00:00 AM	Aqueous
1604010-006	EC-ELC-20160331-1.1		3/31/2016 8:54:00 AM	4/1/2016 9:00:00 AM	Aqueous
1604010-007	EC-H19-20160331-1.1		3/31/2016 8:29:00 AM	4/1/2016 9:00:00 AM	Aqueous
1604010-008	EC-Blk-20160331-1.1		3/31/2016 9:00:00 AM	4/1/2016 9:00:00 AM	Aqueous

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1604010**
Date: **4/19/2016**

CLIENT: Waste Isolation Pilot Plant
Project: Env Monit (DP-831 Sewage)

All analytes reported are associated with passing CCVs.

METHOD: 300.0

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: none
Analysis: 300.0

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Calibration: All acceptance criteria were met.
2. Blanks: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Spikes: All acceptance criteria were met.
5. Samples: All acceptance criteria were met.

METHOD: SM2540C

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: SM2540C
Analysis: SM2540C

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Blanks: All acceptance criteria were met.
2. Spikes: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Samples: All acceptance criteria were met.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1604010**
Date: **4/19/2016**

CLIENT: Waste Isolation Pilot Plant
Project: Env Monit (DP-831 Sewage)

METHOD: SM4500 NorgC

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: SM4500 NorgC
Analysis: SM4500 NorgC

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Blanks: All acceptance criteria were met.
2. Spikes: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Samples: All acceptance criteria were met.

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-SL2-20160331-1.3
Project: Env Monit (DP-831 Sewage)
Collection Date: 3/31/2016 9:12:00 AM
Lab ID: 1604010-001
Matrix: AQUEOUS
Received Date: 4/1/2016 9:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Nitrogen, Nitrate (As N)	ND	0.210	0.500		mg/L	5	4/1/2016 11:54:59 PM	R33247

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-SL2-20160331-2.3
Project: Env Monit (DP-831 Sewage)
Collection Date: 3/31/2016 9:08:00 AM
Lab ID: 1604010-002 **Matrix:** AQUEOUS **Received Date:** 4/1/2016 9:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
SM 4500 NORG C: TKN							Analyst: **CJS**	
Nitrogen, Kjeldahl, Total	112	4.90	10.0	D	mg/L	1	4/7/2016 2:27:00 PM	24643

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-SL2-20160331-3.3
Project: Env Monit (DP-831 Sewage)
Collection Date: 3/31/2016 9:05:00 AM
Lab ID: 1604010-003 **Matrix:** AQUEOUS **Received Date:** 4/1/2016 9:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	76.6	0.274	5.00		mg/L	10	4/6/2016 3:24:22 PM	R33368
Sulfate	41.8	0.638	5.00		mg/L	10	4/6/2016 3:24:22 PM	R33368
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	530	105	200	*D	mg/L	1	4/6/2016 5:41:00 PM	24626

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-ELB-20160331-1.2
Project: Env Monit (DP-831 Sewage)
Collection Date: 3/31/2016 8:52:00 AM
Lab ID: 1604010-004
Matrix: AQUEOUS
Received Date: 4/1/2016 9:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	72700	137	2500		mg/L	5000	4/7/2016 10:44:03 PM	R33400
Sulfate	10500	63.8	500		mg/L	1000	4/6/2016 4:26:25 PM	R33368
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	91100	1050	2000	*D	mg/L	1	4/6/2016 5:41:00 PM	24626

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-ELB-20160331-2.2
Project: Env Monit (DP-831 Sewage)
Collection Date: 3/31/2016 8:52:00 AM
Lab ID: 1604010-005
Matrix: AQUEOUS
Received Date: 4/1/2016 9:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	69200	137	2500		mg/L	5000	4/7/2016 10:56:27 PM	R33400
Sulfate	9530	63.8	500		mg/L	1000	4/6/2016 4:51:14 PM	R33368
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	94000	1050	2000	*D	mg/L	1	4/6/2016 5:41:00 PM	24626

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-ELC-20160331-1.1
Project: Env Monit (DP-831 Sewage)
Collection Date: 3/31/2016 8:54:00 AM
Lab ID: 1604010-006
Matrix: AQUEOUS
Received Date: 4/1/2016 9:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	84500	137	2500		mg/L	5000	4/7/2016 11:08:52 PM	R33400
Sulfate	7770	63.8	500		mg/L	1000	4/6/2016 5:16:05 PM	R33368
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	91100	1050	2000	*D	mg/L	1	4/6/2016 5:41:00 PM	24626

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-H19-20160331-1.1
Project: Env Monit (DP-831 Sewage)
Collection Date: 3/31/2016 8:29:00 AM
Lab ID: 1604010-007
Matrix: AQUEOUS
Received Date: 4/1/2016 9:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	293000	548	10000		mg/L	2E+0	4/7/2016 11:21:17 PM	R33400
Sulfate	2130	63.8	500		mg/L	1000	4/6/2016 5:40:54 PM	R33368
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	414000	1050	2000	*D	mg/L	1	4/6/2016 5:41:00 PM	24626

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-Blk-20160331-1.1
Project: Env Monit (DP-831 Sewage)
Collection Date: 3/31/2016 9:00:00 AM
Lab ID: 1604010-008
Matrix: AQUEOUS
Received Date: 4/1/2016 9:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	0.274	0.0274	0.500	J	mg/L	1	4/6/2016 5:53:18 PM	R33368
Sulfate	0.211	0.0638	0.500	J	mg/L	1	4/6/2016 5:53:18 PM	R33368
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	ND	10.5	20.0		mg/L	1	4/6/2016 5:41:00 PM	24626

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

DATES REPORT

WO#: **1604010**

19-Apr-16

Client: Waste Isolation Pilot Plant

Project: Env Monit (DP-831 Sewage)

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1604010-001A	EC-SL2-20160331-1.3	3/31/2016 9:12:00 AM	Aqueous	EPA Method 300.0: Anions			4/2/2016 12:07:24 AM
				EPA Method 300.0: Anions			4/1/2016 11:54:59 PM
1604010-002A	EC-SL2-20160331-2.3	3/31/2016 9:08:00 AM		SM 4500 Norg C: TKN		4/6/2016 10:17:13 AM	4/7/2016 2:27:00 PM
1604010-003A	EC-SL2-20160331-3.3	3/31/2016 9:05:00 AM		EPA Method 300.0: Anions			4/6/2016 3:24:22 PM
				EPA Method 300.0: Anions			4/6/2016 3:36:46 PM
				SM2540C MOD: Total Dissolved Soli		4/5/2016 11:25:29 AM	4/6/2016 5:41:00 PM
1604010-004A	EC-ELB-20160331-1.2	3/31/2016 8:52:00 AM		EPA Method 300.0: Anions			4/6/2016 4:14:00 PM
				EPA Method 300.0: Anions			4/6/2016 4:26:25 PM
				EPA Method 300.0: Anions			4/7/2016 10:44:03 PM
				SM2540C MOD: Total Dissolved Soli		4/5/2016 11:25:29 AM	4/6/2016 5:41:00 PM
1604010-005A	EC-ELB-20160331-2.2			EPA Method 300.0: Anions			4/7/2016 10:56:27 PM
				EPA Method 300.0: Anions			4/6/2016 4:51:14 PM
				EPA Method 300.0: Anions			4/6/2016 4:38:49 PM
				SM2540C MOD: Total Dissolved Soli		4/5/2016 11:25:29 AM	4/6/2016 5:41:00 PM
1604010-006A	EC-ELC-20160331-1.1	3/31/2016 8:54:00 AM		EPA Method 300.0: Anions			4/7/2016 11:08:52 PM
				EPA Method 300.0: Anions			4/6/2016 5:03:40 PM
				EPA Method 300.0: Anions			4/6/2016 5:16:05 PM
				SM2540C MOD: Total Dissolved Soli		4/5/2016 11:25:29 AM	4/6/2016 5:41:00 PM
1604010-007A	EC-H19-20160331-1.1	3/31/2016 8:29:00 AM		EPA Method 300.0: Anions			4/6/2016 5:28:30 PM
				EPA Method 300.0: Anions			4/6/2016 5:40:54 PM
				EPA Method 300.0: Anions			4/7/2016 11:21:17 PM
				SM2540C MOD: Total Dissolved Soli		4/5/2016 11:25:29 AM	4/6/2016 5:41:00 PM
1604010-008A	EC-Blk-20160331-1.1	3/31/2016 9:00:00 AM		EPA Method 300.0: Anions			4/6/2016 5:53:18 PM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

DATES REPORT

WO#: **1604010**

19-Apr-16

Client: Waste Isolation Pilot Plant

Project: Env Monit (DP-831 Sewage)

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1604010-008A	EC-Blk-20160331-1.1	3/31/2016 9:00:00 AM	Aqueous	EPA Method 300.0: Anions			4/6/2016 6:05:43 PM
				SM2540C MOD: Total Dissolved Soli		4/5/2016 11:25:29 AM	4/6/2016 5:41:00 PM

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604010**

19-Apr-16

Client: Waste Isolation Pilot Plant

Project: Env Monit (DP-831 Sewage)

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R33247**	RunNo: **33247**
Prep Date:	Analysis Date: **4/1/2016**	SeqNo: **1021626** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R33247**	RunNo: **33247**
Prep Date:	Analysis Date: **4/1/2016**	SeqNo: **1021627** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	98.4	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R33368**	RunNo: **33368**
Prep Date:	Analysis Date: **4/6/2016**	SeqNo: **1025773** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R33368**	RunNo: **33368**
Prep Date:	Analysis Date: **4/6/2016**	SeqNo: **1025774** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	97.0	90	110			
Sulfate	9.9	0.50	10.00	0	98.7	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R33400**	RunNo: **33400**
Prep Date:	Analysis Date: **4/7/2016**	SeqNo: **1026977** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R33400**	RunNo: **33400**
Prep Date:	Analysis Date: **4/7/2016**	SeqNo: **1026978** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	98.5	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604010**

19-Apr-16

Client: Waste Isolation Pilot Plant

Project: Env Monit (DP-831 Sewage)

Sample ID **MB-24626**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **24626**	RunNo: **33354**
Prep Date: **4/5/2016**	Analysis Date: **4/6/2016**	SeqNo: **1024980** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-24626**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **24626**	RunNo: **33354**
Prep Date: **4/5/2016**	Analysis Date: **4/6/2016**	SeqNo: **1024981** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604010**

19-Apr-16

Client: Waste Isolation Pilot Plant

Project: Env Monit (DP-831 Sewage)

Sample ID **MB-24643**	SampType: **MBLK**	TestCode: **SM 4500 Norg C: TKN**
Client ID: **PBW**	Batch ID: **24643**	RunNo: **33382**
Prep Date: **4/6/2016**	Analysis Date: **4/7/2016**	SeqNo: **1026323** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	1.0								

Sample ID **LCS-24643**	SampType: **LCS**	TestCode: **SM 4500 Norg C: TKN**
Client ID: **LCSW**	Batch ID: **24643**	RunNo: **33382**
Prep Date: **4/6/2016**	Analysis Date: **4/7/2016**	SeqNo: **1026324** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10	1.0	10.00	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: WIPP | Work Order Number: 1604010 | RcptNo: 1

Received by/date: JA 04/01/16

Logged By: **Anne Thorne** 4/1/2016 9:00:00 AM Anne Thorne

Completed By: **Anne Thorne** 4/1/2016 Anne Thorne

Reviewed By: 04/01/16

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☑	No ☐	Not Present ☐
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	FedEx		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 1

(<2 or >12 unless noted)

Adjusted? No

Checked by: JA

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

04550

REQUEST FOR ANALYSIS

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED 2-1-16 RFA Control № 09909

LAB DESTINATION Hall Environmental

LABORATORY CONTACT Andy Freeman

SEND LAB REPORT TO NWP C of C Control № 09909

P.O. Box 2078 M/S 452-09

Carlsbad, NM 88221

DATE REPORT REQUIRED Per S.O.W

PROJECT CONTACT C/O Greg Jungclaus

PROJECT CONTACT PHONE NO (575) 234-8615

SAMPLING PROGRAM ENV-Monit

PURCHASE ORDER NO. 502542-4

HEAL # 1604010

Sample Number	Sample Type	Sample Quantity	Preservative	Req't. Testing Program	Special Instructions
EC-SL2-20160331-1.3	Sewage	1 Liter	≤ 4°C	Nitrate	maximum hold time 48 hrs
2.3		500 mL	H_2SO_4 to pH ≤2, ≤4°C	TKN	N/A
3.3			≤ 4°C	sulfate, Chloride, TDS	
EC-ELB-20160331-1.2					
2.2					
EC-ELC-20160331-1.1					
HIP					
BIK	Blank				

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL X RUSH _____ (Subject in rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NONHAZARD _____ RADIOLOGICAL _____ FLAMMABLE _____ SKIN IRRITANT _____ HIGHLY TOXIC _____ BIOLOGICAL X OTHER _____ (Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT _____ DISPOSAL BY LAB X

FOR LAB USE ONLY

RECEIVED BY _____ DATE/TIME _____

WP 02-EM3001- Environmental Monitoring WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

NICHOLS PRINTING INC

04551

CHAIN-OF-CUSTODY RECORD

№ 09908

C of C Control _____

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

№ 09908

RFA Control _____

SAMPLING PROGRAM Env-Monit (DP-831 Sewage) LAB DESTINATION Hall Enviromental Lab (HEAL)

SAMPLE TEAM MEMBERS Jerome Hernandez, CARRIER/WAYBILL NO. Fed Ex HEAL#1604010

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
EC-SL2-20160331 - 1.3	Settling Lagoon 2	3-31-16 0912	Sewage	1 Liter	-001	N/A
2.3		0908		500mL	-002	
3.3		0905			-003	
EC-ELB-20160331 - 1.2	Evaporation Lagoon B	0852			-004	
2.2	B	0857			-005	
EC-ELC-20160331 - 1.1	C	0854			-006	
H19	H-19	0829			-007	
BLK	Blank	0900	Blank		-008	
		N/A				

Special Instructions: Do Nitrate (1 Liter Settling Lagoon 2; 1.3) within 48 hours of time collected (3-31-16 @ 0912)

Possible Sample Hazards: ☐ Radiological ☒ Bio-Hazard

SIGNATURES: (Name, Company, Date and Time)

Relinquished By: Jerome Hernandez NWP 3-31-16 1252

Received By: Jane Abet 04/01/16 0900 1.0°C On Ice

Relinquished By: _____

Received By: _____

3. Relinquished By: _____

Received By: _____

4. Relinquished By: _____

Received By: _____

02-EM3001- Environmental Monitoring

WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

04552

REQUEST FOR ANALYSIS

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED 3-31-16 RFA Control Nº 09908

LAB DESTINATION Hall Environmental

LABORATORY CONTACT Andy Freeman

SEND LAB REPORT TO NWP C of C Control Nº 09908
P.O. Box 2078 m/s 452-09
Carlsbad, N.M 88221

DATE REPORT REQUIRED Per S.O.W

PROJECT CONTACT C/o Greg Jungclaus

PROJECT CONTACT PHONE NO. (575) 234-8615 HEAL # 1604010

SAMPLING PROGRAM Env-Monit

PURCHASE ORDER NO. 502542-4

Sample Number	Sample Type	Sample Quantity	Preservative	Req't. Testing Program	Special Instructions
LC-SW2-20160331-1.3	Sewage	1 Liter	≤4°C	Per S.O.W	Maximum hold time 48 hrs (DCI)
2.3	↓	500 mL	H_2SO_4 to pH ≤2, ≤4°C	↓	N/A 202
3.3	↓	↓	≤4°C	↓	203
LC-ELB-20160331-1.2	↓	↓	↓	↓	204
2.2	↓	↓	↓	↓	205
LC-ELC-20160331-1.1	↓	↓	↓	↓	206
H19	↓	↓	↓	↓	207
Blk	Blank	↓	↓	↓	208
		N/A			

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL X RUSH _____ (Subject to rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NONHAZARD _____ RADIOLOGICAL _____ FLAMMABLE _____ SKIN IRRITANT _____ HIGHLY TOXIC _____ BIOLOGICAL X OTHER _____ (Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT _____ DISPOSAL BY LAB X

FOR LAB USE ONLY

RECEIVED BY Jane Cook DATE/TIME 04/01/16 0900

02-EM3001- Environmental Monitoring WHITE - Original to accompany samples YELLOW - Field copy 1.0 on ICC PINK - Other

04553

Water Level Measurement Field Data Sheet

From January to June Year 2016

Pond Name	Date	Time	Water Depth (ft)	Initials	Comments
Salt Storage Pond 2	1/12/16	1528	38.15	RJ	
Salt Storage Pond 3	1/12/16	1533	43.11	RJ	
Salt Storage Pond 2	2/4/16	1430	38.17	RJ	
Salt Storage Pond 3	2/4/16	1454	45.35	RJ	
Salt Storage Pond 2	3/15/16	0857	38.01	RJ	
Salt Storage Pond 3	3/15/16	0842	49.55	RJ	
Salt Storage Pond 2	4/6/16	0847	38.39	RJ	
Salt Storage Pond 3	4/6/16	1630	64.20	RJ	
Salt Storage Pond 2	5/4/16	1328	37.85	JL	
Salt Storage Pond 3	5/4/16	1333	51.15	JL	
Salt Storage Pond 2	6/14/16	1445	37.88	RJ	
Salt Storage Pond 3	6/14/16	1451	26.90	RJ	

Performer: Print Name: Richard Jimenez Signature:

Performer: Print Name: Josh Litt Signature: No Longer w/ Company

Performer: Print Name: Signature:

04554

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

June 07, 2016

Brett Seal
Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8966
FAX

RE: SSW Sampling R25 OrderNo.: 1605C02

Dear Brett Seal:

Hall Environmental Analysis Laboratory received 10 sample(s) on 5/26/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWC2811R25N1
Project: SSW Sampling R25
Collection Date: 5/24/2016 9:03:00 AM
Lab ID: 1605C02-001
Matrix: AQUEOUS
Received Date: 5/26/2016 8:45:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	1210	5.48	100		mg/L	200	5/26/2016 6:39:07 PM	R34533
Sulfate	491	0.638	5.00		mg/L	10	5/26/2016 6:26:43 PM	R34533
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	2720	52.5	100	*D	mg/L	1	6/1/2016 7:15:00 PM	25578

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ12R25N1
Project: SSW Sampling R25
Collection Date: 5/24/2016 10:59:00 AM
Lab ID: 1605C02-002
Matrix: AQUEOUS
Received Date: 5/26/2016 8:45:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	2570	13.7	250		mg/L	500	5/26/2016 7:03:55 PM	R34533
Sulfate	560	6.38	50.0		mg/L	100	5/26/2016 6:51:31 PM	R34533
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	6100	52.5	100	*D	mg/L	1	6/1/2016 7:15:00 PM	25578

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ10R25N1
Project: SSW Sampling R25
Collection Date: 5/24/2016 12:30:00 PM
Lab ID: 1605C02-003
Matrix: AQUEOUS
Received Date: 5/26/2016 8:45:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	200	2.74	50.0		mg/L	100	5/26/2016 7:28:44 PM	R34533
Sulfate	274	0.638	5.00		mg/L	10	5/26/2016 7:16:19 PM	R34533
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	1100	21.0	40.0	*D	mg/L	1	6/1/2016 7:15:00 PM	25578

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ9R25N1
Project: SSW Sampling R25
Collection Date: 5/25/2016 8:31:00 AM
Lab ID: 1605C02-004
Matrix: AQUEOUS
Received Date: 5/26/2016 8:45:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	115000	274	5000		mg/L	1E+0	5/26/2016 7:53:33 PM	R34533
Sulfate	5640	12.8	100		mg/L	200	5/26/2016 7:41:09 PM	R34533
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	167000	1050	2000	*D	mg/L	1	6/1/2016 7:15:00 PM	25578

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ7R25N1
Project: SSW Sampling R25
Collection Date: 5/25/2016 1:44:00 PM
Lab ID: 1605C02-005
Matrix: AQUEOUS
Received Date: 5/26/2016 8:45:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	75400	1370	25000		mg/L	5E+0	5/26/2016 8:18:22 PM	R34533
Sulfate	3790	12.8	100		mg/L	200	5/26/2016 8:05:57 PM	R34533
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	109000	1050	2000	*D	mg/L	1	6/1/2016 7:15:00 PM	25578

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ13R25N1
Project: SSW Sampling R25
Collection Date: 5/25/2016 9:01:00 AM
Lab ID: 1605C02-006
Matrix: AQUEOUS
Received Date: 5/26/2016 8:45:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	168000	274	5000		mg/L	1E+0	5/26/2016 9:08:01 PM	R34533
Sulfate	1600	6.38	50.0		mg/L	100	5/26/2016 8:55:36 PM	R34533
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	260000	1050	2000	*D	mg/L	1	6/1/2016 7:15:00 PM	25578

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ11R25N1
Project: SSW Sampling R25
Collection Date: 5/24/2016 3:03:00 PM
Lab ID: 1605C02-007
Matrix: AQUEOUS
Received Date: 5/26/2016 8:45:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	54900	274	5000		mg/L	1E+0	5/26/2016 9:32:50 PM	R34533
Sulfate	2640	6.38	50.0		mg/L	100	5/26/2016 9:20:25 PM	R34533
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	93200	1050	2000	*D	mg/L	1	6/1/2016 7:15:00 PM	25578

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ11R25N1EB
Project: SSW Sampling R25
Collection Date: 5/24/2016 3:18:00 PM
Lab ID: 1605C02-008
Matrix: AQUEOUS
Received Date: 5/26/2016 8:45:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	0.381	0.0274	0.500	J	mg/L	1	5/26/2016 9:45:14 PM	R34533
Sulfate	ND	0.0638	0.500		mg/L	1	5/26/2016 9:45:14 PM	R34533
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	ND	10.5	20.0		mg/L	1	6/1/2016 7:15:00 PM	25578

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWWQSP6AR25N1
Project: SSW Sampling R25
Collection Date: 5/25/2016 11:04:00 AM
Lab ID: 1605C02-009
Matrix: AQUEOUS
Received Date: 5/26/2016 8:45:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	379	0.548	10.0		mg/L	20	5/26/2016 10:22:28 PM	R34533
Nitrogen, Nitrate (As N)	5.19	0.0421	0.100		mg/L	1	5/26/2016 10:10:03 PM	R34533
Sulfate	1900	6.38	50.0		mg/L	100	5/31/2016 5:32:30 PM	R34594
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	3380	52.5	100	*D	mg/L	1	6/1/2016 7:15:00 PM	25578

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWWQSP6AR25N2
Project: SSW Sampling R25
Collection Date: 5/25/2016 11:08:00 AM
Lab ID: 1605C02-010
Matrix: AQUEOUS
Received Date: 5/26/2016 8:45:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Nitrate+Nitrite as N	4.91	0.419	1.00		mg/L	5	5/26/2016 10:34:52 PM	R34533
SM 4500 NORG C: TKN							Analyst: **CJS**	
Nitrogen, Kjeldahl, Total	ND	0.49	1.0		mg/L	1	6/2/2016 1:21:00 PM	25609

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605C02**

07-Jun-16

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R25

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R34533**	RunNo: **34533**
Prep Date:	Analysis Date: **5/26/2016**	SeqNo: **1065110** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.6	0.50	8.000	0	95.6	90	110			
Nitrogen, Nitrate (As N)	4.8	0.10	4.800	0	101	90	110			
Sulfate	19	0.50	20.00	0	97.4	90	110			
Nitrate+Nitrite as N	8.0	0.20	8.000	0	99.9	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R34533**	RunNo: **34533**
Prep Date:	Analysis Date: **5/26/2016**	SeqNo: **1065121** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	99.8	90	110			
Nitrogen, Nitrate (As N)	7.6	0.10	7.200	0	106	90	110			
Sulfate	30	0.50	30.00	0	101	90	110			
Nitrate+Nitrite as N	12	0.20	12.00	0	104	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R34533**	RunNo: **34533**
Prep Date:	Analysis Date: **5/26/2016**	SeqNo: **1065133** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.5	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	96.8	90	110			
Sulfate	12	0.50	12.50	0	94.1	90	110			
Nitrate+Nitrite as N	4.8	0.20	5.000	0	96.8	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R34533**	RunNo: **34533**
Prep Date:	Analysis Date: **5/26/2016**	SeqNo: **1065140** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R34533**	RunNo: **34533**
Prep Date:	Analysis Date: **5/26/2016**	SeqNo: **1065141** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605C02**

07-Jun-16

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R25

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R34533**	RunNo: **34533**
Prep Date:	Analysis Date: **5/26/2016**	SeqNo: **1065141** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	95.4	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	100	90	110			
Sulfate	9.7	0.50	10.00	0	97.3	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	99.6	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R34533**	RunNo: **34533**
Prep Date:	Analysis Date: **5/26/2016**	SeqNo: **1065145** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.4	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	101	90	110			
Sulfate	19	0.50	20.00	0	97.5	90	110			
Nitrate+Nitrite as N	8.0	0.20	8.000	0	100	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R34533**	RunNo: **34533**
Prep Date:	Analysis Date: **5/26/2016**	SeqNo: **1065157** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	102	90	110			
Nitrogen, Nitrate (As N)	7.8	0.10	7.200	0	108	90	110			
Sulfate	31	0.50	30.00	0	103	90	110			
Nitrate+Nitrite as N	13	0.20	12.00	0	106	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R34533**	RunNo: **34533**
Prep Date:	Analysis Date: **5/26/2016**	SeqNo: **1065169** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.8	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	96.4	90	110			
Sulfate	12	0.50	12.50	0	93.9	90	110			
Nitrate+Nitrite as N	4.8	0.20	5.000	0	96.6	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R34533**	RunNo: **34533**
Prep Date:	Analysis Date: **5/27/2016**	SeqNo: **1065174** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605C02**

07-Jun-16

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R25

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R34533**	RunNo: **34533**							
Prep Date:	Analysis Date: **5/27/2016**	SeqNo: **1065174**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	96.9	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	101	90	110			
Sulfate	20	0.50	20.00	0	97.6	90	110			
Nitrate+Nitrite as N	8.1	0.20	8.000	0	101	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R34594**	RunNo: **34594**							
Prep Date:	Analysis Date: **5/31/2016**	SeqNo: **1066973**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	31	0.50	30.00	0	104	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R34594**	RunNo: **34594**							
Prep Date:	Analysis Date: **5/31/2016**	SeqNo: **1066975**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R34594**	RunNo: **34594**							
Prep Date:	Analysis Date: **5/31/2016**	SeqNo: **1066976**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.7	0.50	10.00	0	97.1	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R34594**	RunNo: **34594**							
Prep Date:	Analysis Date: **5/31/2016**	SeqNo: **1066990**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	12	0.50	12.50	0	96.1	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R34594**	RunNo: **34594**							
Prep Date:	Analysis Date: **5/31/2016**	SeqNo: **1067003**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	20	0.50	20.00	0	100	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1605C02**
07-Jun-16

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R25

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R34594**	RunNo: **34594**							
Prep Date:	Analysis Date: **5/31/2016**	SeqNo: **1067011**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	31	0.50	30.00	0	104	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605C02**

07-Jun-16

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R25

Sample ID	**MB-25578**	SampType: **MBLK**		TestCode: **SM2540C MOD: Total Dissolved Solids**						
Client ID:	**PBW**	Batch ID: **25578**		RunNo: **34620**						
Prep Date:	**5/31/2016**	Analysis Date: **6/1/2016**		SeqNo: **1067634**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	**LCS-25578**	SampType: **LCS**		TestCode: **SM2540C MOD: Total Dissolved Solids**						
Client ID:	**LCSW**	Batch ID: **25578**		RunNo: **34620**						
Prep Date:	**5/31/2016**	Analysis Date: **6/1/2016**		SeqNo: **1067635**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1000	20.0	1000	0	100	80	120			

Sample ID	**1605C02-001AMS**	SampType: **MS**		TestCode: **SM2540C MOD: Total Dissolved Solids**						
Client ID:	**SSWC2811R25N1**	Batch ID: **25578**		RunNo: **34620**						
Prep Date:	**5/31/2016**	Analysis Date: **6/1/2016**		SeqNo: **1067643**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	8110	100	5000	2715	108	80	120			D

Sample ID	**1605C02-001AMSD**	SampType: **MSD**		TestCode: **SM2540C MOD: Total Dissolved Solids**						
Client ID:	**SSWC2811R25N1**	Batch ID: **25578**		RunNo: **34620**						
Prep Date:	**5/31/2016**	Analysis Date: **6/1/2016**		SeqNo: **1067644**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	8110	100	5000	2715	108	80	120	0000718	5	D

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605C02**

07-Jun-16

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R25

Sample ID	**MB-25609**	SampType: **MBLK**			TestCode: **SM 4500 Norg C: TKN**					
Client ID:	**PBW**	Batch ID: **25609**			RunNo: **34655**					
Prep Date:	**6/1/2016**	Analysis Date: **6/2/2016**			SeqNo: **1068768**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	1.0								

Sample ID	**LCS-25609**	SampType: **LCS**			TestCode: **SM 4500 Norg C: TKN**					
Client ID:	**LCSW**	Batch ID: **25609**			RunNo: **34655**					
Prep Date:	**6/1/2016**	Analysis Date: **6/2/2016**			SeqNo: **1068769**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10	1.0	10.00	0	104	80	120			

Sample ID	**1605C02-010AMS**	SampType: **MS**			TestCode: **SM 4500 Norg C: TKN**					
Client ID:	**SSWWQSP6AR25N**	Batch ID: **25609**			RunNo: **34655**					
Prep Date:	**6/1/2016**	Analysis Date: **6/2/2016**			SeqNo: **1068784**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10	1.0	10.00	0	101	75	125			

Sample ID	**1605C02-010AMSD**	SampType: **MSD**			TestCode: **SM 4500 Norg C: TKN**					
Client ID:	**SSWWQSP6AR25N**	Batch ID: **25609**			RunNo: **34655**					
Prep Date:	**6/1/2016**	Analysis Date: **6/2/2016**			SeqNo: **1068785**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	9.7	1.0	10.00	0	96.6	75	125	4.26	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: WIPP | Work Order Number: 1605C02 | RcptNo: 1

Received by/date: JA 05/26/16

Logged By: **Anne Thorne** 5/26/2016 8:45:00 AM Anne Thorne

Completed By: **Anne Thorne** 5/26/2016 Anne Thorne

Reviewed By: IO 05/26/16

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☑	No ☐	Not Present ☐	
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐	
3. How was the sample delivered?	FedEx			

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 2 (<2 or >12 unless noted)

Adjusted? No

Checked by:

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

04572

CHAIN OF CUSTODY RECORD

№ 1062

Page 1 of 2

Project Number:	Project Name:
T502542-2	SSW Sampling R25

Sampler(s): Brett Seal

Sample Date	Sample Time	Matrix	Sample Number	Total Number of Containers	TDS	Chloride	Sulfate	Analytical Laboratory / Comments
5-24-16	0903	SSW	SSWC2811R25N1	1	x	x	x	HEAL Albuquerque, NM
5-24-16	1059		SSWPZ12R25N1	1	x	x	x	HEAL Comments 1605C02
5-24-16	1230		SSWPZ10R25N1	1	x	x	x	Use for MS/MSD -001
5-25-16	0831		SSWPZ9R25N1	1	x	x	x	-002
5-24-16	1344		SSWPZ7R25N1	1	x	x	x	-003
5-25-16	0901		SSWPZ13R25N1	1	x	x	x	-004
5-24-16	1503		SSWPZ11R25N1	1	x	x	x	-005
5-24-16	1518		SSWPZ11R25N1EB	1	x	x	x	-006
			SSWC2507R25N1	1	x	x	x	-007
			SSWPZ1R25N1	1	x	x	x	Equ Blank -008
			SSWPZ5R25N1	1	x	x	x	
			SSWPZ5R25N1D	1	x	x	x	
			SSWPZ5R25N1EB	1	x	x	x	
			SSWPZ6R25N1	1	x	x	x	Equ Blank

N/A RS 5-25-16

Relinquished By: (Signature, Date/Time) Brett Seal 5-25-16 12:43

Relinquished By: (Signature, Date/Time)

Received By: (Signature, Date/Time)

Received By: (Signature, Date/Time)

Relinquished By: (Signature, Date/Time)

Relinquished By: (Signature, Date/Time)

Received By: (Signature, Date/Time) 10 ohi

Received at Laboratory: (Signature, Date/Time) 05/26/16 0845

Requested Turnaround Time: 30 Days

☒ Routine ☐ Rush _____

Sample Disposal:

☐ Return to Client ☒ Disposal by Lab

Carrier / Airbill No.: 554180074O

Sample Receipt Remarks:

Results To: Brett Seal
RES
PO Box 2078, MS 452-09
Carlsbad, NM 88221-2078
Phone: 575-234-8866 FAX: 575-234-6003
EDD: Brett.Seal@WIPP.WS

Special Instructions:
High TDS: PZ-7, PZ-11 PZ-9, PZ-6, PZ-5, PZ-13, PZ-1.
Report all data to three sigfigs

WHITE – Analytical Laboratory
DI – Deionized Water
GW – Groundwater
YELLOW – Field Copy
AF – Air Filter(s)
AN – Animal(s)
PINK – Record Copy
SE – Sediment
SO – Soil
SW – Surface Water
VG – Vegetation

Form CofC/RFA, Rev. 0 – NICHOLS PRINTING, INC

045573

CHAIN OF CUSTODY RECORD

№ 1063

Page 2 of 2

Project Number:	Project Name:
T502542-2	SSW Sampling R25

Sampler(s): Brett Seal

Sample Date	Sample Time	Matrix	Sample Number	Total Number of Containers	TDS	Chloride	Sulfate	Nitrate	TKN					Analytical Laboratory
														HEAL Albuquerque, NM
5-25-16	1104	SSW	SSWLWQSPGA R25 N1	1	x	x	x	x						1 6 oz Comments 009
5-25-16	1108	SSW	SSWLWQSPGA R25 N2	1				x	x					010
							NA	BS						

Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)
5-25-16 12:43			1.0 on Ice
Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received at Laboratory: (Signature, Date/Time)
			05/26/16 0845

Requested Turnaround Time: 30 Days

☑ Routine ☐ Rush _____

Sample Disposal:

☐ Return to Client ☑ Disposal by Lab

Carrier / Airbill No.: 554180074O

Sample Receipt Remarks:

Special Instructions:

Results To:

Brett Seal
RES
PO Box 2078, MS 452-09
Carlsbad, NM 88221-2078
Phone: 575-234-8866 FAX: 575-234-6003
EDD: Brett.Seal@WIPP.ws

WHITE – Analytical Laboratory
DI – Deionized Water
GW – Groundwater

YELLOW – Field Copy
AF – Air Filter(s)
AN – Animal(s)

PINK – Record Copy
SE – Sediment
SO – Soil

SW – Surface Water
VG – Vegetation

Form CofC/REA Rev. 0 – NICHOLS PRINTING, INC.

045741

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

June 14, 2016

Brett Seal
Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8966
FAX

RE: SSW Sampling R25 OrderNo.: 1606137

Dear Brett Seal:

Hall Environmental Analysis Laboratory received 6 sample(s) on 6/2/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWC2507R25N1
Project: SSW Sampling R25
Collection Date: 5/31/2016 10:26:00 AM
Lab ID: 1606137-001
Matrix: AQUEOUS
Received Date: 6/2/2016 8:40:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	3110	13.7	250		mg/L	500	6/8/2016 3:50:17 AM	R34766
Sulfate	679	1.28	10.0		mg/L	20	6/3/2016 10:28:29 PM	R34707
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	6620	105	200	*D	mg/L	1	6/7/2016 5:37:00 PM	25685

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ1R25N1
Project: SSW Sampling R25
Collection Date: 5/31/2016 11:51:00 AM
Lab ID: 1606137-002
Matrix: AQUEOUS
Received Date: 6/2/2016 8:40:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	42900	137	2500		mg/L	5000	6/8/2016 4:15:07 AM	R34766
Sulfate	1740	3.19	25.0		mg/L	50	6/8/2016 4:02:43 AM	R34766
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	79600	1050	2000	*D	mg/L	1	6/7/2016 5:37:00 PM	25685

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ5R25N1
Project: SSW Sampling R25
Collection Date: 5/31/2016 2:57:00 PM
Lab ID: 1606137-003
Matrix: AQUEOUS
Received Date: 6/2/2016 8:40:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	7180	13.7	250		mg/L	500	6/8/2016 4:27:31 AM	R34766
Sulfate	970	1.28	10.0		mg/L	20	6/3/2016 11:42:56 PM	R34707
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	14500	1050	2000	*D	mg/L	1	6/7/2016 5:37:00 PM	25685

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ5R25N1D
Project: SSW Sampling R25
Collection Date: 5/31/2016 2:58:00 PM
Lab ID: 1606137-004
Matrix: AQUEOUS
Received Date: 6/2/2016 8:40:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	7160	13.7	250		mg/L	500	6/8/2016 4:39:56 AM	R34766
Sulfate	966	1.28	10.0		mg/L	20	6/4/2016 12:07:45 AM	R34707
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	14700	1050	2000	*D	mg/L	1	6/7/2016 5:37:00 PM	25685

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ5R25N1EB
Project: SSW Sampling R25
Collection Date: 5/31/2016 3:16:00 PM
Lab ID: 1606137-005
Matrix: AQUEOUS
Received Date: 6/2/2016 8:40:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	0.470	0.0274	0.500	J	mg/L	1	6/4/2016 12:20:09 AM	R34707
Sulfate	0.0800	0.0638	0.500	J	mg/L	1	6/4/2016 12:20:09 AM	R34707
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	ND	10.5	20.0		mg/L	1	6/7/2016 5:37:00 PM	25685

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ6R25N1
Project: SSW Sampling R25
Collection Date: 5/31/2016 1:13:00 PM
Lab ID: 1606137-006
Matrix: AQUEOUS
Received Date: 6/2/2016 8:40:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	31000	54.8	1000		mg/L	2000	6/8/2016 5:04:45 AM	R34766
Sulfate	1680	3.19	25.0		mg/L	50	6/8/2016 4:52:20 AM	R34766
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	50500	1050	2000	*D	mg/L	1	6/7/2016 5:37:00 PM	25685

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1606137**

14-Jun-16

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R25

Sample ID **A5**	SampType: **CCV_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R34707**	RunNo: **34707**
Prep Date:	Analysis Date: **6/3/2016**	SeqNo: **1070756** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.6	0.50	8.000	0	95.5	90	110			
Sulfate	19	0.50	20.00	0	96.3	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R34707**	RunNo: **34707**
Prep Date:	Analysis Date: **6/3/2016**	SeqNo: **1070758** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R34707**	RunNo: **34707**
Prep Date:	Analysis Date: **6/3/2016**	SeqNo: **1070759** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.8	90	110			
Sulfate	9.5	0.50	10.00	0	95.3	90	110			

Sample ID **A4**	SampType: **CCV_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R34707**	RunNo: **34707**
Prep Date:	Analysis Date: **6/3/2016**	SeqNo: **1070768** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	91.8	90	110			
Sulfate	12	0.50	12.50	0	93.4	90	110			

Sample ID **A5**	SampType: **CCV_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R34707**	RunNo: **34707**
Prep Date:	Analysis Date: **6/3/2016**	SeqNo: **1070780** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	95.7	90	110			
Sulfate	19	0.50	20.00	0	96.4	90	110			

Sample ID **A6**	SampType: **CCV_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R34707**	RunNo: **34707**
Prep Date:	Analysis Date: **6/3/2016**	SeqNo: **1070792** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1606137**

14-Jun-16

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R25

Sample ID **A6**	SampType: **CCV_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R34707**	RunNo: **34707**							
Prep Date:	Analysis Date: **6/3/2016**	SeqNo: **1070792**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	101	90	110			
Sulfate	30	0.50	30.00	0	101	90	110			

Sample ID **A4**	SampType: **CCV_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R34707**	RunNo: **34707**							
Prep Date:	Analysis Date: **6/3/2016**	SeqNo: **1070804**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	91.7	90	110			
Sulfate	12	0.50	12.50	0	92.6	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R34707**	RunNo: **34707**							
Prep Date:	Analysis Date: **6/3/2016**	SeqNo: **1070806**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	0.15	0.50								J

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R34707**	RunNo: **34707**							
Prep Date:	Analysis Date: **6/3/2016**	SeqNo: **1070807**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	95.1	90	110			
Sulfate	9.7	0.50	10.00	0	96.7	90	110			

Sample ID **A5**	SampType: **CCV_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R34707**	RunNo: **34707**							
Prep Date:	Analysis Date: **6/3/2016**	SeqNo: **1070816**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.6	0.50	8.000	0	95.2	90	110			
Sulfate	19	0.50	20.00	0	95.8	90	110			

Sample ID **A6**	SampType: **CCV_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R34707**	RunNo: **34707**							
Prep Date:	Analysis Date: **6/4/2016**	SeqNo: **1070828**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1606137**

14-Jun-16

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R25

Sample ID **A6**	SampType: **CCV_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R34707**	RunNo: **34707**
Prep Date:	Analysis Date: **6/4/2016**	SeqNo: **1070828** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	100	90	110			
Sulfate	29	0.50	30.00	0	97.8	90	110			

Sample ID **A4**	SampType: **CCV_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R34707**	RunNo: **34707**
Prep Date:	Analysis Date: **6/4/2016**	SeqNo: **1070840** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.5	0.50	5.000	0	90.8	90	110			
Sulfate	12	0.50	12.50	0	93.6	90	110			

Sample ID **A5**	SampType: **CCV_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R34707**	RunNo: **34707**
Prep Date:	Analysis Date: **6/4/2016**	SeqNo: **1070852** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.6	0.50	8.000	0	95.3	90	110			
Sulfate	19	0.50	20.00	0	95.7	90	110			

Sample ID **A5**	SampType: **CCV_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R34766**	RunNo: **34766**
Prep Date:	Analysis Date: **6/7/2016**	SeqNo: **1072709** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.0	90	110			
Sulfate	19	0.50	20.00	0	95.9	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R34766**	RunNo: **34766**
Prep Date:	Analysis Date: **6/7/2016**	SeqNo: **1072711** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R34766**	RunNo: **34766**
Prep Date:	Analysis Date: **6/7/2016**	SeqNo: **1072712** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1606137**

14-Jun-16

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R25

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R34766**	RunNo: **34766**
Prep Date:	Analysis Date: **6/7/2016**	SeqNo: **1072712** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.9	90	110			
Sulfate	9.8	0.50	10.00	0	97.8	90	110			

Sample ID **A6**	SampType: **CCV_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R34766**	RunNo: **34766**
Prep Date:	Analysis Date: **6/7/2016**	SeqNo: **1072721** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	101	90	110			
Sulfate	30	0.50	30.00	0	99.8	90	110			

Sample ID **A4**	SampType: **CCV_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R34766**	RunNo: **34766**
Prep Date:	Analysis Date: **6/7/2016**	SeqNo: **1072733** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	91.8	90	110			
Sulfate	12	0.50	12.50	0	92.4	90	110			

Sample ID **A5**	SampType: **CCV_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R34766**	RunNo: **34766**
Prep Date:	Analysis Date: **6/7/2016**	SeqNo: **1072745** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	95.8	90	110			
Sulfate	19	0.50	20.00	0	95.7	90	110			

Sample ID **A6**	SampType: **CCV_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R34766**	RunNo: **34766**
Prep Date:	Analysis Date: **6/7/2016**	SeqNo: **1072757** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	100	90	110			
Sulfate	30	0.50	30.00	0	99.6	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R34766**	RunNo: **34766**
Prep Date:	Analysis Date: **6/7/2016**	SeqNo: **1072767** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1606137**

14-Jun-16

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R25

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R34766**	RunNo: **34766**
Prep Date:	Analysis Date: **6/7/2016**	SeqNo: **1072767** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R34766**	RunNo: **34766**
Prep Date:	Analysis Date: **6/7/2016**	SeqNo: **1072768** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	99.0	90	110			
Sulfate	10	0.50	10.00	0	99.7	90	110			

Sample ID **A4**	SampType: **CCV_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R34766**	RunNo: **34766**
Prep Date:	Analysis Date: **6/7/2016**	SeqNo: **1072769** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.0	90	110			
Sulfate	12	0.50	12.50	0	92.7	90	110			

Sample ID **A5**	SampType: **CCV_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R34766**	RunNo: **34766**
Prep Date:	Analysis Date: **6/8/2016**	SeqNo: **1072781** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.3	90	110			
Sulfate	19	0.50	20.00	0	96.3	90	110			

Sample ID **A6**	SampType: **CCV_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R34766**	RunNo: **34766**
Prep Date:	Analysis Date: **6/8/2016**	SeqNo: **1072793** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	101	90	110			
Sulfate	30	0.50	30.00	0	100	90	110			

Sample ID **A4**	SampType: **CCV_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R34766**	RunNo: **34766**
Prep Date:	Analysis Date: **6/8/2016**	SeqNo: **1072804** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1606137**
14-Jun-16

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R25

Sample ID **A4**	SampType: **CCV_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R34766**	RunNo: **34766**							
Prep Date:	Analysis Date: **6/8/2016**	SeqNo: **1072804**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.5	90	110			
Sulfate	12	0.50	12.50	0	95.0	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1606137**

14-Jun-16

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R25

Sample ID	**MB-25685**	SampType:	**MBLK**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**PBW**	Batch ID:	**25685**	RunNo:	**34749**					
Prep Date:	**6/6/2016**	Analysis Date:	**6/7/2016**	SeqNo:	**1071926**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	**LCS-25685**	SampType:	**LCS**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**LCSW**	Batch ID:	**25685**	RunNo:	**34749**					
Prep Date:	**6/6/2016**	Analysis Date:	**6/7/2016**	SeqNo:	**1071927**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: WIPP | Work Order Number: 1606137 | RcptNo: 1

Received by/date: JA 06/02/16

Logged By: Anne Thorne 6/2/2016 8:40:00 AM Anne Thorne

Completed By: Anne Thorne 6/3/2016 Anne Thorne

Reviewed By: 06/03/16

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☑	No ☐	Not Present ☐
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	FedEx		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

04589

CHAIN OF CUSTODY RECORD

№ 1064

Page 1 of 1

Project Number:	Project Name:
TSO2542-2	SSW Sampling R25

Sampler(s): Brett Seal

Sample Date	Sample Time	Matrix	Sample Number	Total Number of Containers	TDS	Chloride	Sulfate						Comments
5-31-16	1026	SSW	SSWC2507R25N1	1	x	x	x						1le0 6137 -001
5-31-16	1151		SSW PZ1 R25 N1	1	x	x	x						-002
5-31-16	1457		SSW PZ5 R25 N1	1	x	x	x						-003
5-31-16	1458		SSW PZ5 R25 N1D	1	x	x	x						-004
5-31-16	1516		SSW PZ5 R25 N1 EB	1	x	x	x						Equ Blank -005
5-31-16	1313		SSW PZ6 R25 N1	1	x	x	x						-006

N/A BS 5/26/16

Analytical Laboratory: HEAL Albuquerque, NM

Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)
6/1/16 1213			06/02/16 0840
Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received at Laboratory: (Signature, Date/Time) 1.0 on Ice

Requested Turnaround Time: 30 Days

☑ Routine ☐ Rush _____

Sample Disposal:

☐ Return to Client ☐ Disposal by Lab

Carrier / Airbill No.: 8578 4841 3042

Sample Receipt Remarks:

Results To: Brett Seal
RES
PO Box 2078, MS 452-09
Carlsbad, NM 88221-2078
Phone: 575-706-6034 FAX: 575-234-6003
EDD: Brett.Seal@WIPP.WS

Special Instructions:
High TDS: PZ1
PZ-5, PZ-6

Report all data to three sig figs

WHITE – Analytical Laboratory
DI – Deionized Water
GW – Groundwater

YELLOW – Field Copy
AF – Air Filter(s)
AN – Animal(s)

PINK – Record Copy
SE – Sediment
SO – Soil

SW – Surface Water
VG – Vegetation

Form CofC/RFA, Rev. 0 – NICHOLS PRINTING, INC.

04590

Table 7

	Field and General Chemistry Parameters							
Monitoring Site	Sample Date	pH (SU)	Temp. (^{0}C)	Specific Conductivity @25 ^{0}C (µS/cm)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)
PZ-1	5/31/2016	6.27	25.18	89,930	NA	**1,740**	**42,900**	**79,600**
PZ-2	NS	NS	NS	NS	NS	NS	NS	NS
PZ-3	NS	NS	NS	NS	NS	NS	NS	NS
PZ-4	NS	NS	NS	NS	NS	NS	NS	NS
PZ-5	5/31/2016	7.05	24.59	73,050	NA	**970**	**7,180**	**14,500**
PZ-6	5/31/2016	6.59	26.40	87,800	NA	**1,680**	**31,000**	**50,500**
PZ-7	5/24/2016	6.19	24.20	92,620	NA	**3,790**	**75,400**	**109,000**
PZ-8	NS	NS	NS	NS	NS	NS	NS	NS
PZ-9	5/25/2016	6.13	22.88	92,650	NA	**5,640**	**115,000**	**167,000**
PZ-10	5/24/2016	7.35	24.88	6,427	NA	274	200	**1,100**
PZ-11	5/24/2016	6.36	23.63	93,640	NA	**2,640**	**54,900**	**93,200**
PZ-12	5/24/2016	7.06	24.11	36,470	NA	560	**2,570**	**6,100**
PZ-13	5/25/2016	Bailed			NA	**1,600**	**168,000**	**260,000**
PZ-14	NS	NS	NS	NS	NS	NS	NS	NS
PZ-15	NS	NS	NS	NS	NS	NS	NS	NS
C-2811	5/24/2016	7.23	21.59	16,480	NA	491	**1,210**	**2,720**
C-2505	NS	NS	NS	NS	NS	NS	NS	NS
C-2506	NS	NS	NS	NS	NS	NS	NS	NS
C-2507	5/31/2016	7.01	21.26	34,760	NA	**679**	**3,110**	**6,620**
WQSP-6A	5/25/2016	7.04	23.40	13,760	4.91	**1,900**	**379**	**3,380**

Explanation:
NA: Not Analyzed, parameter not required, per permit conditions.
NS: Not Sampled, not required per permit conditions
PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty
"**Bold**" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic W
NR: Water levels were not recorded for this period, as wells were not accessible

Other	Water Level Monitoring (Ft AMSL)	
TKN (mg/L)	3/14/16-3/21/16	6/7/16-6/30/16
NA	3371.38	3371.71
NS	NR	3371.18
NS	3370.99	3371.40
NS	3365.77	3366.31
NA	3371.37	3372.01
NA	3369.64	3370.13
NA	3376.22	3376.43
NS	3355.49	3355.51
NA	3362.03	3362.13
NA	3368.19	3368.32
NA	3372.20	3372.51
NA	3355.98	3356.43
NA	3355.38	3355.61
NS	3352.37	3352.51
NS	3382.88	3383.01
NA	3347.66	3347.92
NS	NR	3368.03
NS	NR	3368.67
NA	3364.61	3364.99
<1.0	3195.87	3195.85

using Low-Flow pumps

ater Supply

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

JAN 30 2017

Ms. Michelle Hunter, Acting Bureau Chief
Ground Water Quality Bureau
Harold Runnels Building
1190 Saint Francis Drive
P.O. Box 5469
Santa Fe, NM 87502

Subject: Semi-Annual Discharge Monitoring Report for July 1 through December 31, 2016, Discharge Permit 831

Dear Ms. Hunter:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Discharge Monitoring Report, including the required attachments on compact disc, for the period of July 1 through December 31, 2016. This report is required by Discharge Permit 831.

If you have any questions about this report or require any additional information, please contact me at (575) 234-7488.

Sincerely,

George T. Basabilvazo

George T. Basabilvazo, Director
Office of Environmental Protection

Enclosure (2)

cc: w/o Enclosures
R. Maestas, NMED *ED
CBFO M&RC
*ED denotes electronic distribution

1700183

JAN 30 2017

MAIL & RECORDS CENTER COPY

CBFO:OEP:GTB:AC:17-1000: UFC 5486.00

04593

bcc: CBFO w/o Enclosures
R. Patterson * ED
A. Stone ED
A. Ward ED

bcc: NWP w/o Enclosures
M. Briggs ED
D. Cook ED
M. Gonzales ED
B. Hill ED
C. NavarretteED ED
B. Shagula ED

bcc: RES w/o Enclosures
R. Chavez ED
J. Haschets ED
W. Jaco ED
S. Jones ED
S. Kouba ED
W. Most ED
R. Salness ED
M. D. Viehweg ED
A. M Waldram ED

Peer Technical
C. Anderson ED
*ED denotes electronic distribution

MAIL & RECORDS
CENTER COPY

Waste Isolation Pilot Plant Semi-Annual Discharge Monitoring Report for Discharge Permit DP-831 for Reporting Period July 1, 2016 through December 31, 2016

U.S. Department of Energy

January 2017

MAIL & RECORDS
CENTER COPY

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR
DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2016 THROUGH DECEMBER 31, 2016

REPORTING REQUIREMENTS OF DP-831 OPERATIONAL PLAN

Part B. Applicable to the Facultative Lagoon System

Condition 8. *– The permittee shall measure the thickness of the sludge blanket in each pond of the Facultative Lagoon System once within the effective term of this Discharge Permit, but before the end of 2018. When sludge accumulation exceeds 1/3 of the total depth of any pond, the permittee shall remove the sludge in a manner, which is protective of the pond liner. Removed solids shall be contained, transported, and disposed of in accordance with all local, state, and federal regulations. The permittee shall maintain solids blanket measurements and solids disposal manifests for solids transported from the facility for off-site disposal. The permittee shall submit all measurements and manifests to NMED in the semi-annual monitoring report immediately following the solids thickness measurement.*

No sludge measurements occurred during this reporting period. These measurements will be performed prior to the end of 2018.

Part D. Applicable to the Storm Water Runoff Impoundments in Contact with Salt Stockpiles (Salt Storage Ponds 1, 2, and 3) and Salt Stockpiles (Salt Cells 1, 2, and 3).

Condition 9. *– The permittee shall measure the thickness of the solids blanket in each impoundment once within the effective term of this Discharge Permit, but before the end of 2018. Removed solids shall be contained, transported, and disposed of in accordance with all local, state, and federal regulations. The permittee shall maintain solids blanket measurements and solids disposal manifests for solids transported from the facility for off-site disposal. The permittee shall submit all measurements and manifests to NMED in the semi-annual monitoring report immediately following the solids thickness measurement.*

No sludge measurements occurred during this reporting period. These measurements will be performed prior to the end of 2018.

Condition 10. *– The permittee shall inspect the leak detection systems for Salt Storage Ponds 2 and 3 on a monthly basis for the presence of liquid. The permittee shall keep a log of the inspection findings and repairs made. The inspection log, including a statement whether or not liquids were observed in the leak detection systems, shall be submitted to NMED in the semi-annual monitoring reports.*

Monthly inspections of the Salt Storage Pond 2 and 3 leak detection systems occurred during this reporting period. Water was observed in both of the leak detection systems. Due to their design, the sumps associated with the leak detection systems cannot be pumped completely dry. Therefore, some water will remain in the sump at all times. Water level is measured in each salt storage pond monthly. Water level is measured in feet from the top of the sump access pipe to the water in the sump.

In March 2016, an engineering subcontractor performed an action leakage rate study on Salt Storage Ponds 2 and 3 in accordance with EPA methods and standards for liners. EPA defines action leakage rate in short as "the maximum design flow rate, with a safety factor, that the leak detection system can remove without the head on the bottom liner exceeding one foot." Using EPA limits for liners (EPA 530-R-92-004, NTIS #PB 92-128 214), the action leakage rate

for Salt Storage Pond 2 was calculated as 706 gallons per day, and the action leakage rate for Salt Storage Pond 3 was calculated as 1,880 gallons per day. The sumps for each pond were pumped and the number of gallons measured to calculate the average daily leakage rate for each pond. Salt Storage Pond 2 was calculated to average 96 gallons/day. Salt Storage Pond 3 was calculated to average 241 gallons/day. These rates are well below the 706 gallons per day action leakage rate for Salt Storage Pond 2 and 1,880 gallons/per day action leakage rate for Salt Storage Pond 3. Therefore, no excessive leakage of the Salt Storage Ponds 2 and 3 liners was detected.

There were no repairs required to the leak detection system during this reporting period. A portable document format (PDF) file of the inspection logs can be found on the attached CD "Salt Pond Sump Inspection 2nd half 2016.pdf."

Condition 11. *– The permittee shall conduct regular maintenance of the earthen cover on the Salt Cell 1, and SPDV material pile. Inspections shall be conducted monthly and after storm events of 2 inches or greater in a 24-hour period to evaluate potential erosion and vegetation success of the cover. In the event of significant erosion or failure of vegetative success, the permittee shall provide a plan and schedule for repair within 90 days of discovery. General observations and cover repair shall be reported to NMED.*

The earthen cover of the Salt Cell 1 and the Site and Preliminary Design Validation (SPDV) material pile were inspected monthly for July through December. Soil covering over both piles' synthetic covering were noted as needing repair early in the reporting period. Action requests were written for repair of these new areas. A greater than 2 inch rainfall in 24 hours occurred on August 23 and August 30, 2016. On August 25 and September 15, 2016, inspections were performed after these events to determine that no excessive soil erosion had occurred that damaged the synthetic cover of the salt piles.

REQUIREMENTS OF DP-831 MONITORING AND REPORTING SECTION

Part B. Applicable to the Facultative Sewage Lagoon System

Condition 15. *– The volume of domestic influent discharged to the Facultative lagoon System shall be measured monthly using a totalizing flow meter on the influent line to the system or the totalizing meter that measures total domestic water usage. Volumes of other authorized discharges to the Facultative Lagoon System shall be calculated by a time/volume method or volumetric measurement of the transport container(s). NMED may require comprehensive laboratory analyses of such wastewater prior to discharge when NMED determines that additional information is needed. Monthly meter readings, the units of measurement, monthly discharge volumes and other volumetric calculations for the previous 6-month period shall be submitted to NMED semi-annually in the monitoring reports.*

Table 1 shows the volume of water discharged to the Facultative Lagoon System for this reporting period. Discharge water volume is based on total domestic water use. No miscellaneous non-hazardous water was discharged to Evaporation Lagoons B or C.

Table 1 – Discharge to Facultative Lagoon System

Month	Volume (gallons)
July	333,963
August	319,204
September	378,293
October	341,322
November	313,199
December	388,830
Total	**2,074,811**

Weekly meter readings of the domestic water meter are found on the attached CD as a pdf file named "Domestic Water Usage 2nd Half of 2016.pdf."

Non-hazardous condensate from compressors was discharged into the Facultative Lagoon System. The volume is so low and sporadic that it is not significant.

Condition 16. *– The permittee shall collect a wastewater sample on a semi-annual basis (once every six months) from the influent to the Facultative Lagoon System. The grab sample shall be analyzed for TKN, NO_3-N, SO_4, TDS, and Cl. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.*

Table 2 – Facultative Lagoon System Analytical Data

Analyte	Sample Date	Settling Lagoon 2 Concentration (mg/L)
TKN	10/26/16	130
NO_3-N	10/26/16	ND
SO_4	10/26/16	48.1
TDS	10/26/16	525
Cl	10/26/16	104

TKN: Total Kjeldahl nitrogen
TDS: Total dissolved solids
ND: Not detected, analyte below the method detection limit

Laboratory analytical results and QA/QC Summary Report for the Facultative Lagoon System are found as a pdf file on the attached CD named "Facultative Lagoon and H-19 Analytical and QA-QC.pdf."

Part C. Applicable to the Evaporation Pond H-19 and Storm Water Impoundments Not in Contact with Salt Stockpiles (Storm Water Ponds 1, 2, and 3)

Condition 17. *– The volume and origin of all wastewater discharged to the Evaporation Pond H-19 that is derived from miscellaneous non-hazardous sources shall be measured monthly and reported to NMED. Discharge volumes to the Evaporation Pond H-19 shall be calculated by a time/volume*

method or volumetric measurement of the transport container(s). NMED may require comprehensive laboratory analyses of such wastewater prior to discharge when NMED determines that additional information is needed. Monthly discharge volumes and other volumetric calculations for the previous 6-month period shall be submitted to NMED semi-annually in the monitoring reports.

Table 3 shows the volume of miscellaneous non-hazardous water discharged to Evaporation Pond H-19 for this reporting period. This water is from groundwater well pumping (GW), condensate from the Exhaust Shaft ductwork (ES), rain water (RW), and Waste Shaft sump water (WS).

Table 3 – Discharge to H-19 Evaporation Pond

Month	Volume (gallons)	Water Origin
July	3,520	GW & WS
August	7,085	GW & WS
September	13,560	ES, GW & WS
October	5,630	RW & WS
November	300	GW
December	900	GW & RW
Total	**30,995**	

***Condition 18.** – A sample shall be collected semi-annually from the Evaporation Pond H-19 and analyzed for SO_4, Cl, and TDS. Samples shall be collected annually after a significant storm event from each of the storm water ponds, Storm Water Ponds 1, 2, and 3 and analyzed for SO_4, Cl, and TDS. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring report.*

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

Table 4 shows results for analytical parameters associated with Evaporation Pond H-19 and Storm Water Ponds 1, 2, and 3.

Table 4 – Storm Water Ponds and Evaporation Pond H-19 Analytical Data

Analyte	Evaporation Pond H-19 10/26/16	Storm Water Pond 1 08/29/16	Storm Water Pond 2 08/29/16	Storm Water Pond 3 08/29/16
SO_4 (mg/L)	823	176	52.6	108
Cl (mg/L)	189,000	24.5	9.33	17.4
TDS (mg/L)	255,000	406	167	279

Laboratory analytical results and QA/QC Summary Report for Evaporative Pond H-19 are found as a pdf file on the attached CD named "Facultative Lagoon and H-19 Analytical and QA-QC.pdf."

Condition 19. *– The water depth shall be measured monthly to the nearest tenth of a foot (0.1 ft) in the Storm Water ponds 1, 2, and 3. The approximate volume of storm water shall be calculated and submitted to NMED in the semi-annual monitoring reports.*

Table 5 – Storm Water Ponds Depths and Volumes

	July 07/07/16	August 08/15/16	September 09/16/16	October 10/27/16	November 11/15/16	December 12/15/16
Storm Water Pond 1						
Water Depth (ft)	0.4	2.9	2.5	2.0	2.2	2.2
Water Volume (gal)	55,651	403,471	347,820	278,256	306,082	306,082
Storm Water Pond 2						
Water Depth (ft)	4.2	1.0	4.9	4.3	4.7	4.7
Water Volume (gal)	1,443,483	343,686	1,684,063	1,477,851	1,615,326	1,615,326
Storm Water Pond 3						
Water Depth (ft)	3.0	2.3	3.0	1.9	2.4	2.5
Water Volume (gal)	4,327,180	3,317,505	4,327,180	2,740,547	3,461,744	3,605,983

Part D. Applicable to the Storm Water Runoff Impoundments in Contact with Salt Stockpiles (Salt Storage Ponds 1, 2, and 3) and Salt Stockpiles (Salt Cells 1, 2, and 3)

Condition 20. *– A sample shall be collected annually after a significant storm event from each of the Salt Storage Cells 1, 2, and 3 and analyzed for SO_4, Cl, and TDS. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.*

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

Table 6 – Salt Storage Ponds Analytical Data

Analyte	Salt Storage Pond 1 08/29/16	Salt Storage Pond 2 08/29/16	Salt Storage Pond 3 08/29/16
SO_4 (mg/L)	144	17,200	14,900
Cl (mg/L)	14,000	151,000	165,000
TDS (mg/L)	24,300	258,000	237,000

Laboratory analytical results and QA/QC Summary Report for Evaporative Pond H-19 are found as a pdf file on the attached CD named "Salt Storage Pond and Storm Water Ponds Analytical and QA-QC.pdf."

Condition 21. *The water depth shall be measured monthly to the nearest tenth of a foot (0.1 ft) in the Salt Storage Ponds 1, 2, and 3. The approximate volume of storm water shall be calculated and submitted to NMED in the semi-annual monitoring reports.*

Table 7 – Salt Storage Ponds Depths and Volumes

	July 07/07/16	August 08/15/16	September 09/16/16	October 10/27/16	November 11/15/16	December 12/15/16
Salt Storage Pond 1						
Water Depth (ft)	0.0	0.0	2.7	2.1	2.1	2.0
Water Volume (gal)	0	0	3,073,935	2,390,838	2,390,838	2,276,989
Salt Storage Pond 2						
Water Depth (ft)	5.4	4.7	7.2	7.2	7.2	7.1
Water Volume (gal)	1,934,200	1,683,470	2,578,933	2,578,933	2,578,933	2,543,115
Salt Storage Pond 3						
Water Depth (ft)	12.3	11.4	14.1	14.1	14.1	14.0
Water Volume (gal)	14,072,012	13,042,352	16,131,331	16,131,331	16,131,331	16,016,924

Ground Water Monitoring and Reports

Condition 22. *– Depth to the water table shall be measured to the nearest hundredth of a foot (0.01 ft) quarterly in the piezometers/monitoring wells:*

- *PZ-1, PZ-2, PZ-3, PZ-4, PZ5, PZ-6, PZ-7, PZ-8, PZ-9, PZ-10, PZ-11, PZ-12, PZ-13, PZ-14 and PZ-15*
- *C-2505, C-2506, C-2507, C-2811, and WQSP-6A*

Two piezometer/monitoring wells (C-2505 and C-2506) were not accessible for the third quarter of 2016 due to construction in the area of these wells. Safety concerns prevented access to these wells.

For depth to the water in the piezometer and monitoring wells, see Table 8 – Monitoring Well Water Levels and Chemical Analyses.

Condition 23. *– The permittee shall perform semi-annual ground water sampling in the following piezometers/monitoring wells and analyze the samples for temperature, pH, specific conductance, SO4, TDS, and Cl:*

- *Piezometers: PZ-1, PZ-5, PZ-6, PZ-7, PZ-9, PZ-10, PZ-11, PZ-12, and PZ-13*
- *Monitoring Wells: C-2507, C-2811, and WQSP-6A*

Ground water sample collection, preservation, transport and analysis shall be performed according to the following procedure:

a) *Measure the depth-to-most-shallow ground water from the top of the well casing to the nearest hundredth of a foot.*
b) *Purge three well volumes of water from the well prior to sample collection.*
c) *Obtain samples from the well for analysis.*
d) *Properly prepare, preserve and transport samples.*
e) *Analyze samples in accordance with the methods authorized in this Discharge Permit.*

Depth-to-most-shallow ground water measurements, analytical results, including the laboratory QA/QC summary report, and a facility layout map showing the location and number of each well shall be submitted to NMED in the semi-annual monitoring reports.

Two piezometer/monitoring wells (C-2505 and C-2506) were not accessible for the third quarter of 2016 due to construction in the area of these wells. Safety concerns prevented access to these wells.

Water levels in the shallow wells (PZ-1 through PZ-15, C-2811, and C-2507) were obtained September 12-14, 2016. The water levels in all of the shallow wells were obtained in December 5-12, 2016. Water levels are included in Table 8 Monitoring Well Water Levels and Chemical Analyses. These were taken in accordance with quarterly milestones outlined in the Ground Water Monitoring Schedule, in the July 29, 2014, DP-831 Modification. During the reporting period, the water level trend for the shallow subsurface water (SSW) monitoring points was an average increase in elevation of 1.42 feet. The slight rise in water elevation over this reporting period is due to higher than average precipitation toward the end of 2016.

The SSW piezometers, required to be sampled according to Condition 23, were sampled for field and general chemistry parameters in September 2016. Five piezometers were sampled on September 27, 2016, and six on September 28, 2016. Results for the field sampling parameters and laboratory analyses are presented in Table 8.

Laboratory analytical results and QA/QC Summary Report are found as a pdf file on the attached CD named "Shallow Surface Water Analytical and QA-QC.pdf".

Condition 24. *– The permittee shall perform semi-annual ground water sampling from monitoring well WQSP-6A and analyzed for TKN and NO3. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.*

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

WQSP-6A was sampled on September 29, 2016. Sulfate, chloride, and total dissolved solids were detected in WQSP-6A samples at concentrations above standards of 20.6.2.3103 NMAC, Standards for Ground Water of 1,000 mg/L TDS concentration or less for Human Health and Domestic Water Supply. Although the concentrations were higher than the standards, they are less than background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285). Nitrate was also detected but did not exceed the standards. Total Kjeldahl Nitrogen was below the detection limit

of 1 mg/L. The SSW identified at the WIPP facility has not impacted the Dewey Lake groundwater in WQSP-6A based on the consistency of analyzed parameters in WQSP-6A.

For WQSP-6A analytical results, see Table 8 – Monitoring Well Water Levels and Chemical Analyses.

Laboratory analytical results and QA/QC Summary Report for WQSP-6A samples are found as a pdf file on the attached CD named "Shallow Surface Water Analytical and QA-QC.pdf".

Condition 25. *– Hydrographs shall be submitted annually for all monitoring wells and piezometers covered under Condition 22 of this Discharge Permit. At a minimum, graphs shall include the previous five years of water level data, or for recently installed wells, all data since the well was installed. Data for several wells may be included on one graph.*

The hydrographs of all monitoring wells and piezometers are included in this 2016 semi-annual report (see Attachment 1).

Condition 26. *– A potentiometric map for facility area shall be submitted annually. The map shall incorporate the most recent water level data for all monitoring wells and piezometers installed in the shallow subsurface water (SSW).*

The potentiometric map that incorporates the most recent water level data for all monitoring wells and piezometers installed in the shallow subsurface water is included in this 2016 semi-annual report (see Figure 2).

Condition 27. *– A single table in a paper and electronic format (EXCEL spreadsheet) of water level measurements and water quality data with only those constituents analyzed and water levels measured during a single event shown in columns. Tabulated field measurements to include temperature, pH, and electrical conductivity corrected to 25 degrees Celsius. Monitoring sites shall be shown in rows. The second column shall contain the date of the sampling event. Values exceeding standards shall be bolded. Any constituent not analyzed for a particular site shall be shown as "NA", any site not sampled shall be shown as "NS" with an associated reason, and any site not measured for water levels shall be shown as "NM" with an associated reason.*

Table 8 – Monitoring Well Water Levels and Chemical Analyses is included in paper form in this report and in electronic Excel format on the attached CD. The file name on the CD is "Table 8 – Monitoring Well Water Levels and Chemical Analyses." Electrical conductivity is listed as specific conductivity in this table.

Condition 28. *– A single table that includes all available ground water data to date shall be submitted annually. For each monitoring well, the name of the well shall be entered in the far left column in a row by itself. Sampling events, beginning with the earliest event first, shall be entered in subsequent rows with the sampling date in the second column and the corresponding analytical data in columns further to the right. Each new sampling event shall be added as an additional row to the existing spreadsheet with the corresponding date of the sampling event noted in the second column next to the monitoring well name.*

The table that includes all available ground water data to date will be included in this 2016 semi-annual report (see Table 9).

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR
DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2016 THROUGH DECEMBER 31, 2016

Figure 1 – Site Map

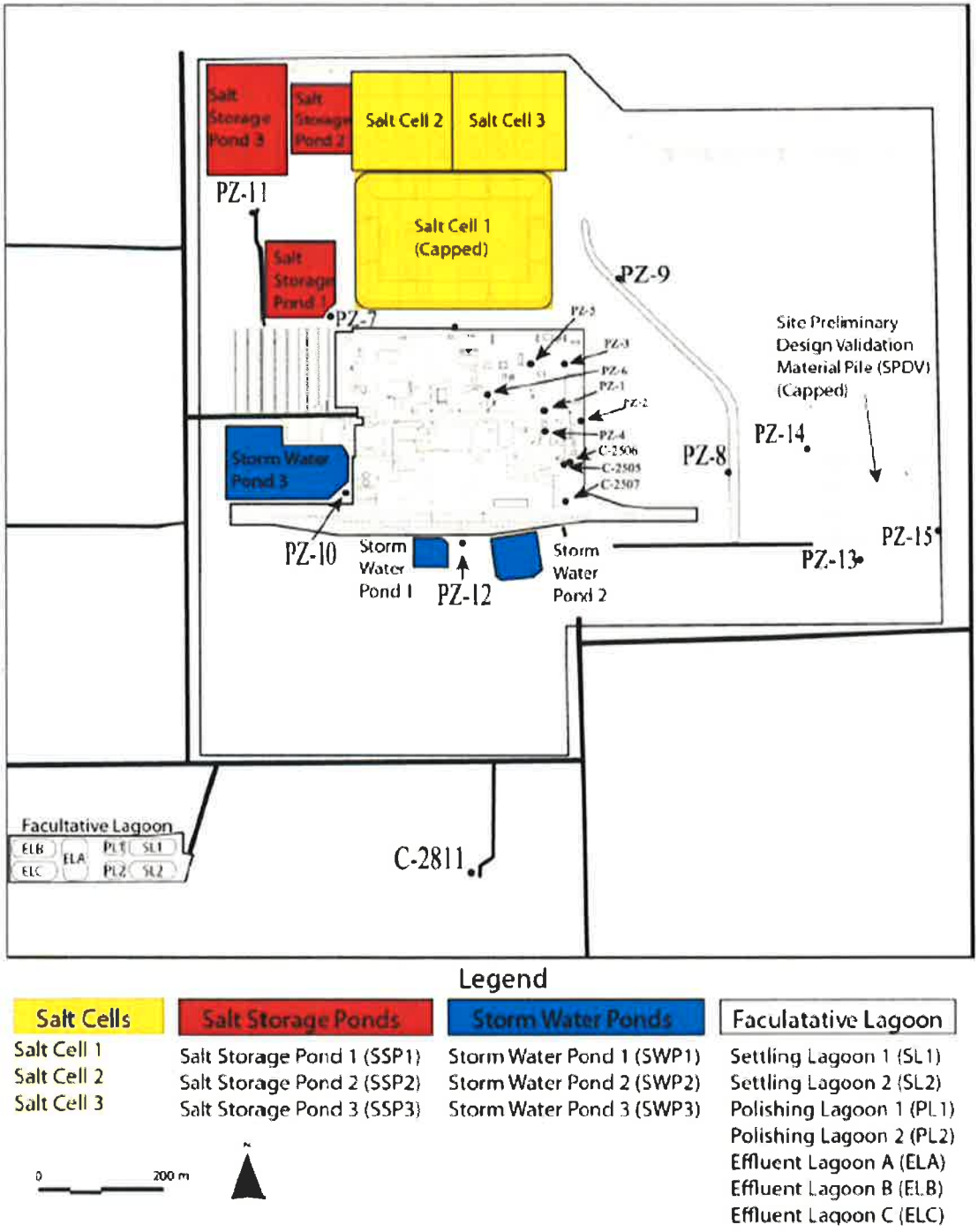


Table 8 – Monitoring Well Water Levels and Chemical Analyses

	Field and General Chemistry Parameters								Other	Water Level Monitoring (Ft AMSL)	
Monitoring Site	Sample Date	pH (SU)	Temp. (^{0}C)	Specific Conductivity @25 ^{0}C (µS/cm)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)	9/12/16 - 9/14/16	12/5/16 - 12/12/16
PZ-1	9/28/2016	6.50	25.22	**88,610**	NA	**1,940**	**34,000**	**67,000**	NA	3371.88	3372.20
PZ-2	NS	NS	NS	NS	NS	NS	NS	NS	NS	3371.28	3371.82
PZ-3	NS	NS	NS	NS	NS	NS	NS	NS	NS	3371.48	3372.05
PZ-4	NS	NS	NS	NS	NS	NS	NS	NS	NS	3366.55	3367.27
PZ-5	9/28/2016	7.19	24.63	**84,690**	NA	**748**	**7,170**	**17,400**	NA	3372.09	3372.81
PZ-6	9/28/2016	6.75	25.94	**87,200**	NA	**1,330**	**21,900**	**43,100**	NA	3370.25	3370.74
PZ-7	9/27/2016	6.36	24.04	**93,010**	NA	**2,850**	**51,600**	**99,300**	NA	3376.21	3377.69
PZ-8	NS	NS	NS	NS	NS	NS	NS	NS	NS	3355.55	3355.58
PZ-9	9/28/2016	6.14	22.61	**93,490**	NA	**4,860**	**99,200**	**353,000**	NA	3362.05	3362.28
PZ-10	9/27/2016	7.50	22.37	**4,403**	NA	116	113	805	NA	3369.08	3369.47
PZ-11	9/27/2016	6.50	22.28	**96,390**	NA	**2,240**	**43,300**	**82,700**	NA	3372.42	3375.79
PZ-12	9/27/2016	7.10	21.99	**35,710**	NA	548	**2,460**	**6,240**	NA	3356.61	3357.53
PZ-13	9/28/2016	Bailed			NA	**2,790**	**153,000**	**236,000**	NA	3355.76	3356.07
PZ-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	3352.55	3352.67
PZ-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	3382.66	3384.42
C-2811	9/27/2016	7.26	20.09	**16,250**	NA	422	**1,100**	**2,820**	NA	3347.53	3349.28
C-2505	NS	NS	NS	NS	NS	NS	NS	NS	NS	NM	3368.71
C-2506	NS	NS	NS	NS	NS	NS	NS	NS	NS	NM	3369.40
C-2507	9/28/2016	7.11	22.06	**38,440**	NA	**626**	**2,960**	**7,280**	NA	3365.13	3365.66
WQSP-6A	9/29/2016	7.17	22.76	**13,990**	5.61	**1,860**	**286**	**3,490**	<1.0	3195.64	3195.81
Explanation:	NA: Not analyzed, parameter not required, per permit conditions										
	NS: Not sampled, not required per permit conditions										
	NM: Not measured due to the well being inaccessible										
	PZ-13 Field parameters were not measured since a bailer was used to collect the sample due to difficulty using low-flow pumps										
	AMSL: Above Mean Sea Level										

04606

Table 9 – All Ground Water Data

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-1	6/21/2004	<10	1,530	36,300	79,600	0.044	<0.00500
PZ-1	11/9/2004	1.3	6,530	45,700	85,800	0.106	<0.0100
PZ-1	5/17/2005	1.47	2,640	62,300	100,500	0.06	0.077
PZ-1	10/11/2005	2.59	1,950	54,900	74,800	0.043	<0.0100
PZ-1	5/16/2006	<2.5	2,490	62,400	113,000	0.051	<0.0100
PZ-1	10/10/2006	<1.00	1,390	55,300	70,200	<0.0500	<0.0250
PZ-1	5/9/2007	2.7	2,220	63,000	107,000	<0.0500	<0.0250
PZ-1	10/9/2007	<1.00	2,820	83,200	99,500	<0.1000	<0.0250
PZ-1	6/5/2008	<2.0	2,100	57,000	98,000	0.667	0.00218
PZ-1	10/14/2008	NA	2,200	59,000	94,000	NA	NA
PZ-1	5/19/2009	NA	2,200	54,000	96,000	NA	NA
PZ-1	10/19/2009	NA	2,300	66,000	101,000	NA	NA
PZ-1	5/25/2010	NA	2,200	53,000	92,800	NA	NA
PZ-1	10/26/2010	NA	1,800	62,000	96,100	NA	NA
PZ-1	5/24/2011	NA	2,000	51,000	85,200	NA	NA
PZ-1	10/5/2011	NA	2,000	50,000	84,600	NA	NA
PZ-1	5/16/2012	NA	2,100	54,000	82,100	NA	NA
PZ-1	10/2/2012	NA	2,110	48,100	84,200	NA	NA
PZ-1	5/14/2013	NA	1,840	35,800	74,400	NA	NA
PZ-1	10/22/2013	NA	2,050	42,500	100,000	NA	NA
PZ-1	5/13/2014	NA	2,010	44,000	76,000	NA	NA
PZ-1	10/14/2014	NA	2,090	46,700	84,800	NA	NA
PZ-1	5/13/2015	NA	1,830	40,800	73,400	NA	NA
PZ-1	11/10/2015	NA	1,740	37,100	75,800	NA	NA
PZ-1	5/31/2016	NA	1,740	42,900	79,600	NA	NA
PZ-1	9/28/2016	NA	1,940	34,000	67,000	NA	NA
PZ-5	6/21/2004	20.7	1,340	28,800	55,200	0.067	<0.00500
PZ-5	11/9/2004	<2.50	1,820	47800	86,000	0.094	<0.0100
PZ-5	5/17/2005	2.96	3,260	46,000	65,400	0.093	0.067
PZ-5	10/11/2005	5.14	769	14,000	32,800	0.062	<0.0100
PZ-5	5/16/2006	2.56	1,520	18,300	32,600	0.071	<0.0100
PZ-5	10/10/2006	5.04	1,330	28,800	47,400	<0.0500	<0.0250
PZ-5	5/9/2007	4.6	1,640	17,300	32,400	<0.0500	<0.0250
PZ-5	10/9/2007	<1.00	1,880	19,400	28,700	0.071	<0.005
PZ-5	6/5/2008	5.7	1,500	19,000	33,000	0.0801	0.00317
PZ-5	10/14/2008	NA	1,400	13,000	25,000	NA	NA
PZ-5	5/19/2009	NA	1,500	13,000	24,000	NA	NA
PZ-5	10/19/2009	NA	1,600	14,000	20,200	NA	NA
PZ-5	5/25/2010	NA	1,400	13,000	21,900	NA	NA
PZ-5	10/26/2010	NA	1,400	13,000	20,800	NA	NA
PZ-5	5/24/2011	NA	1,200	10,000	18,400	NA	NA

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2016 THROUGH DECEMBER 31, 2016

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-5	10/4/2011	NA	1,300	13,000	19,800	NA	NA
PZ-5	5/16/2012	NA	1,500	12,000	21,400	NA	NA
PZ-5	10/2/2012	NA	1,340	9,870	18,600	NA	NA
PZ-5	5/15/2013	NA	1,200	9,540	19,200	NA	NA
PZ-5	10/23/2013	NA	1,180	11,400	25,200	NA	NA
PZ-5	5/13/2014	NA	1,180	9,080	18,100	NA	NA
PZ-5	10/14/2014	NA	1,250	13,300	26,500	NA	NA
PZ-5	5/13/2015	NA	1,100	7,380	14,800	NA	NA
PZ-5	11/10/2015	NA	917	7,470	15,200	NA	NA
PZ-5	5/31/2016	NA	970	7,180	14,500	NA	NA
PZ-5	9/28/2016	NA	748	7,170	17,400	NA	NA
PZ-6	6/21/2004	21.2	2,860	70,500	134,000	0.017	<0.00500
PZ-6	11/9/2004	4.89	13,000	75,400	113,000	0.06	<0.0100
PZ-6	5/17/2005	4.25	3,610	109,000	160,500	0.05	0.054
PZ-6	10/11/2005	<20.0	2,850	83,800	106,000	0.021	<0.0100
PZ-6	5/16/2006	7.69	3,050	68,800	115,000	<0.0100	<0.0100
PZ-6	10/10/2006	252	2,790	79,800	134,000	<0.0500	<0.0250
PZ-6	5/9/2007	6.65	2,840	73,500	122,500	<0.0500	<0.0250
PZ-6	10/9/2007	<1.00	3,080	81,000	105,000	<0.1000	<0.0250
PZ-6	6/5/2008	6.1	2,100	47,000	81,000	0.0412	0.00259
PZ-6	10/14/2008	NA	2,500	58,000	87,000	NA	NA
PZ-6	5/19/2009	NA	2,700	61,000	89,000	NA	NA
PZ-6	10/19/2009	NA	2,300	50,000	83,600	NA	NA
PZ-6	5/25/2010	NA	2,300	47,000	82,100	NA	NA
PZ-6	10/26/2010	NA	1,900	47,000	72,300	NA	NA
PZ-6	5/24/2011	NA	1,700	37,000	67,700	NA	NA
PZ-6	10/5/2011	NA	1,900	41,000	69,800	NA	NA
PZ-6	5/16/2012	NA	1,800	41,000	67,200	NA	NA
PZ-6	10/2/2012	NA	2,130	52,200	78,700	NA	NA
PZ-6	5/15/2013	NA	2,060	47,900	86,900	NA	NA
PZ-6	10/22/2013	NA	2,120	46,000	90,500	NA	NA
PZ-6	5/13/2014	NA	2,040	46,600	80,800	NA	NA
PZ-6	10/14/2014	NA	2,160	49,800	80,400	NA	NA
PZ-6	5/13/2015	NA	2,180	49,200	77,000	NA	NA
PZ-6	11/10/2015	NA	1,900	37,500	69,200	NA	NA
PZ-6	5/31/2016	NA	1,680	31,000	50,500	NA	NA
PZ-6	9/28/2016	NA	1,330	21,900	43,100	NA	NA
PZ-7	6/21/2004	20.7	2,620	53,000	109,000	0.041	<0.00500
PZ-7	11/8/2004	2.89	7,460	43,600	80,400	0.088	<0.0100
PZ-7	5/16/2005	4.02	2,530	42,100	65,900	0.082	0.094
PZ-7	10/10/2005	6.37	2,770	61,000	88,000	0.047	<0.0100

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2016 THROUGH DECEMBER 31, 2016

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-7	5/15/2006	<5.3	3,190	54,100	139,000	0.068	<0.0100
PZ-7	10/9/2006	<1.00	2,890	66,800	81,500	<0.00100	<0.0500
PZ-7	5/7/2007	5.15	3,190	64,800	119,000	<0.0200	0.02
PZ-7	10/8/2007	<1.00	2,660	45,600	65,000	0.064	<0.00500
PZ-7	6/4/2008	5	2,300	49,000	86,000	0.0635	0.00257
PZ-7	10/13/2008	NA	1,700	27,000	42,000	NA	NA
PZ-7	5/18/2009	NA	3,700	76,000	120,000	NA	NA
PZ-7	10/20/2009	NA	4,200	67,000	106,000	NA	NA
PZ-7	5/24/2010	NA	3,000	68,000	103,000	NA	NA
PZ-7	10/25/2010	NA	3,000	75,000	103,000	NA	NA
PZ-7	5/23/2011	NA	2,700	60,000	101,000	NA	NA
PZ-7	10/4/2011	NA	3,100	81,000	116,000	NA	NA
PZ-7	5/15/2012	NA	3,000	64,000	96,600	NA	NA
PZ-7	10/3/2012	NA	4,380	67,500	106,000	NA	NA
PZ-7	5/13/2013	NA	3,050	58,500	112,000	NA	NA
PZ-7	10/22/2013	NA	3,100	61,100	126,000	NA	NA
PZ-7	5/13/2014	NA	2,650	35,400	114,000	NA	NA
PZ-7	10/13/2014	NA	3,530	74,500	136,000	NA	NA
PZ-7	5/12/2015	NA	3,240	68,200	118,000	NA	NA
PZ-7	11/9/2015	NA	2,960	44,900	114,000	NA	NA
PZ-7	5/24/2016	NA	3,790	75,400	109,000	NA	NA
PZ-7	9/27/2016	NA	2,850	51,600	99,300	NA	NA
PZ-8	10/15/2007	0.677	500	7,440	15,000	0.039	<0.00500
PZ-8	6/6/2008	1.8	630	11,000	16,000	0.0655	<0.001
PZ-9	6/21/2004	<20.0	3,740	80,200	140,000	<0.0100	<0.00500
PZ-9	11/9/2004	1.4	14,500	92,400	144,000	0.066	<0.0100
PZ-9	5/17/2005	2.82	5,090	182,000	164,000	0.05	0.071
PZ-9	10/11/2005	<20.0	3,930	85,500	107,000	0.022	<0.0100
PZ-9	5/16/2006	3.01	4,350	84,700	153,000	0.023	<0.0100
PZ-9	10/10/2006	<20.0	3,370	102,000	135,000	<0.0500	<0.0250
PZ-9	5/9/2007	3.28	4,320	89,600	164,000	<0.0500	<0.0250
PZ-9	10/9/2007	<200	4,720	116,000	144,000	<0.0200	<0.0050
PZ-9	6/5/2008	2.2	4,400	87,000	150,000	0.0351	0.00492
PZ-9	10/14/2008	NA	4,100	96,000	140,000	NA	NA
PZ-9	5/19/2009	NA	3,600	94,000	130,000	NA	NA
PZ-9	10/19/2009	NA	4,000	77,000	139,000	NA	NA
PZ-9	5/25/2010	NA	4,400	94,000	144,000	NA	NA
PZ-9	10/26/2010	NA	4,300	95,000	149,000	NA	NA
PZ-9	5/24/2011	NA	4300	83,000	147,000	NA	NA
PZ-9	10/4/2011	NA	4600	99,000	153,000	NA	NA
PZ-9	5/16/2012	NA	4,900	98,000	152,000	NA	NA

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2016 THROUGH DECEMBER 31, 2016

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-9	10/3/2012	NA	4,440	99,700	141,000	NA	NA
PZ-9	5/14/2013	NA	4,580	82,000	152,000	NA	NA
PZ-9	10/22/2013	NA	4,620	88,200	179,000	NA	NA
PZ-9	5/13/2014	NA	4,730	83,600	161,000	NA	NA
PZ-9	10/14/2014	NA	5,150	98,600	172,000	NA	NA
PZ-9	5/13/2015	NA	7,090	112,000	175,000	NA	NA
PZ-9	11/10/2015	NA	4,390	84,300	176,000	NA	NA
PZ-9	5/25/2016	NA	5,640	115,000	167,000	NA	NA
PZ-9	9/28/2016	NA	4,860	99,200	353,000	NA	NA
PZ-10	6/14/2004	3.81	469	368	1,714	0.02	<0.00500
PZ-10	11/8/2004	3.69	431	353	1,576	<0.0500	<0.0100
PZ-10	5/16/2005	3.63	572	416	1,756	0.044	0.037
PZ-10	10/10/2005	3.34	515	318	1,720	0.015	<0.0100
PZ-10	5/15/2006	3.42	539	460	1,830	0.014	<0.0100
PZ-10	10/9/2006	5.5	549	350	1,600	<0.00100	<0.0500
PZ-10	5/7/2007	14.8	407	274	1,504	<0.0200	0.02
PZ-10	10/8/2007	<1.00	211	186	968	0.026	<0.0050
PZ-10	6/4/2008	4.5	390	300	1,500	0.0144	0.00119
PZ-10	10/13/2008	NA	380	290	1,400	NA	NA
PZ-10	5/18/2009	NA	530	460	1,800	NA	NA
PZ-10	10/20/2009	NA	500	440	1,730	NA	NA
PZ-10	5/24/2010	NA	500	370	1,680	NA	NA
PZ-10	10/25/2010	NA	410	360	1,530	NA	NA
PZ-10	5/23/2011	NA	400	310	1,620	NA	NA
PZ-10	10/4/2011	NA	440	370	1,640	NA	NA
PZ-10	5/15/2012	NA	450	410	1,650	NA	NA
PZ-10	10/1/2012	NA	480	414	1,700	NA	NA
PZ-10	5/13/2013	NA	426	394	1,580	NA	NA
PZ-10	10/21/2013	NA	434	348	1,710	NA	NA
PZ-10	5/12/2014	NA	471	407	1,840	NA	NA
PZ-10	10/13/2014	NA	178	167	910	NA	NA
PZ-10	5/12/2015	NA	435	370	1,620	NA	NA
PZ-10	11/9/2015	NA	339	255	1,310	NA	NA
PZ-10	5/24/2016	NA	274	200	1,100	NA	NA
PZ-10	9/27/2016	NA	116	113	805	NA	NA
PZ-11	6/21/2004	20.8	2,220	58,100	123,000	<0.0100	<0.00500
PZ-11	11/8/2004	3.15	13,000	84,100	119,000	<0.0500	<0.0100
PZ-11	5/16/2005	4.63	2,890	66,000	100,000	<0.0100	<0.0100
PZ-11	10/10/2005	<20.0	2,950	84,300	129,000	0.013	<0.0100
PZ-11	5/15/2006	<5.3	3,090	71,000	133,000	<0.0100	<0.0100
PZ-11	10/9/2006	<1.00	2,550	85,800	123,000	<0.00100	<0.0500
PZ-11	5/7/2007	3.84	2,620	68,700	135,000	<0.0200	<0.0100

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2016 THROUGH DECEMBER 31, 2016

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-11	10/8/2007	<1.00	2,970	94,400	108,000	<0.0200	<0.0050
PZ-11	6/4/2008	3.9	2,100	65,000	110,000	0.0149	0.00216
PZ-11	10/13/2008	NA	3,000	79,000	110,000	NA	NA
PZ-11	5/18/2009	NA	2,500	72,000	110,000	NA	NA
PZ-11	10/20/2009	NA	3,200	64,000	112,000	NA	NA
PZ-11	5/24/2010	NA	2,500	69,000	107,000	NA	NA
PZ-11	10/25/2010	NA	2,300	77,000	100,000	NA	NA
PZ-11	5/23/2011	NA	2,000	45,000	80,500	NA	NA
PZ-11	10/3/2011	NA	2,300	65,000	92,200	NA	NA
PZ-11	5/15/2012	NA	2,400	59,000	93,200	NA	NA
PZ-11	10/3/2012	NA	2,220	53,000	95,600	NA	NA
PZ-11	5/13/2013	NA	2,270	64,800	105,000	NA	NA
PZ-11	10/21/2013	NA	2,360	59,000	123,000	NA	NA
PZ-11	5/12/2014	NA	2,260	45,000	102,000	NA	NA
PZ-11	10/13/2014	NA	2,740	68,800	123,000	NA	NA
PZ-11	5/12/2015	NA	2,590	57,000	105,000	NA	NA
PZ-11	11/9/2015	NA	2,770	59,900	96,400	NA	NA
PZ-11	5/24/2016	NA	2,640	54,900	93,200	NA	NA
PZ-11	9/27/2016	NA	2,240	43,300	82,700	NA	NA
PZ-12	6/14/2004	11.2	773	5,320	9,700	0.077	<0.00500
PZ-12	11/8/2004	19.8	879	7,170	9,540	0.066	<0.0100
PZ-12	5/16/2005	8.85	679	3,730	5,890	0.051	0.054
PZ-12	10/10/2005	426	805	3,790	7,740	0.02	<0.0100
PZ-12	5/15/2006	20.6	866	4,510	8,790	0.019	<0.0100
PZ-12	10/9/2006	13.2	795	5,340	9,150	<0.00100	<0.0500
PZ-12	5/7/2007	10.8	831	3,780	7,010	<0.0200	0.024
PZ-12	10/8/2007	<1.00	958	4,310	6,200	0.026	<0.0050
PZ-12	6/4/2008	11	760	3,300	6,800	0.0291	0.00132
PZ-12	10/13/2008	NA	850	3,300	7,000	NA	NA
PZ-12	5/18/2009	NA	870	4,600	8,300	NA	NA
PZ-12	10/20/2009	NA	980	6,500	10,100	NA	NA
PZ-12	5/24/2010	NA	990	5,500	10,100	NA	NA
PZ-12	10/25/2010	NA	990	5,800	10,300	NA	NA
PZ-12	5/23/2011	NA	900	5,600	10,900	NA	NA
PZ-12	10/3/2011	NA	900	6,800	13,100	NA	NA
PZ-12	5/15/2012	NA	620	6,400	9,400	NA	NA
PZ-12	10/1/2012	NA	503	5,290	9,780	NA	NA
PZ-12	5/13/2013	NA	449	3,990	7,610	NA	NA
PZ-12	10/21/2013	NA	415	3,320	8,110	NA	NA
PZ-12	5/12/2014	NA	374	2,490	5,640	NA	NA
PZ-12	10/13/2014	NA	409	2,440	6,100	NA	NA

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2016 THROUGH DECEMBER 31, 2016

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-12	5/12/2015	NA	665	4,470	8,720	NA	NA
PZ-12	11/9/2015	NA	627	3,450	8,280	NA	NA
PZ-12	5/24/2016	NA	560	2,570	6,100	NA	NA
PZ-12	9/27/2016	NA	548	2,460	6,240	NA	NA
PZ-13	10/10/2007	12.4	2,670	150,000	245,500	<0.100	<0.00500
PZ-13	6/6/2008	<200	2,600	170,000	240,000	0.0118	0.00316
PZ-13	10/13/2008	NA	2,900	160,000	230,000	NA	NA
PZ-13	5/18/2009	NA	3,300	180,000	240,000	NA	NA
PZ-13	10/20/2009	NA	3,300	170,000	255,000	NA	NA
PZ-13	5/24/2010	NA	3,000	170,000	240,000	NA	NA
PZ-13	10/26/2010	NA	2,900	190,000	246,000	NA	NA
PZ-13	5/24/2011	NA	2,700	150,000	248,000	NA	NA
PZ-13	10/4/2011	NA	3,000	170,000	259,000	NA	NA
PZ-13	5/15/2012	NA	3,300	160,000	252,000	NA	NA
PZ-13	10/2/2012	NA	3,260	170,000	263,000	NA	NA
PZ-13	5/14/2013	NA	3,130	144,000	260,000	NA	NA
PZ-13	10/22/2013	NA	3,220	139,000	262,000	NA	NA
PZ-13	5/13/2014	NA	2,900	104,000	265,000	NA	NA
PZ-13	10/14/2014	NA	3,100	179,000	274,000	NA	NA
PZ-13	5/13/2015	NA	3,550	197,000	267,000	NA	NA
PZ-13	11/10/2015	NA	2,980	118,000	233,000	NA	NA
PZ-13	5/25/2016	NA	1,600	168,000	260,000	NA	NA
PZ-13	9/28/2016	NA	2,790	153,000	236,000	NA	NA
PZ-14	10/15/2007	1.41	2,140	71,500	106,000	<0.0100	<0.00500
PZ-14	6/6/2008	<100	3,300	130,000	180,000	0.0201	0.00168
PZ-15	10/15/2007	2.97	169	764	2,060	0.022	<0.00500
PZ-15	6/6/2008	12	160	460	1,600	0.00372	<0.001
C-2811	6/14/2004	6.06	299	769	2,022	0.047	<0.00500
C-2811	11/8/2004	7.63	305	1,030	1,996	0.054	<0.0100
C-2811	5/16/2005	6.02	524	1,930	3,740	0.058	0.053
C-2811	10/10/2005	7.48	584	2,250	4,410	0.034	<0.0100
C-2811	5/15/2006	6.94	511	1,760	3,740	0.031	<0.0100
C-2811	10/9/2006	6.05	402	1,310	2,100	<0.00100	<0.0500
C-2811	5/7/2007	5.31	516	1,760	4,205	<0.0200	0.031
C-2811	10/8/2007	<1.00	635	2,980	3,860	0.051	<0.0050
C-2811	6/4/2008	5.7	390	1,300	2,800	0.0017	0.035
C-2811	10/13/2008	NA	320	1,000	2,100	NA	NA
C-2811	5/18/2009	NA	360	1,200	2,300	NA	NA
C-2811	10/20/2009	NA	320	1,000	2,120	NA	NA
C-2811	5/24/2010	NA	340	920	2,090	NA	NA
C-2811	10/25/2010	NA	370	1,100	2,470	NA	NA

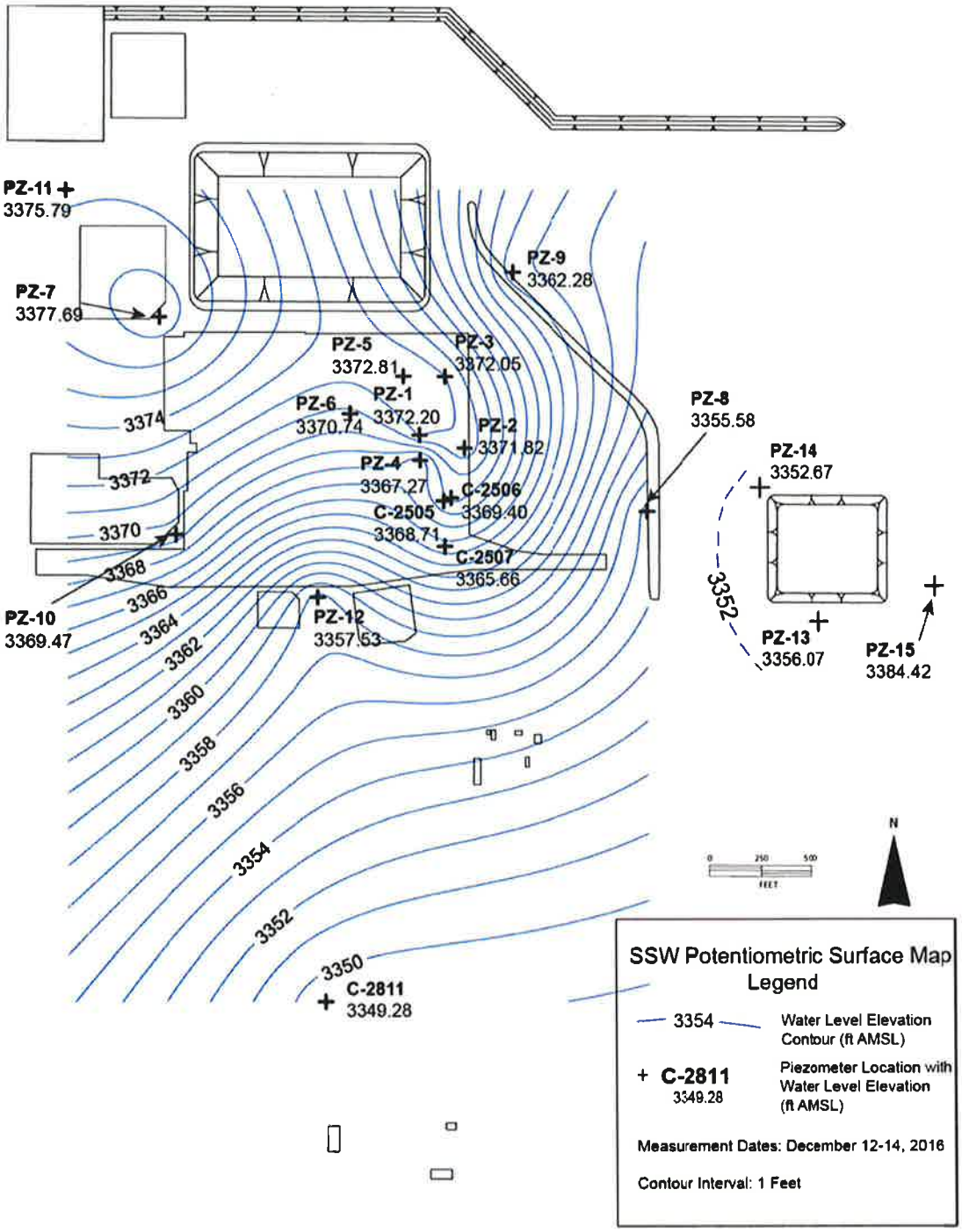
WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2016 THROUGH DECEMBER 31, 2016

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
C-2811	5/23/2011	NA	350	960	2,370	NA	NA
C-2811	10/3/2011	NA	340	910	2,330	NA	NA
C-2811	5/14/2012	NA	320	810	1,870	NA	NA
C-2811	10/1/2012	NA	337	862	2,100	NA	NA
C-2811	5/13/2013	NA	328	872	2,090	NA	NA
C-2811	10/21/2013	NA	341	838	2,490	NA	NA
C-2811	5/13/2014	NA	297	865	2,250	NA	NA
C-2811	10/14/2014	NA	277	827	2,580	NA	NA
C-2811	5/12/2015	NA	586	1,430	3,460	NA	NA
C-2811	11/9/2015	NA	451	1260	3,300	NA	NA
C-2811	5/24/2016	NA	491	1,210	2,720	NA	NA
C-2811	9/27/2016	NA	422	1,100	2,820	NA	NA
C-2507	6/21/2004	7.55	717	1,300	3,830	0.029	0.028
C-2507	11/9/2004	7.58	824	1,380	3,350	0.08	0.014
C-2507	5/17/2005	7.94	860	1,370	3,340	0.078	0.063
C-2507	10/11/2005	6.13	920	1,630	3,240	0.047	<0.0100
C-2507	5/16/2006	7.37	1,040	1,930	5,300	0.051	<0.0100
C-2507	10/10/2006	2.9	943	3,640	1,740	<0.0500	<0.0250
C-2507	5/9/2007	6.62	1,110	3,060	5,485	<0.0500	<0.0250
C-2507	10/9/2007	<1.00	1,220	3,500	5,540	0.055	0.007
C-2507	6/5/2008	6.9	990	2,800	5,800	0.0637	0.00493
C-2507	10/14/2008	NA	940	2,200	5,100	NA	NA
C-2507	5/19/2009	NA	950	2,600	5,200	NA	NA
C-2507	10/19/2009	NA	930	3,400	5,710	NA	NA
C-2507	5/25/2010	NA	910	3,500	6,640	NA	NA
C-2507	10/26/2010	NA	980	3,500	7,120	NA	NA
C-2507	5/24/2011	NA	790	3,200	6,190	NA	NA
C-2507	10/5/2011	NA	810	3,400	6,660	NA	NA
C-2507	5/16/2012	NA	800	2,800	5,720	NA	NA
C-2507	10/1/2012	NA	774	2,970	6,790	NA	NA
C-2507	5/14/2013	NA	704	2,820	6,020	NA	NA
C-2507	10/21/2013	NA	692	3,270	8,350	NA	NA
C-2507	5/13/2014	NA	643	2,770	7,590	NA	NA
C-2507	10/14/2014	NA	693	3,830	9,180	NA	NA
C-2507	5/13/2015	NA	683	3,430	7,590	NA	NA
C-2507	11/10/2015	NA	605	2,800	6,850	NA	NA
C-2507	5/31/2016	NA	679	3,110	6,620	NA	NA
C-2507	9/28/2016	NA	626	2,960	7,280	NA	NA
WQSP-6A	7/13/1995	7.62	1,905	1,040	11,000	<0.006	<0.025
WQSP-6A	3/28/1996	3.98	1,810	507	3,920	<0.013	<0.025
WQSP-6A	7/11/1996	2.75	1,971	6,748	4,500	0.02	<0.025

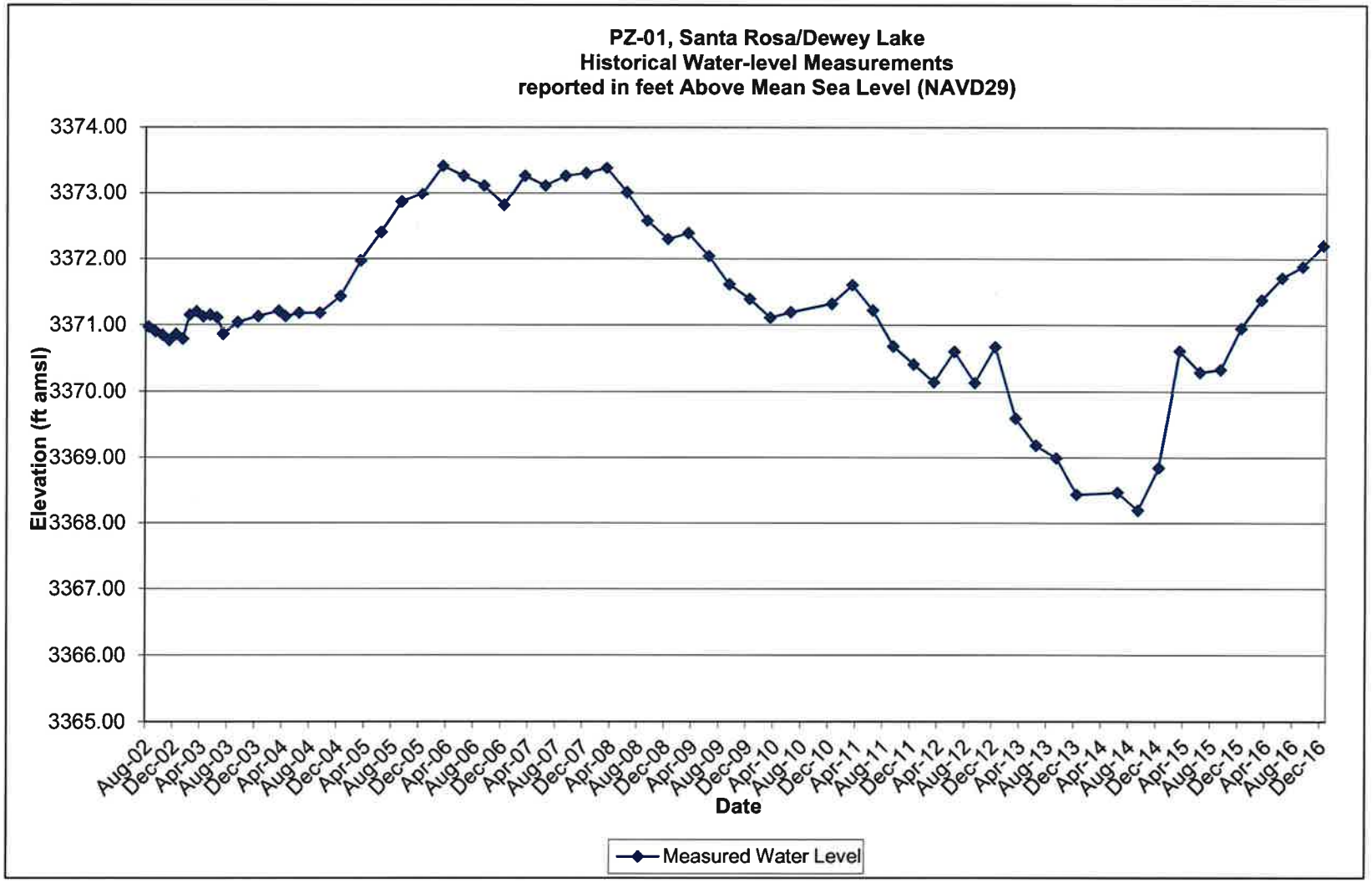
WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2016 THROUGH DECEMBER 31, 2016

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
WQSP-6A	4/10/1997	4.64	2,240	675	3,960	0.017	<0.025
WQSP-6A	7/10/1997	4.04	2,560	660	3,840	<0.050	<0.1000
WQSP-6A	6/10/1998	6.19	1,950	644	4,120	0.016	0.0015
WQSP-6A	11/3/1998	11	2,100	770	4,100	0.22	<0.500
WQSP-6A	5/26/1999	7	1,900	540	3,800	<0.100	<0.050
WQSP-6A	11/10/1999	9.4	1,900	540	3,800	<0.050	<0.050
WQSP-6A	5/24/2000	7.5	2,100	530	3,800	0.0129	<0.020
WQSP-6A	11/30/2000	6.7	1,900	480	3,700	<0.0130	<0.025
WQSP-6A	6/6/2001	6.37	1,900	536	3,680	0.0385	<0.025
WQSP-6A	11/14/2001	3.67	1,900	414	4,600	<0.050	<0.010
WQSP-6A	5/22/2002	5.52	1,930	487	3,540	<0.050	<0.010
WQSP-6A	11/20/2002	5.61	2,090	419	3,685	<0.050	<0.010
WQSP-6A	5/21/2003	4.74	1,950	384	3,650	<0.123	<0.050
WQSP-6A	11/19/2003	<0.01	1,950	391	3,955	<0.219	<0.025
WQSP-6A	5/26/2004	9.61	1,970	416	3,646	<0.025	<0.025
WQSP-6A	11/17/2004	6.72	1,960	491	3,655	<0.025	<0.025
WQSP-6A	4/20/2005	5.98	1,920	432	3,700	0.057	<0.025
WQSP-6A	10/19/2005	<0.01	1,940	360	3,430	<0.025	<0.025
WQSP-6A	5/3/2006	2.5	2,210	450	3,200	<0.025	<0.025
WQSP-6A	9/20/2006	6	2,120	360	3,515	<0.025	<0.025
WQSP-6A	3/7/2007	5.78	2,170	484	3,355	<0.025	<0.025
WQSP-6A	9/12/2007	5.47	1,950	350	3,400	<0.025	<0.025
WQSP-6A	3/12/2008	4.67	2,090	378	3,400	<0.025	<0.025
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/l)	
WQSP-6A	9/10/2008	5.69	2,030	348	3,150	< 5	
WQSP-6A	3/4/2009	5.9	2,100	350	3,500	<1.0	
WQSP-6A	9/10/2009	6.3	2,100	350	3,640	<1.0	
WQSP-6A	3/3/2010	6.55	2,145	330	3,545	<1.0	
WQSP-6A	9/23/2010	6.34	2,090	321	3,500	<1.0	
WQSP-6A	5/26/2011	6.5	2,100	270	3,480	<1.0	
WQSP-6A	10/6/2011	5.9	2,100	280	3,450	<1.0	
WQSP-6A	5/16/2012	5.4	2,200	310	3,340	<1.0	
WQSP-6A	10/2/2012	5.1	2,110	301	3,400	<1.0	
WQSP-6A	5/14/2013	5.29	2,260	318	3,420	<1.0	
WQSP-6A	10/23/2013	5.85	1,840	284	3,540	<1.0	
WQSP-6A	5/14/2014	5.4	1,870	342	3,500	<1.0	
WQSP-6A	10/15/2014	5.38	2,000	285	3,360	<1.0	
WQSP-6A	5/14/2015	5.11	1,940	294	3,520	<1.0	
WQSP-6A	11/11/2015	5.45	1,840	296	3,290	<1.0	
WQSP-6A	5/25/2016	4.91	1,900	379	3,380	<1.0	
WQSP-6A	9/29/2016	5.61	1,860	286	3,490	<1.0	
NA: Not Analyzed, parameter not required, per permit conditions.							

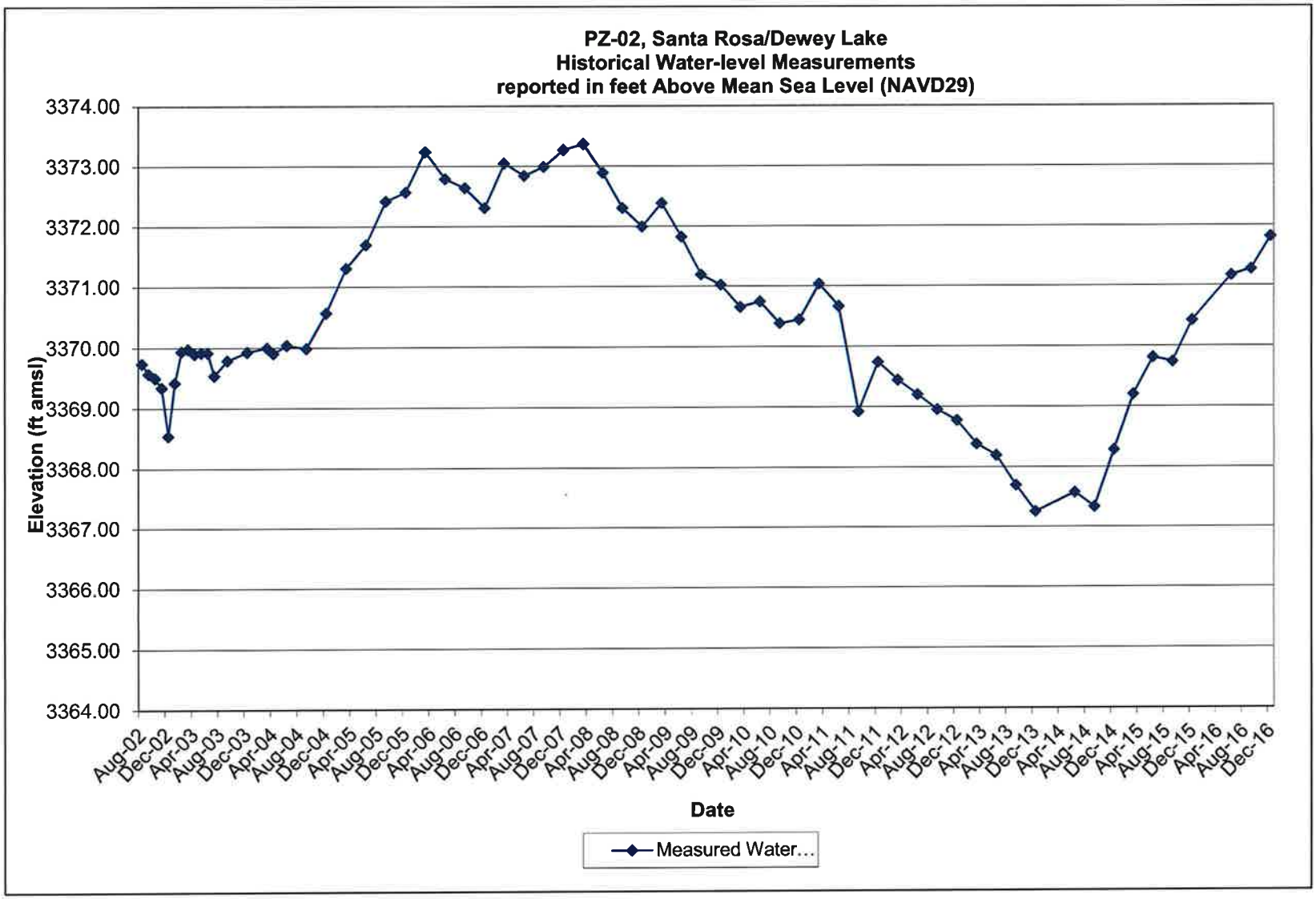
Figure 2 – Contour Map



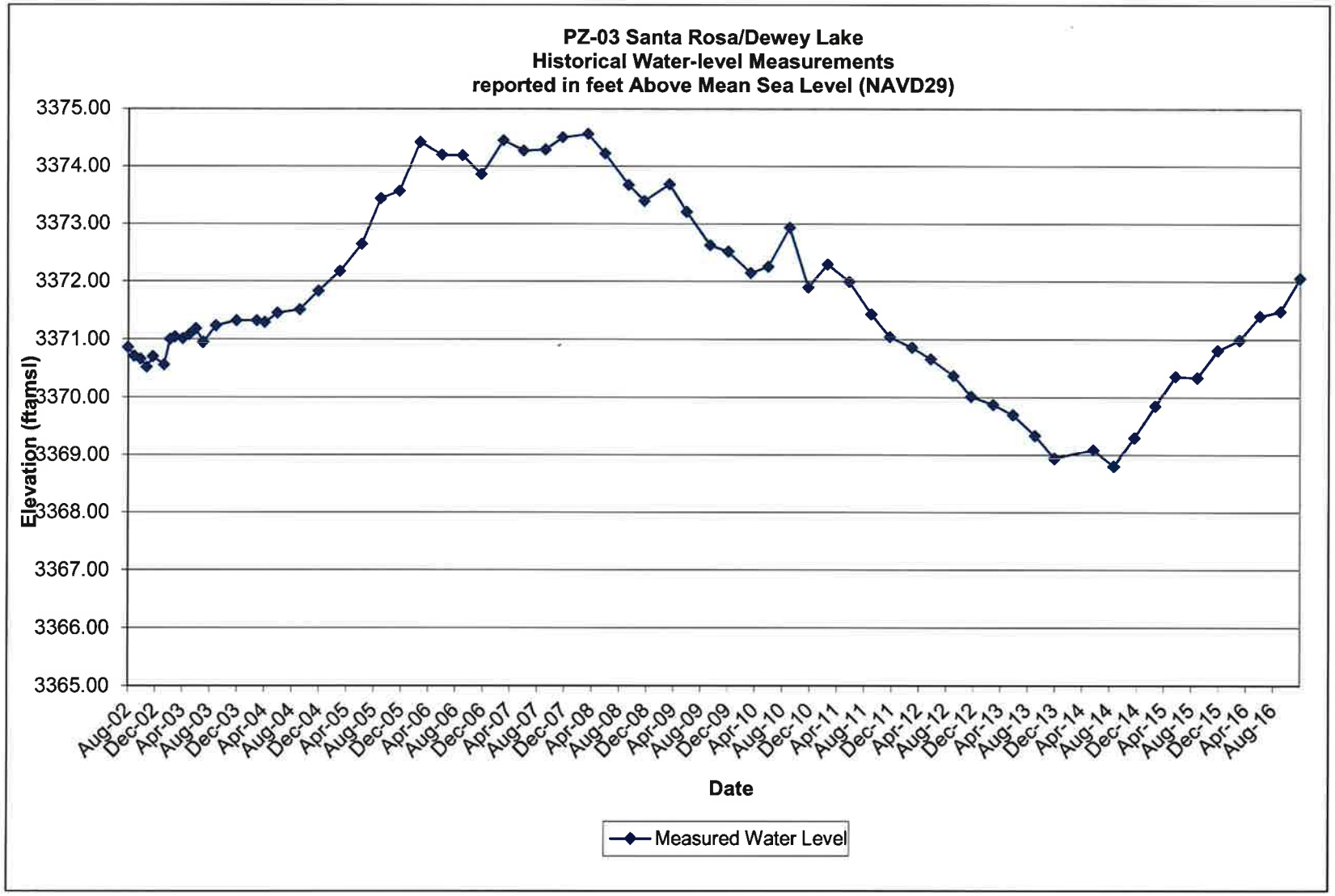
Attachment 1– Hydrographs



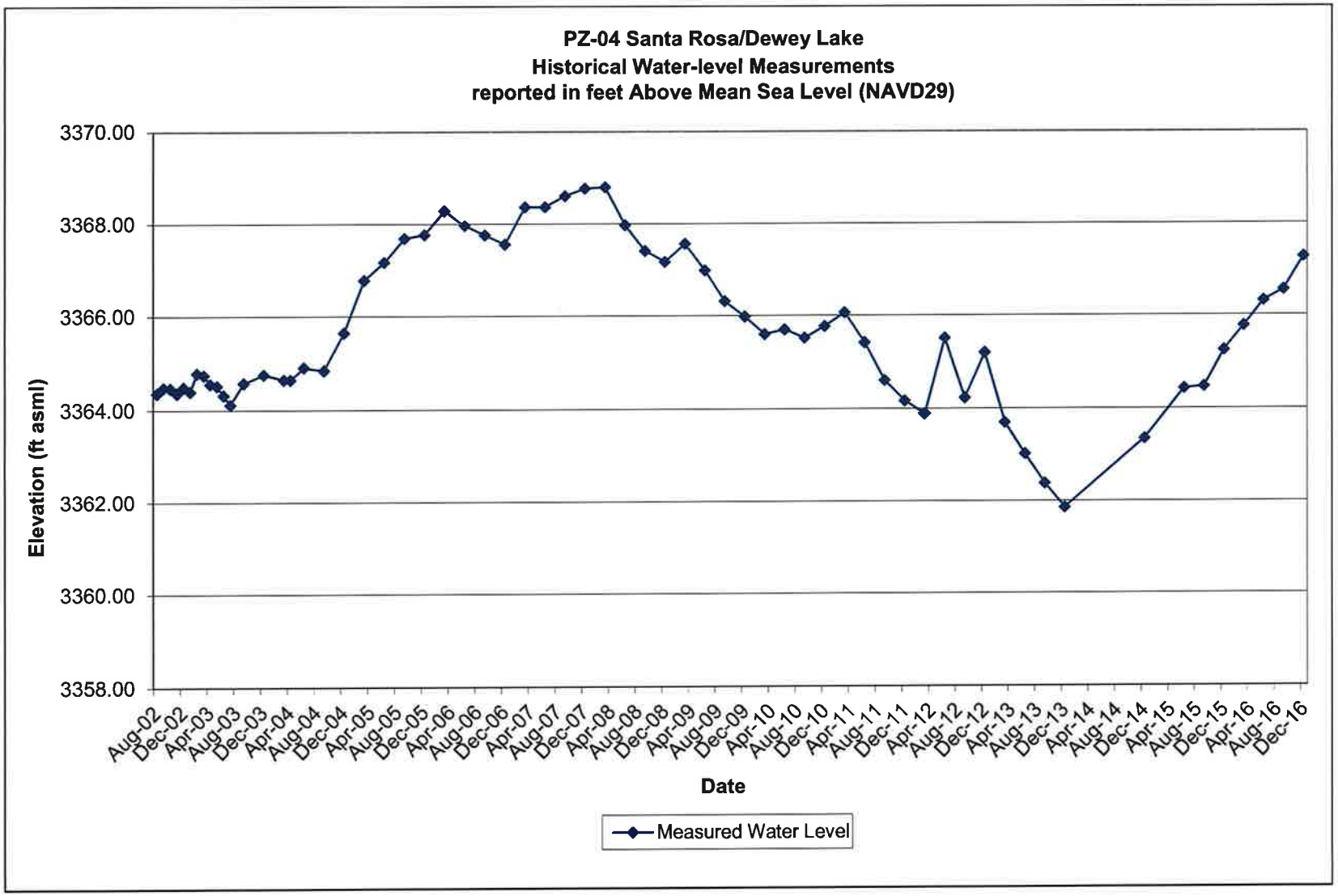
04616


PZ-02, Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3374.00
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
3365.00
3364.00
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13
Aug-13
Dec-13
Apr-14
Aug-14
Dec-14
Apr-15
Aug-15
Dec-15
Apr-16
Aug-16
Dec-16
Date
Measured Water...

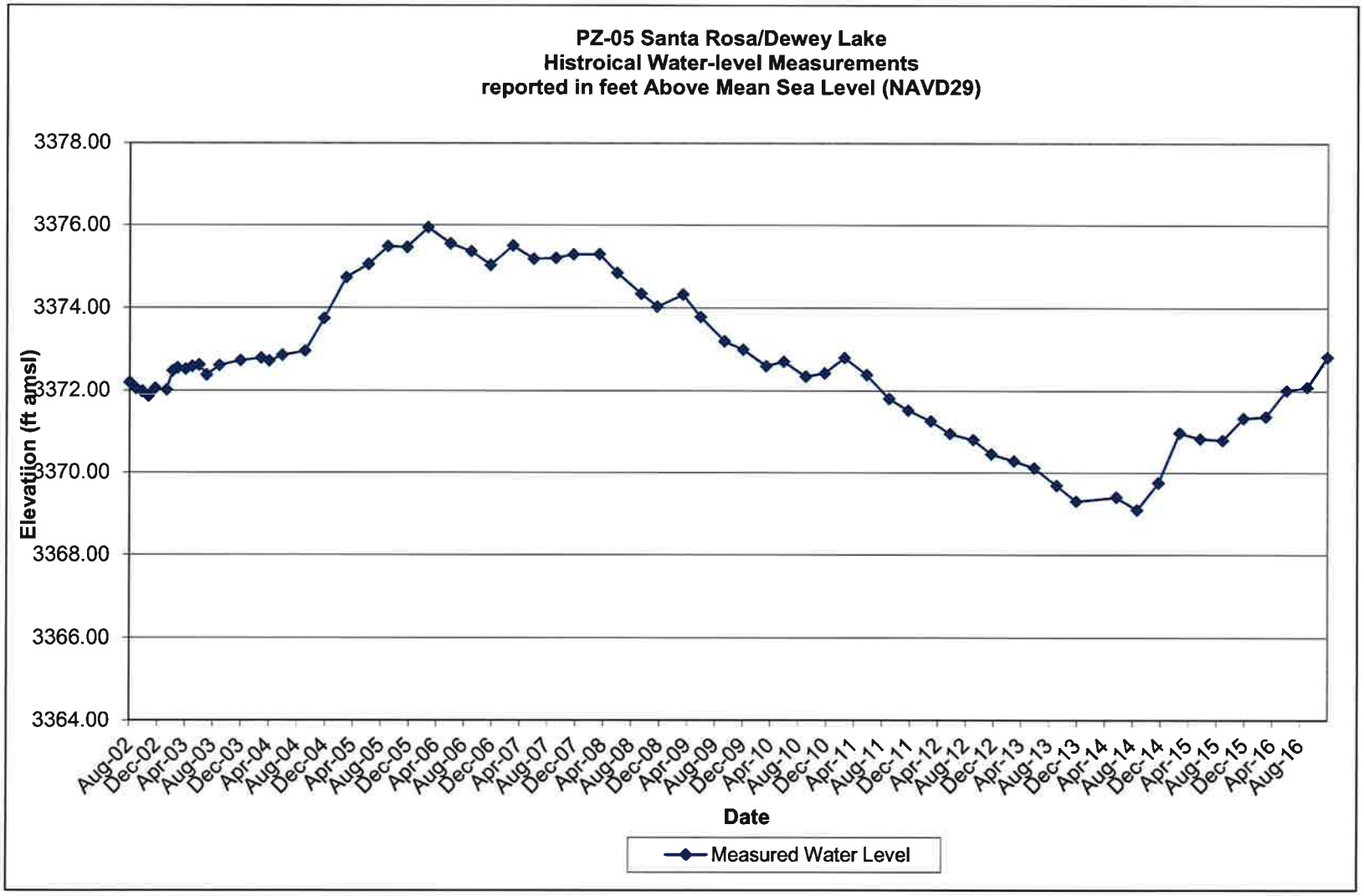
04617


PZ-03 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ftamsl)
3375.00
3374.00
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
3365.00
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13
Aug-13
Dec-13
Apr-14
Aug-14
Dec-14
Apr-15
Aug-15
Dec-15
Apr-16
Aug-16
Date
Measured Water Level

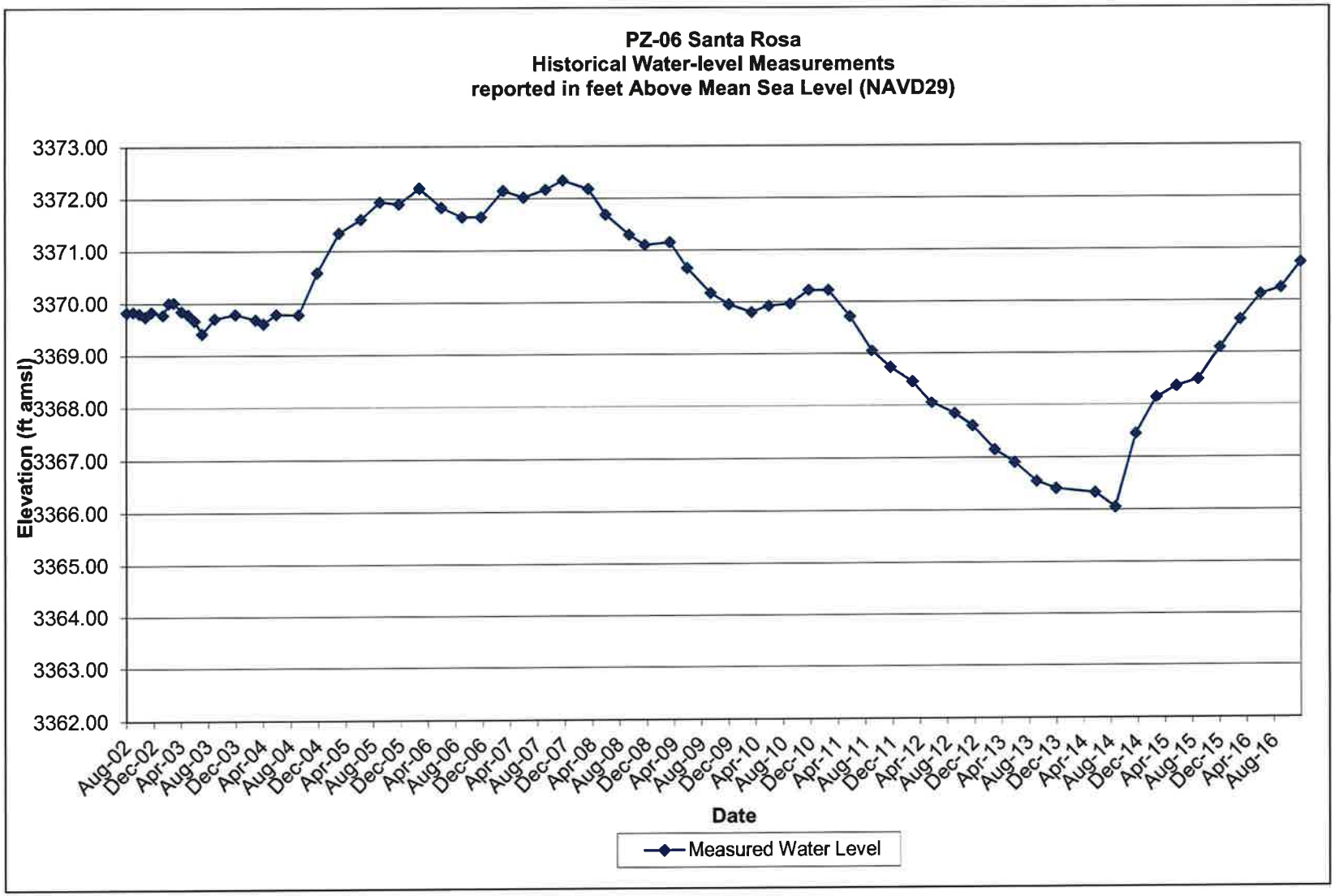
04618


PZ-04 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft asml)
3370.00
3368.00
3366.00
3364.00
3362.00
3360.00
3358.00
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13
Aug-13
Dec-13
Apr-14
Aug-14
Dec-14
Apr-15
Aug-15
Dec-15
Apr-16
Aug-16
Dec-16
Date
Measured Water Level

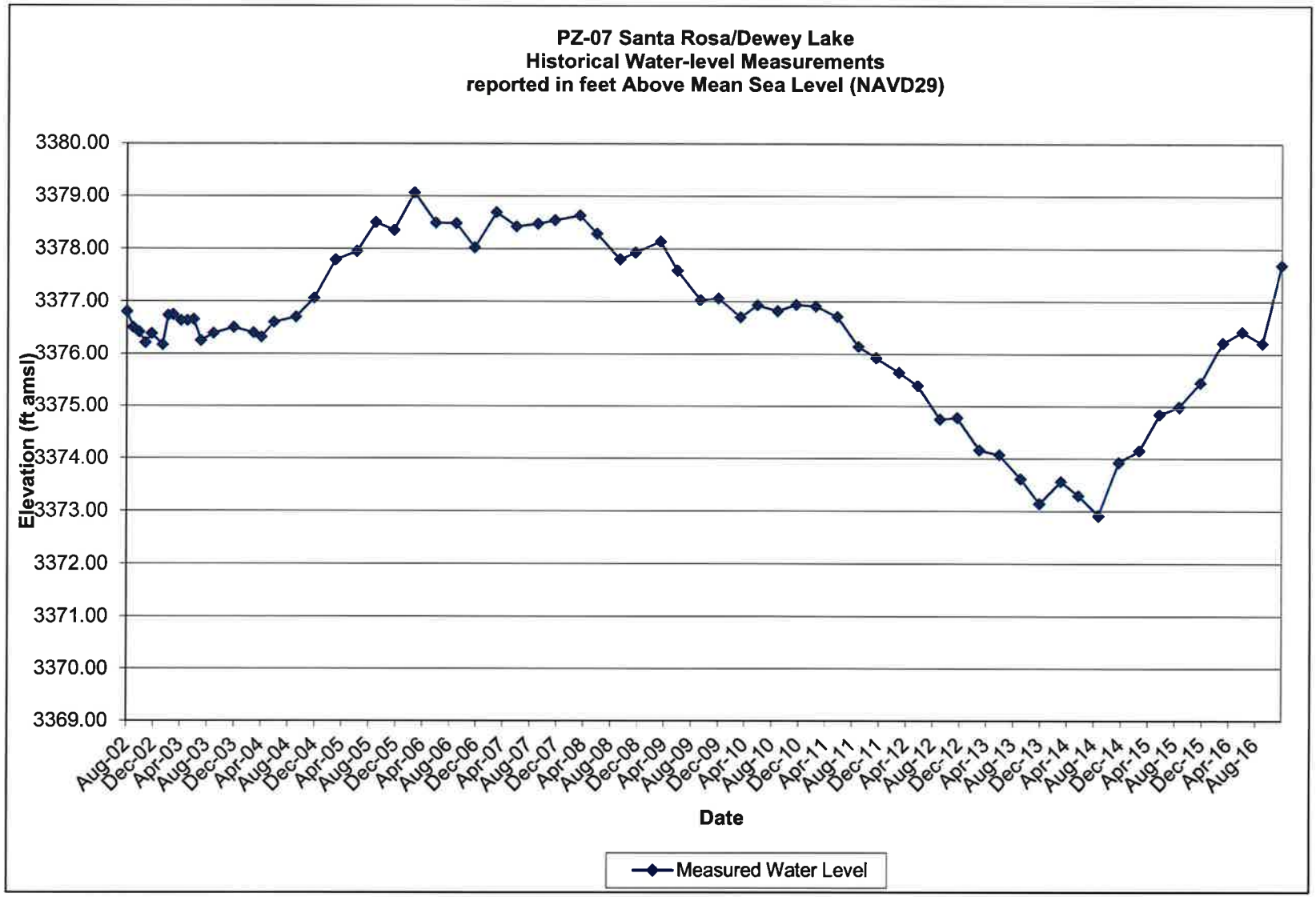
04619


PZ-05 Santa Rosa/Dewey Lake
Histroical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3378.00
3376.00
3374.00
3372.00
3370.00
3368.00
3366.00
3364.00
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13
Aug-13
Dec-13
Apr-14
Aug-14
Dec-14
Apr-15
Aug-15
Dec-15
Apr-16
Aug-16
Date
Measured Water Level

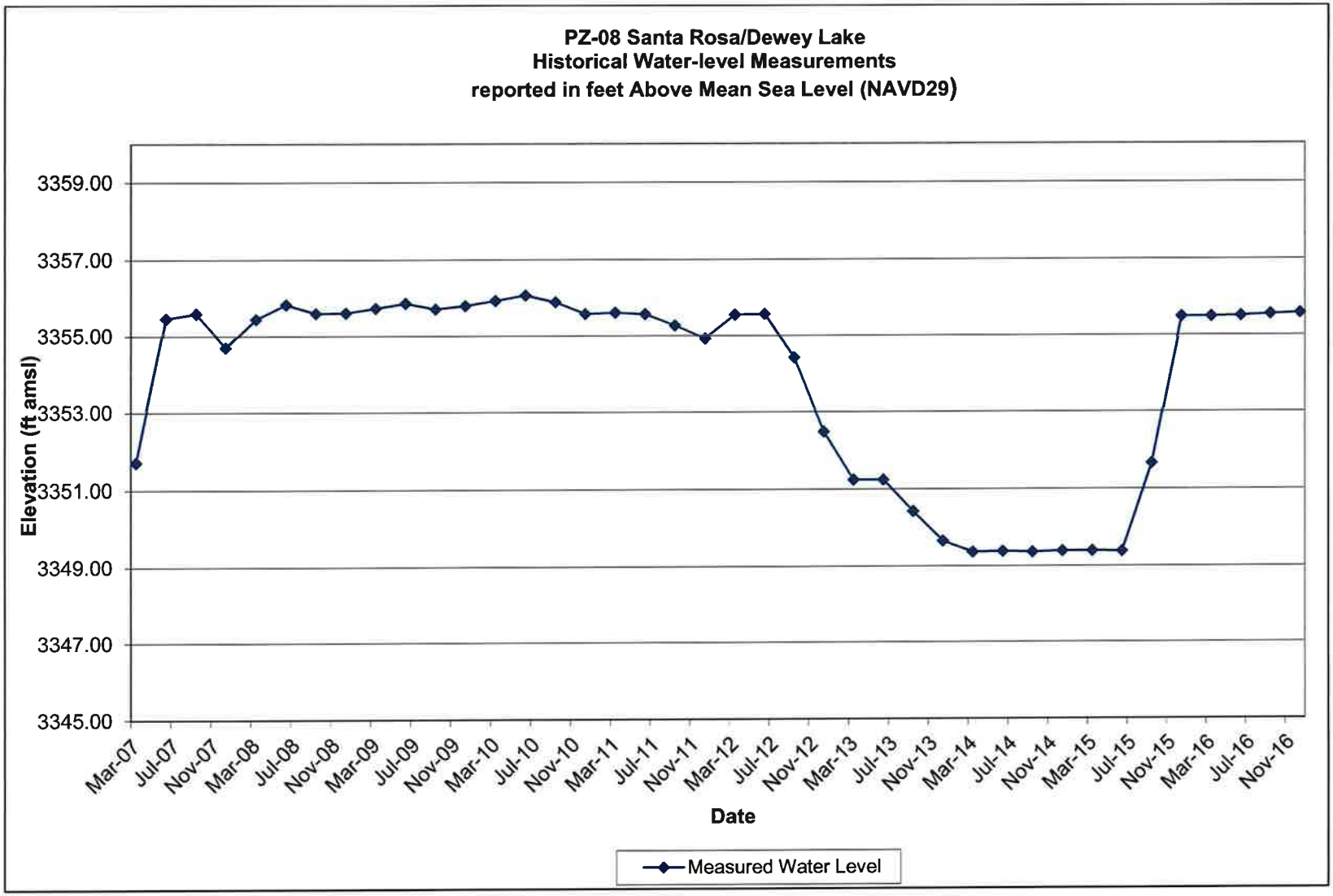
04620


PZ-06 Santa Rosa
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
3362.00
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13
Aug-13
Dec-13
Apr-14
Aug-14
Dec-14
Apr-15
Aug-15
Dec-15
Apr-16
Aug-16
Date
Measured Water Level

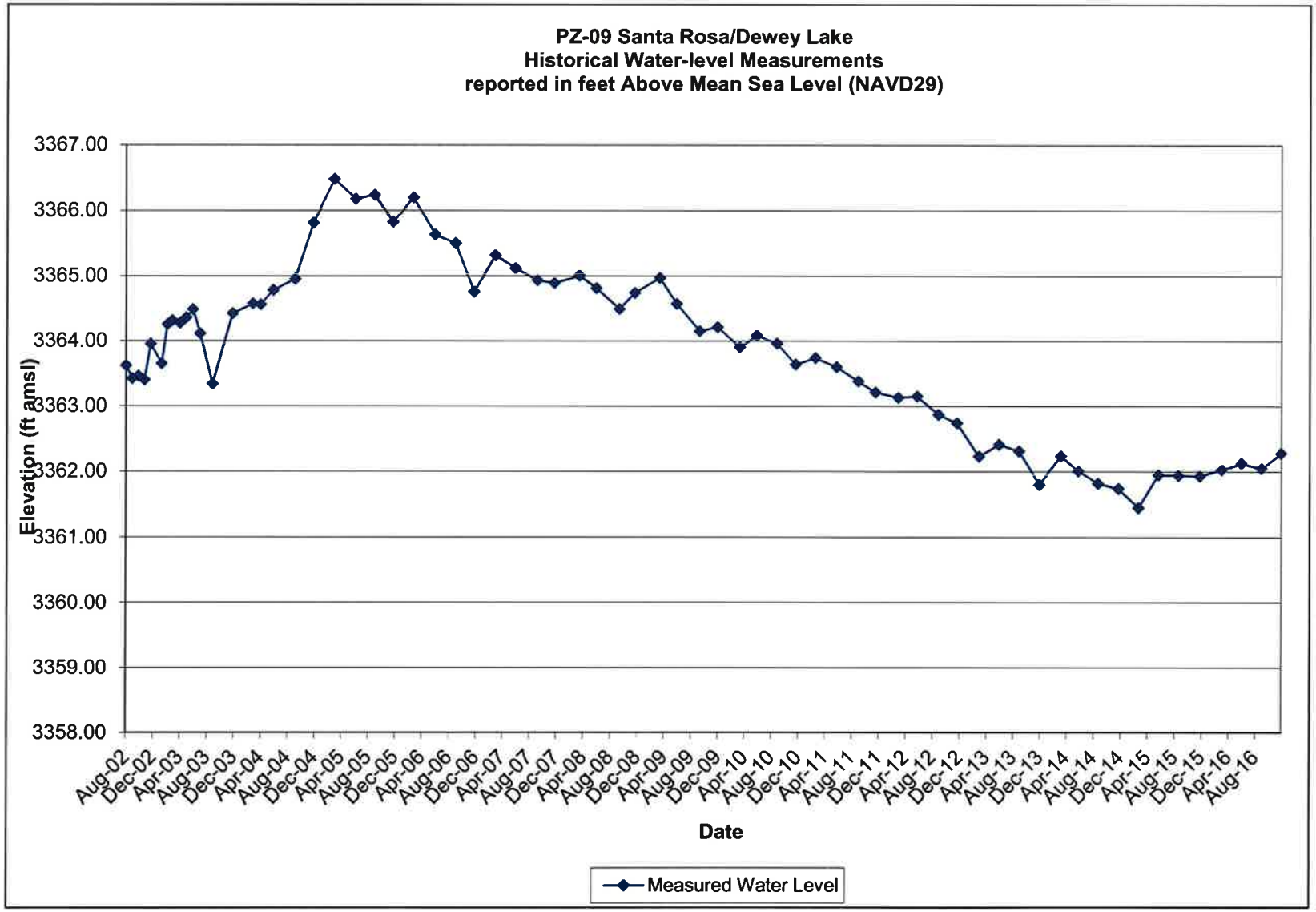
04621


PZ-07 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3380.00
3379.00
3378.00
3377.00
3376.00
3375.00
3374.00
3373.00
3372.00
3371.00
3370.00
3369.00
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13
Aug-13
Dec-13
Apr-14
Aug-14
Dec-14
Apr-15
Aug-15
Dec-15
Apr-16
Aug-16
Date
Measured Water Level

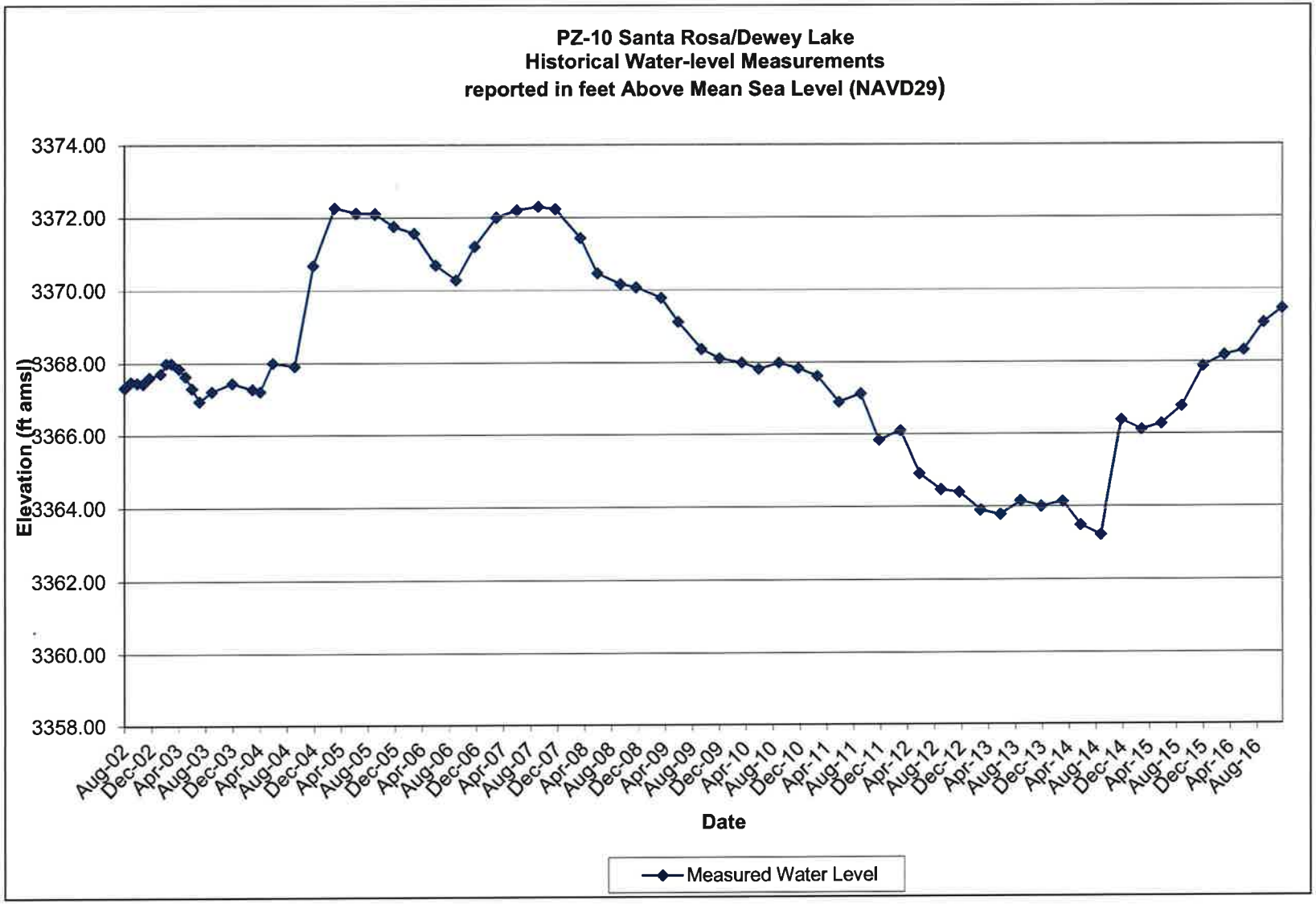
04622


PZ-08 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3359.00
3357.00
3355.00
3353.00
3351.00
3349.00
3347.00
3345.00
Mar-07
Jul-07
Nov-07
Mar-08
Jul-08
Nov-08
Mar-09
Jul-09
Nov-09
Mar-10
Jul-10
Nov-10
Mar-11
Jul-11
Nov-11
Mar-12
Jul-12
Nov-12
Mar-13
Jul-13
Nov-13
Mar-14
Jul-14
Nov-14
Mar-15
Jul-15
Nov-15
Mar-16
Jul-16
Nov-16
Date
Measured Water Level

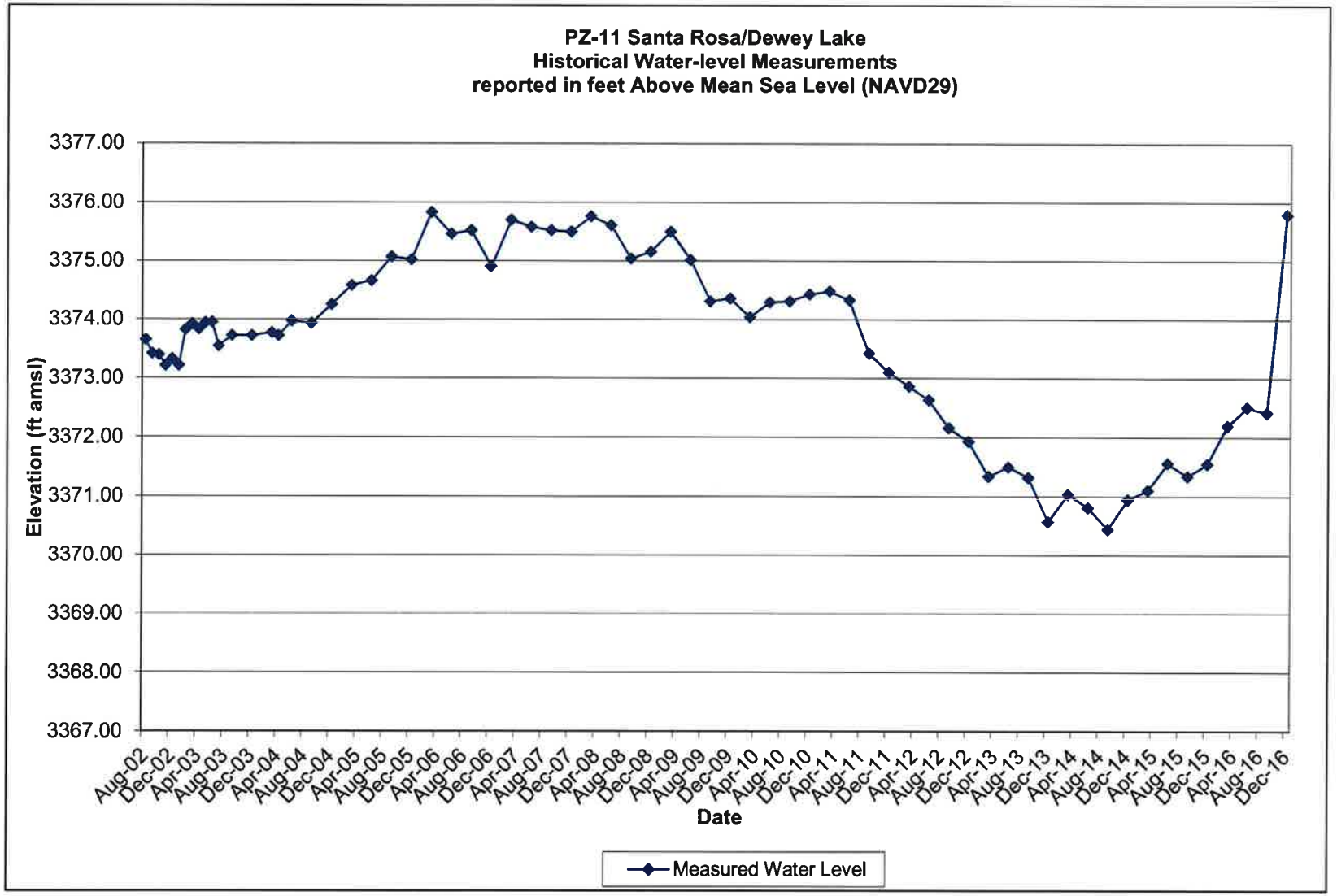
04623


PZ-09 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3367.00
3366.00
3365.00
3364.00
3363.00
3362.00
3361.00
3360.00
3359.00
3358.00
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13
Aug-13
Dec-13
Apr-14
Aug-14
Dec-14
Apr-15
Aug-15
Dec-15
Apr-16
Aug-16
Date
Measured Water Level

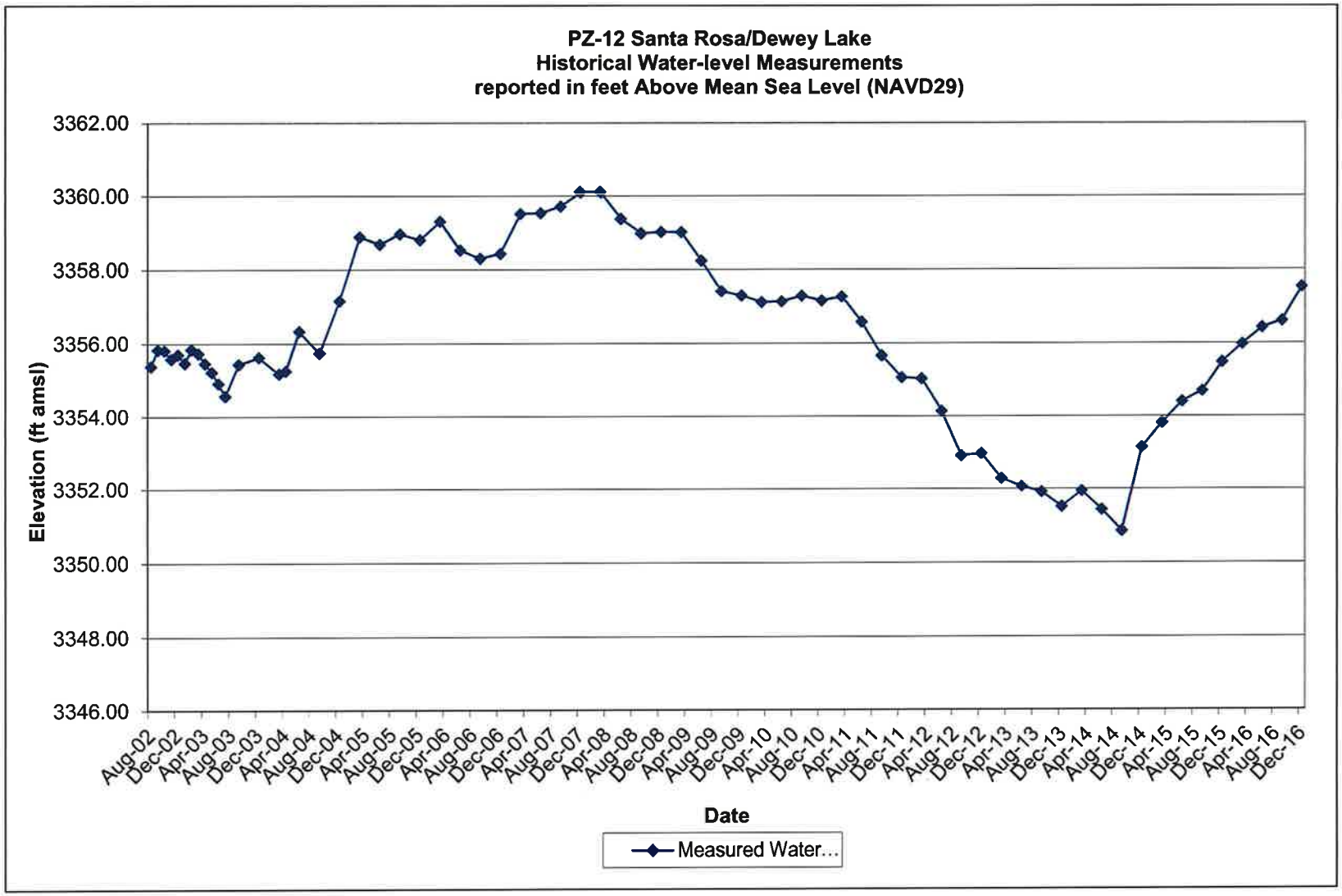
04624


PZ-10 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3374.00
3372.00
3370.00
3368.00
3366.00
3364.00
3362.00
3360.00
3358.00
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13
Aug-13
Dec-13
Apr-14
Aug-14
Dec-14
Apr-15
Aug-15
Dec-15
Apr-16
Aug-16
Date
Measured Water Level

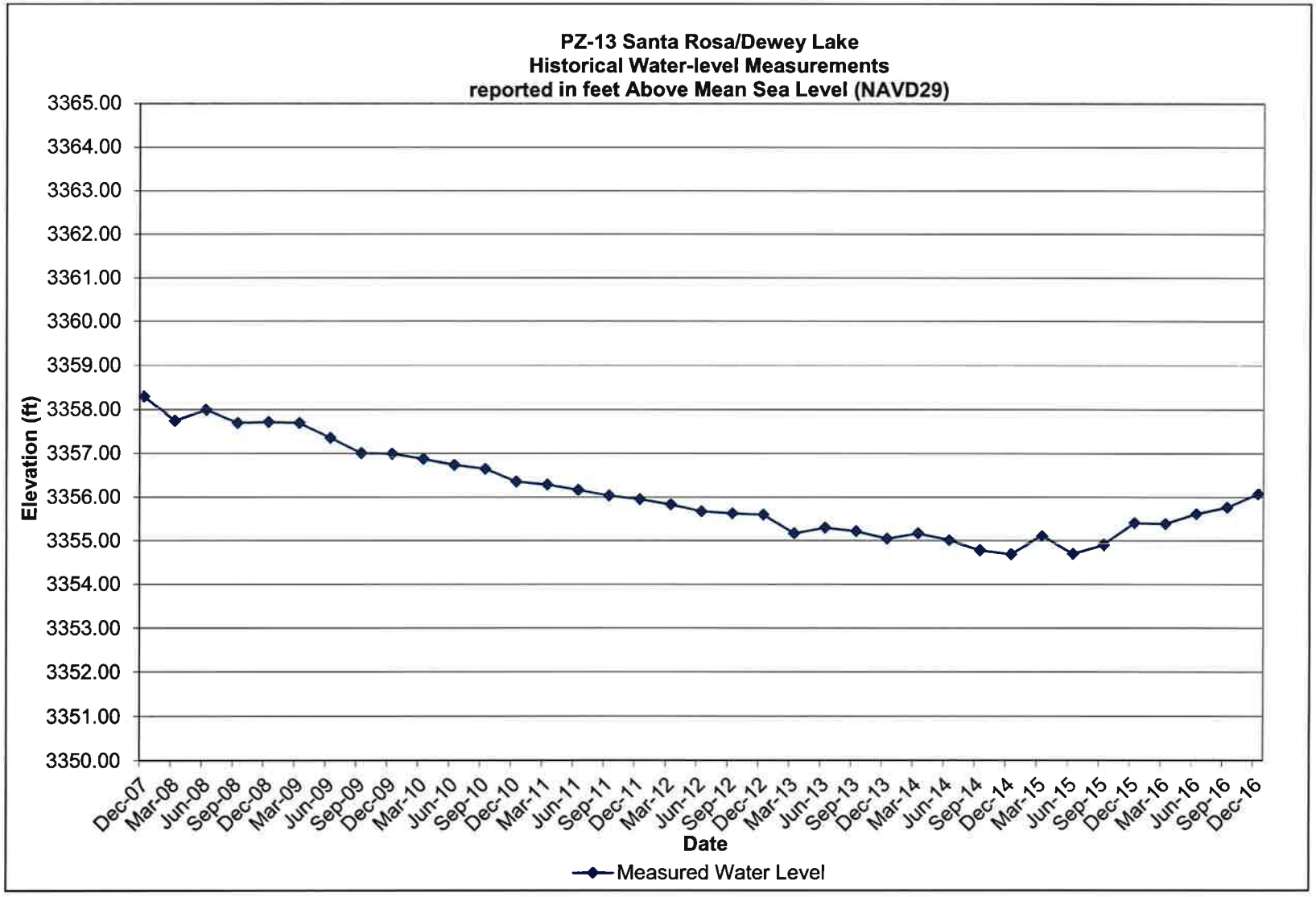
04625


PZ-11 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3377.00
3376.00
3375.00
3374.00
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
3367.00
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13
Aug-13
Dec-13
Apr-14
Aug-14
Dec-14
Apr-15
Aug-15
Dec-15
Apr-16
Aug-16
Dec-16
Date
Measured Water Level

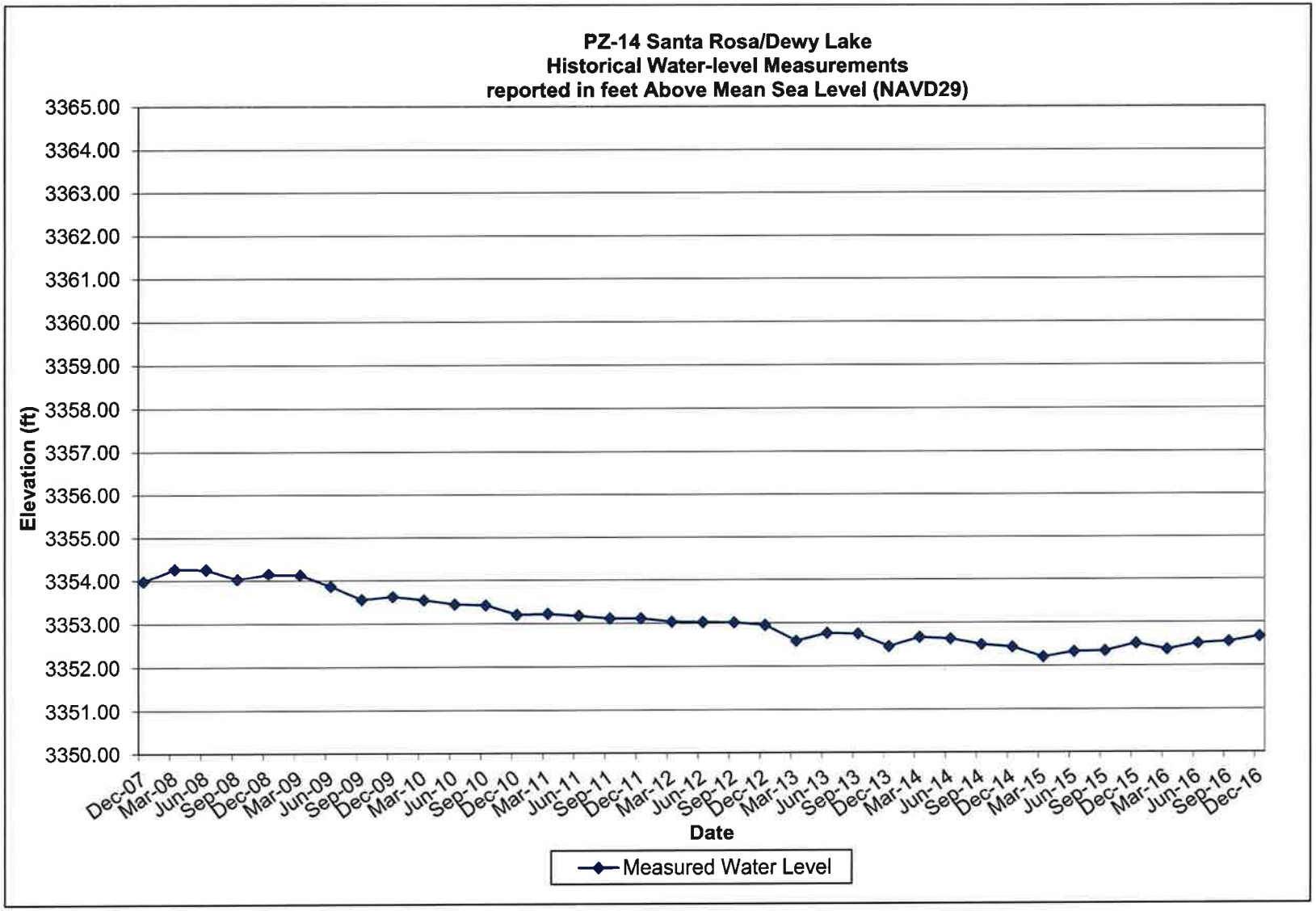
04626


PZ-12 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3362.00
3360.00
3358.00
3356.00
3354.00
3352.00
3350.00
3348.00
3346.00
Aug-02
Dec-02
Apr-03
Aug-03
Dec-03
Apr-04
Aug-04
Dec-04
Apr-05
Aug-05
Dec-05
Apr-06
Aug-06
Dec-06
Apr-07
Aug-07
Dec-07
Apr-08
Aug-08
Dec-08
Apr-09
Aug-09
Dec-09
Apr-10
Aug-10
Dec-10
Apr-11
Aug-11
Dec-11
Apr-12
Aug-12
Dec-12
Apr-13
Aug-13
Dec-13
Apr-14
Aug-14
Dec-14
Apr-15
Aug-15
Dec-15
Apr-16
Aug-16
Dec-16
Date
Measured Water...

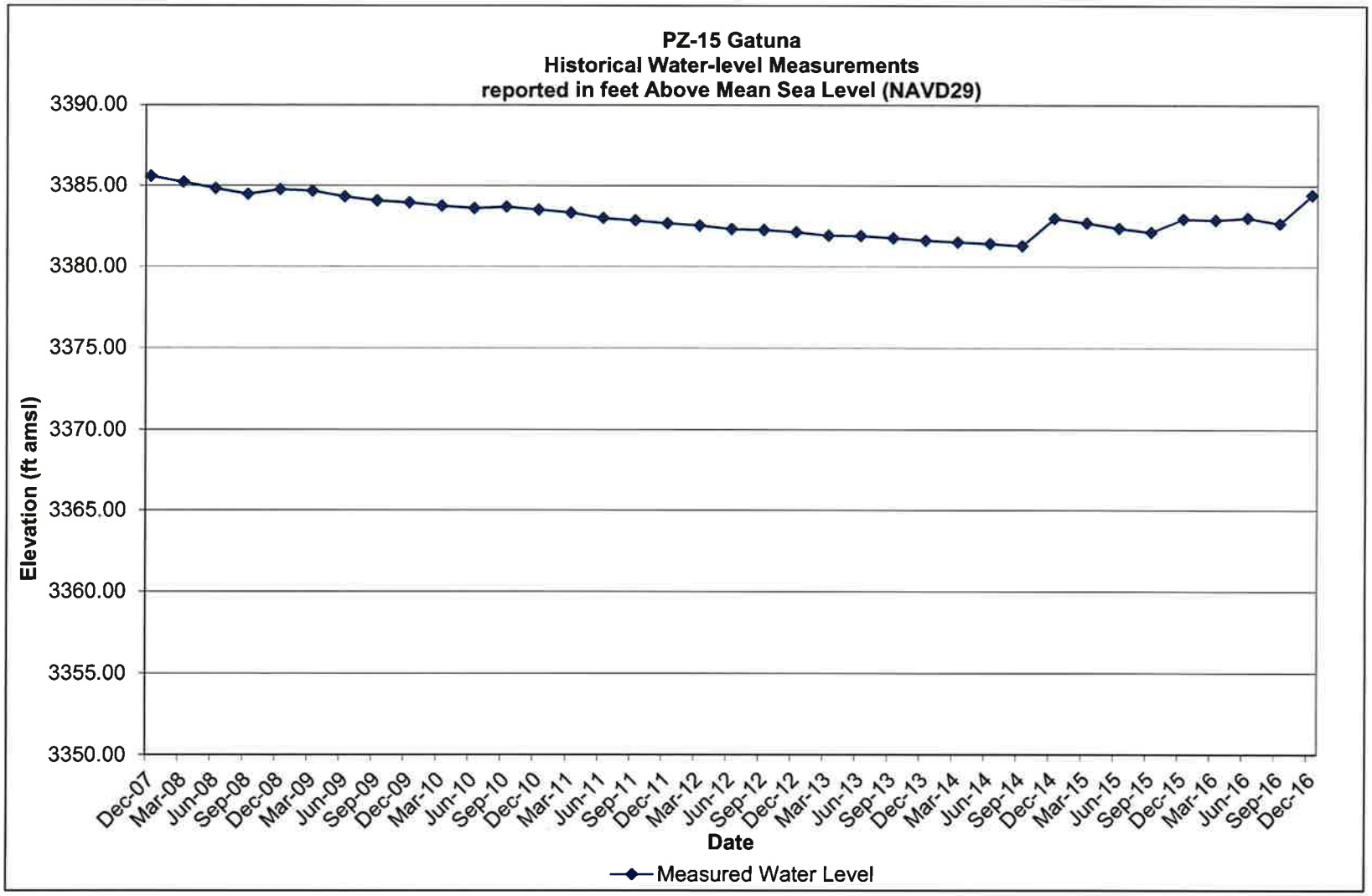
04627


PZ-13 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft)
3365.00
3364.00
3363.00
3362.00
3361.00
3360.00
3359.00
3358.00
3357.00
3356.00
3355.00
3354.00
3353.00
3352.00
3351.00
3350.00
Dec-07
Mar-08
Jun-08
Sep-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Mar-10
Jun-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
Dec-11
Mar-12
Jun-12
Sep-12
Dec-12
Mar-13
Jun-13
Sep-13
Dec-13
Mar-14
Jun-14
Sep-14
Dec-14
Mar-15
Jun-15
Sep-15
Dec-15
Mar-16
Jun-16
Sep-16
Dec-16
Date
Measured Water Level

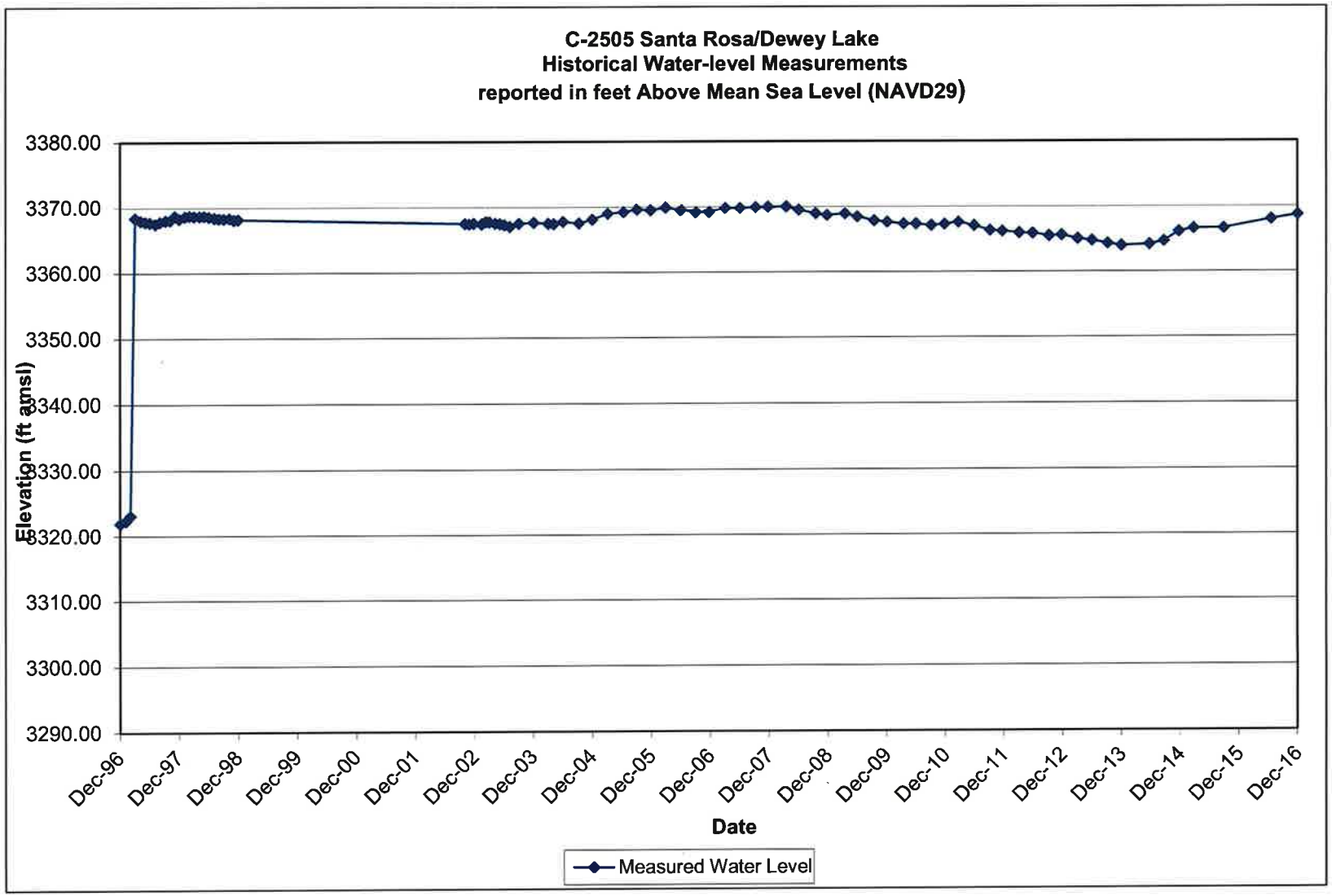
04628


PZ-14 Santa Rosa/Dewy Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft)
3365.00
3364.00
3363.00
3362.00
3361.00
3360.00
3359.00
3358.00
3357.00
3356.00
3355.00
3354.00
3353.00
3352.00
3351.00
3350.00
Dec-07
Mar-08
Jun-08
Sep-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Mar-10
Jun-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
Dec-11
Mar-12
Jun-12
Sep-12
Dec-12
Mar-13
Jun-13
Sep-13
Dec-13
Mar-14
Jun-14
Sep-14
Dec-14
Mar-15
Jun-15
Sep-15
Dec-15
Mar-16
Jun-16
Sep-16
Dec-16
Date
Measured Water Level

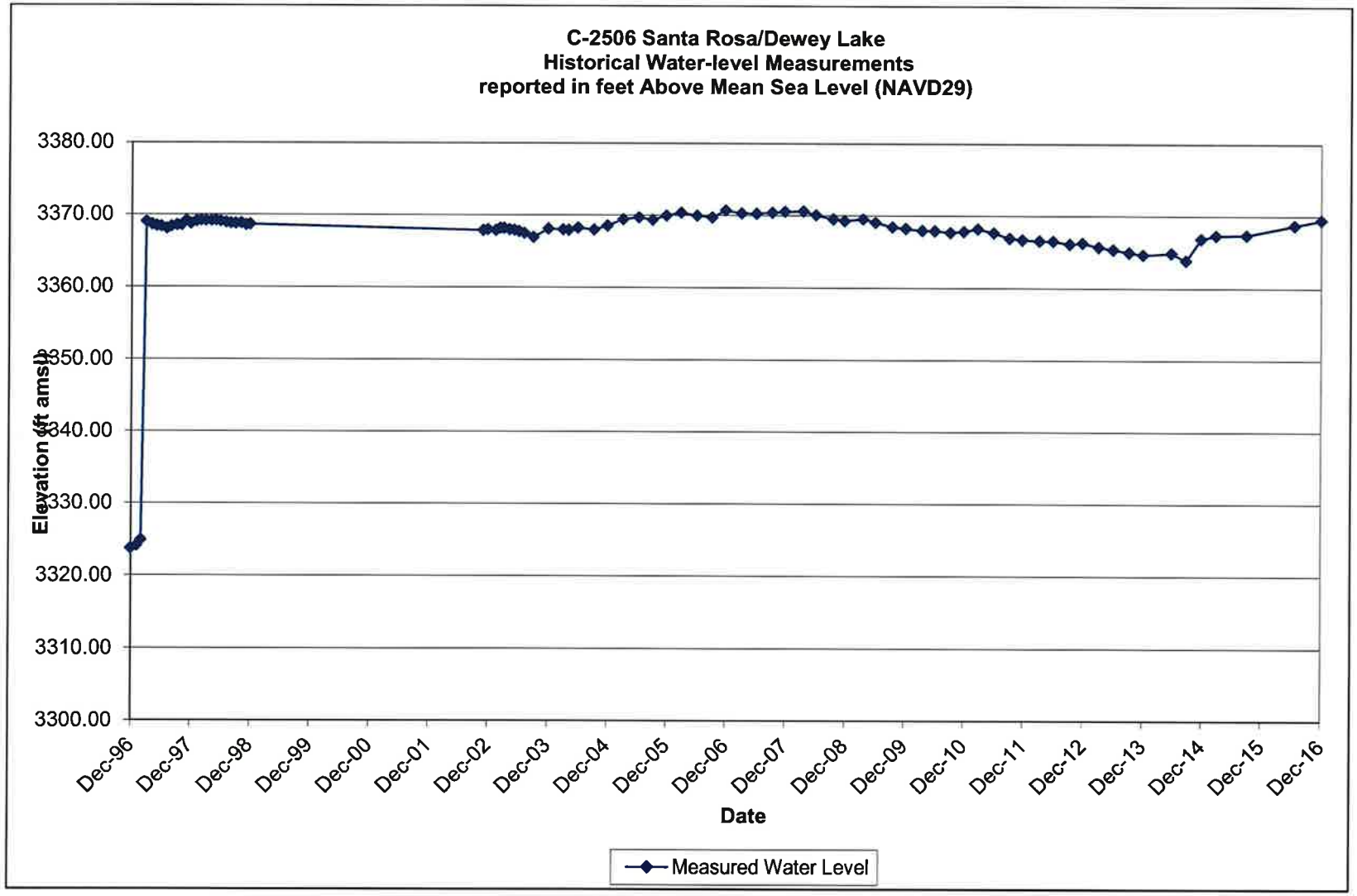
04629


PZ-15 Gatuna
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3390.00
3385.00
3380.00
3375.00
3370.00
3365.00
3360.00
3355.00
3350.00
Dec-07
Mar-08
Jun-08
Sep-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Mar-10
Jun-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
Dec-11
Mar-12
Jun-12
Sep-12
Dec-12
Mar-13
Jun-13
Sep-13
Dec-13
Mar-14
Jun-14
Sep-14
Dec-14
Mar-15
Jun-15
Sep-15
Dec-15
Mar-16
Jun-16
Sep-16
Dec-16
Date
Measured Water Level

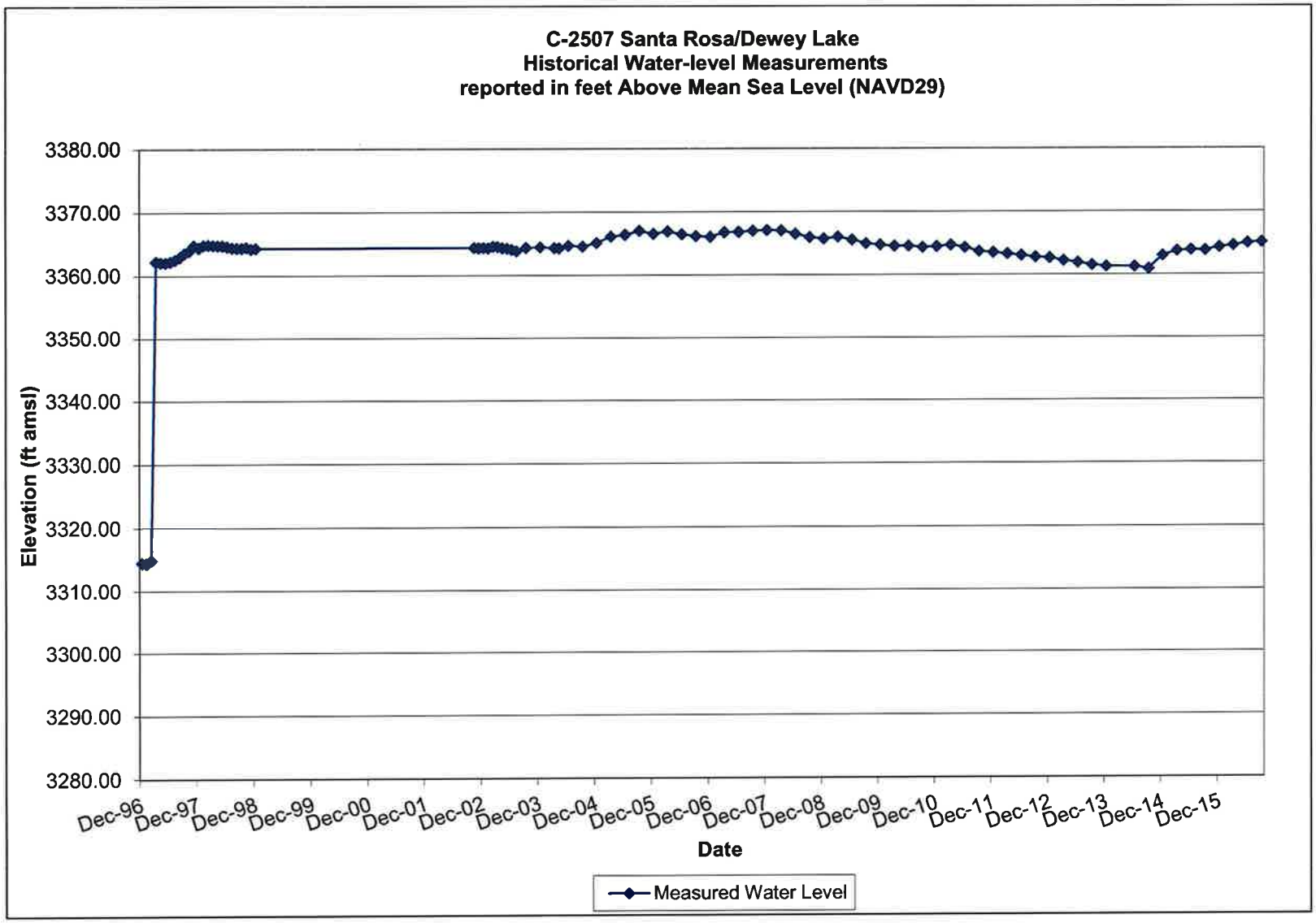
04630


C-2505 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3380.00
3370.00
3360.00
3350.00
3340.00
3330.00
3320.00
3310.00
3300.00
3290.00
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Date
Measured Water Level

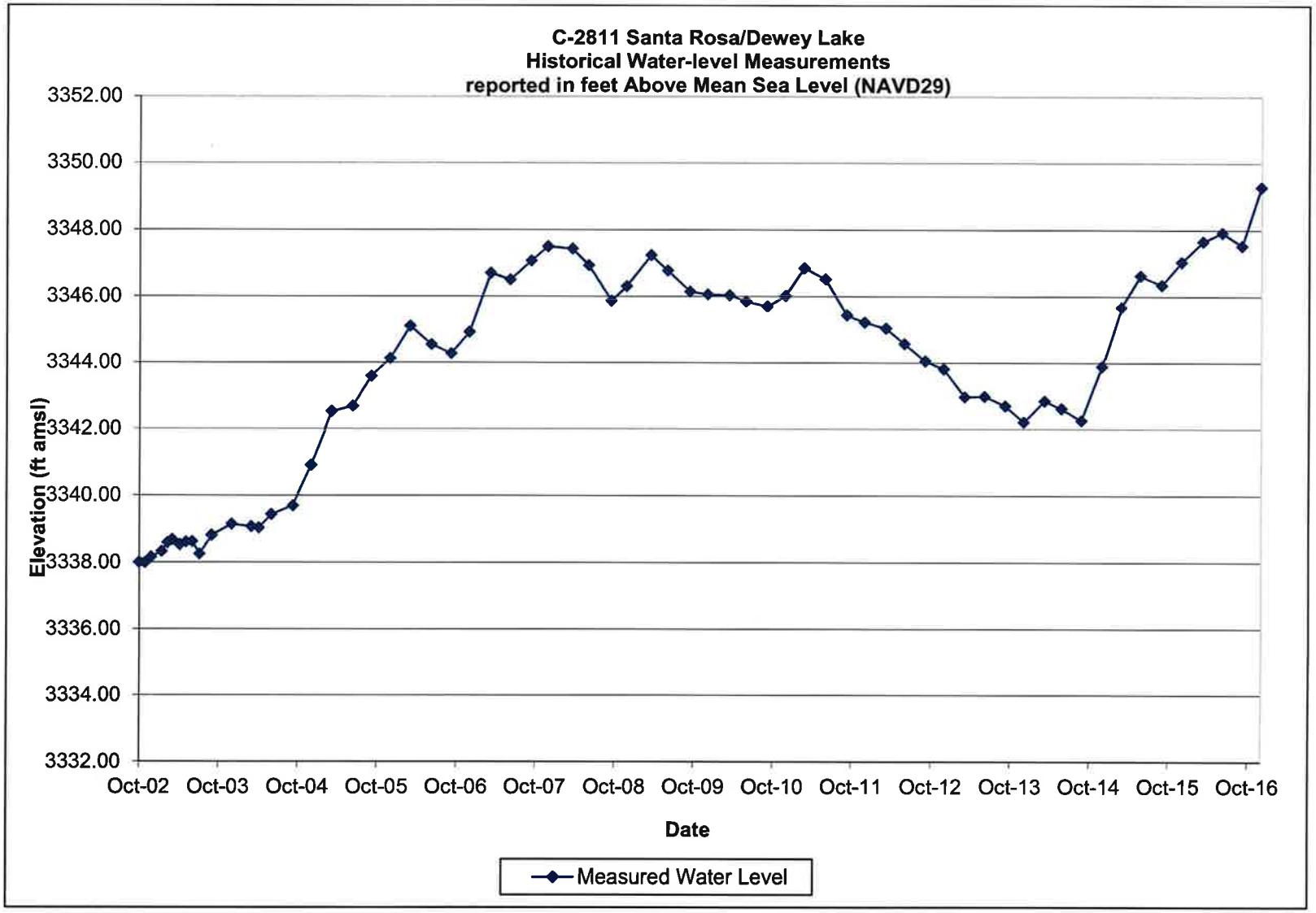
04631


C-2506 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3380.00
3370.00
3360.00
3350.00
3340.00
3330.00
3320.00
3310.00
3300.00
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Date
Measured Water Level

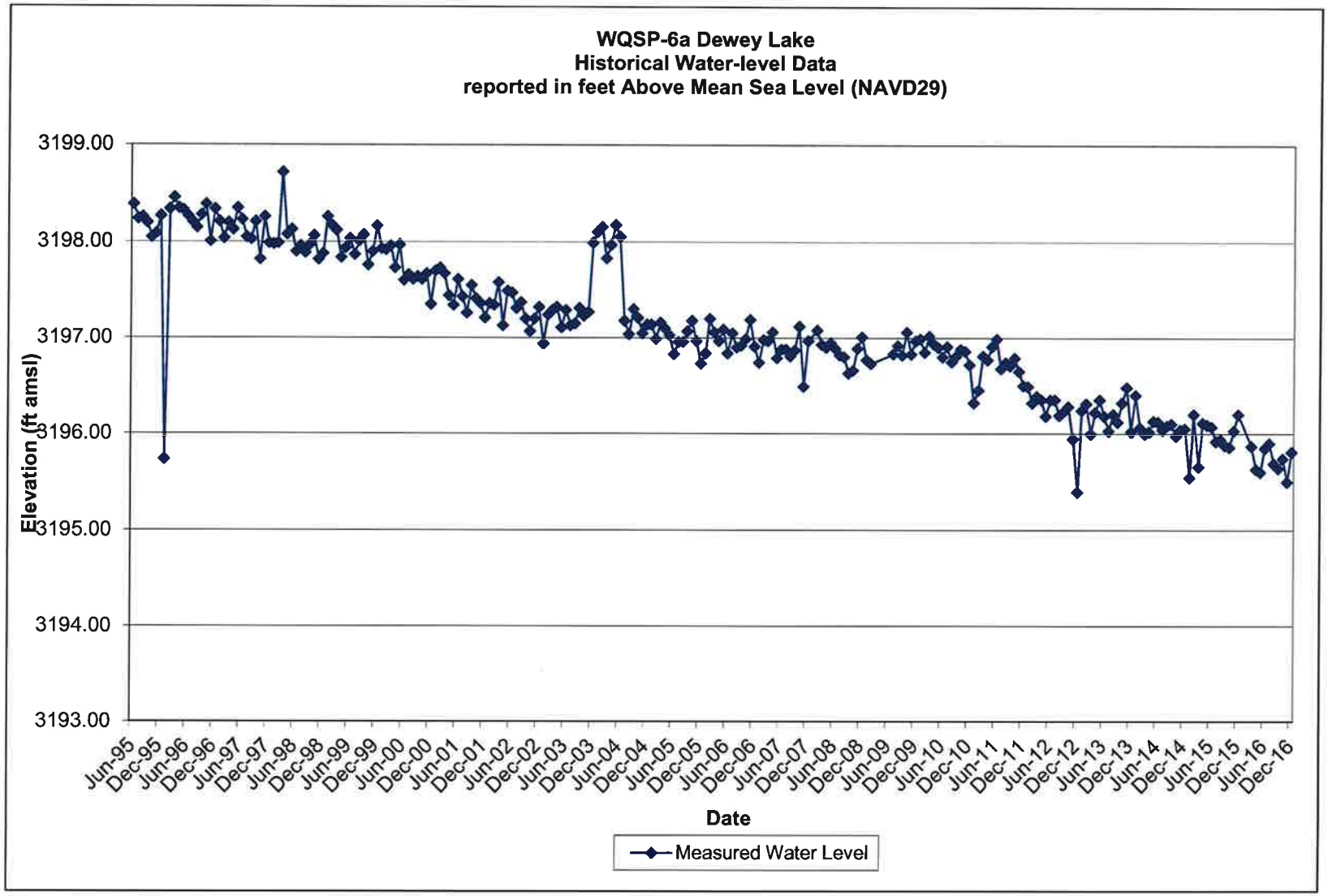
04632


C-2507 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3380.00
3370.00
3360.00
3350.00
3340.00
3330.00
3320.00
3310.00
3300.00
3290.00
3280.00
Dec-96
Dec-97
Dec-98
Dec-99
Dec-00
Dec-01
Dec-02
Dec-03
Dec-04
Dec-05
Dec-06
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Date
Measured Water Level

04633


C-2811 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3352.00
3350.00
3348.00
3346.00
3344.00
3342.00
3340.00
3338.00
3336.00
3334.00
3332.00
Oct-02
Oct-03
Oct-04
Oct-05
Oct-06
Oct-07
Oct-08
Oct-09
Oct-10
Oct-11
Oct-12
Oct-13
Oct-14
Oct-15
Oct-16
Date
Measured Water Level

04634


WQSP-6a Dewey Lake
Historical Water-level Data
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3199.00
3198.00
3197.00
3196.00
3195.00
3194.00
3193.00
Jun-95
Dec-95
Jun-96
Dec-96
Jun-97
Dec-97
Jun-98
Dec-98
Jun-99
Dec-99
Jun-00
Dec-00
Jun-01
Dec-01
Jun-02
Dec-02
Jun-03
Dec-03
Jun-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
Jun-09
Dec-09
Jun-10
Dec-10
Jun-11
Dec-11
Jun-12
Dec-12
Jun-13
Dec-13
Jun-14
Dec-14
Jun-15
Dec-15
Jun-16
Dec-16
Date
Measured Water Level

04635

Discharge to Facultative Lagoon System
July through December 2016

Date	Gallons Domestic	Gallons for the Month	Avg. Gal per day
7/1 - 7/3	36,387		
7/4 - 7/10	67,710		
7/11 - 7/17	71,213		
7/18 - 7/24	72,915		
7/25 - 7/31	85,738	333,963	10,773
8/1 - 8/7	83,067		
8/8 - 8/14	80,239		
8/15 - 8/21	76,387		
8/22 - 8/28	79,511	319,204	11,400
8/29 - 9/4	70,352		
9/5 - 9/11	67,841		
9/12 - 9/18	70,706		
9/19 - 9/25	82,276		
9/26 - 10/2	87,118	378,293	10,808
10/3 - 10/9	88,666		
10/10 - 10/16	81,182		
10/17 - 10/23	90,230		
10/24 - 10/30	81,244	341,322	12,190
10/31 - 11/6			
11/7 - 11/13	162,473		
11/14 - 11/20	76,119		
11/21 - 11/27	74,607	313,199	11,186
11/28 - 12/4	132,231		
12/5 - 12/11	71,432		
12/12 - 12/18	69,089		
12/19 - 12/25	65,750		
12/26 - 12/31	50,328	388,830	11,109
	Total Flow	2,074,811	

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 06/27/16 End Date: 07/03/16

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER		ND	PAP	ND	AM	ND	AM	AM	AM	MP	JZ	PAP	JZ	PAP	JZ
		FOT	C/O	R.T.	m	Q	RDS	R.T.	CD	LT	88	4B	B	m/c		m	

ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	0	0												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	0	0												
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	.1	.04												
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓	✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		✓		✓		✓		✓		✓		✓			✓
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	69	68	69	69	69	69	69	67	68	69	70	70	69	67	70
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)		RESET MONDAY [A]		243050		108518.55											
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		192088		84902.79											
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	329 (1) 4/26/16		294 (1)		314		421		448		488 (1)		1652 (1)		1739 (1)
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	32900		29400		31400		42100		44800		48800		16520		17390
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	1.19		1.14		1.05		.96		.92		.9		.8		.8

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) Out of Spec FSM notified

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY COPY

Start Date: 7-4-16 End Date: 7-10-16

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	2		2		2		2		1	2	1	2	1	
				REVIEWER															
				FOT	C/O	ROS		LD											
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	.04	.05													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	70	69	69	69	69	68	69	61	69	68	69	69	69	69	69
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			108518,53	6771,55													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			94902,79	67710,40													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	1437	442		469		348		237		237		240		253	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	143900	44200		96900		34800		23700		23700		24000		25300	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.8	.8		.72		.94		.92		.84		.78		.70	

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: Dout of spec FSM Notified

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

MASTER COPY

Start Date: 7/11/16 End Date: 7/17/16

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O														
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	.05	.05													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		–		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	69	69	68	66	67	67	68	69	67	67	67	68	68	67	67
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]					48819												
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]					7213												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	253 ①		289 ①	6740		286 ①		266 ①		235 ①		1930 ①		317 ①	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	25300		28900	67400		28600		26600		23500		19300		31700	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.7		23	.95		.8		.78		.78 ③		.93		.85	

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① OOSPEC FSM INFORMED
② Adding Chlorine
③ Red Circled in error

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 071816 End Date: 072416

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER		ml		ml				ml		AC	RJD	AC	PJP	AC	PJP
		FOT	C/O				Rm		R.T.			RDS		RDS		LD	
ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	0	0												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	0	0												
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	.05	.07												
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓	✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	69	69	69	67	69	68	69	69	69	69	69	69	67	69
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)		RESET MONDAY [A]		48819	91138												
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		71213	72915												
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	377	127 (7/18/16)	266 (1)		287 (1)		244		540 (1)		220		270 (1)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	37,700	12,700	26,600 (2)		28700 (2)		24400		54000		22000		27000	
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.85	.91	.7		.59 (2)		.96		.88		1.02		1.02	

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) Out of spec - FSM notified.
(2) Out of spec - Adding chlorine.

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

MASTER COPY

Start Date: 072516 End Date: 073116

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O					B.T.	RJS		LD						
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	.07	.07													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓		✓		✓		✓			✓		✓			✓
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	69	67	67	68	68	68	69	69	70	69	69	69	70	70	70
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		91138		86976												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		72915		85738												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	270 ①		342 ①		270 ②		300 ①		202 ③ 3-29-16		199		225		241 ④
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	27000		34200		27,000		30000		20200		19900		22500		24100
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	1.02		1.0		.83		.77		.89		.79		.73		.71

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: 1) Out of Spec FSM notified

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 080116 End Date: 080716

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O														
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	107	105													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	70	68	70	67	69	69	69	69	70	68	69	68	70	70	69
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		86974		89357												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		85738		83067												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	2410		2170 (2)		2960 (2)		1670 (2)		2180		2500 (1)		1580		1790
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	24100		21700		29600		16700		21800		25060		15800		17900
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.71		.6 (2)		1.11		1.1		.81		.86		.81		.75

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) out of Spec FSM notified
(2) ADDED Chlorine

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

MASTER COPY

Start Date: 8-8-16 **End Date:** 8-14-16

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		DAY		2	1	2	1	2	1	2	1	2	1		1		1	
		SHIFT																
		REVIEWER			PAP		PAP		PAP		PAP							
		FOT		C/O	4-TB	RT					C		RT	RDS	RT		RM	
ITEM	**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	.05	.08													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		-		-		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	69	69	69	69	69	69	67	69	69	68	67	66	66	66	66
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		~~179~~ 8:?? RT	89357	71256												
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		~~17900~~ 8:?? RT	83067	80239												
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	179		413	268		268		283		206		225		205	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	17900		41300	26800		~~28015~~ 26800		28300		20600		22500		20500	
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.75		.80	1.4		1.4		1.2		.96 1.18 08/12/16 RDS		1.18		1.14	

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: @ Chlorine is over 1.2 FSM Notified

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 8/15/16 End Date: 8/21/16

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O														
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	.08	.07													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	✓	65	68	67	68	68	69.3	68	68	68	68	68	69	68	69
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			71256		104958												
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			80239		76387												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	205		216		210		339		180		138		104		65
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	20500		21600		21000		33900		18000		13800		10400		6500
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	1.14		1.0		.97		.87		.73		.74		.76		1.4

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① High. Will work down w/daily overflow. FSM notified

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 8/22/16 End Date: 8/28/16

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O														
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	.07	.07													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						/		✓		✓		✓		✓		③		④	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	69	69	69	68	69	69	68	66	69	69	69	③	69	69	69
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		104958		344296												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		76387		79511												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	65		127		108		114		③		③		8/27/16		98
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	6500		12700		10800		11400				29000		12000		9800
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	1.4①		1.3①		1.3②		1.2④		1.0		.95		.9		.9

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
① Added water Chlorine High, will work down
② FSM notified of out of spec reading
③ outage
④ Could not start CMS in either Security or FacOps Login

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

Master COPY

Start Date: 08 29 16 End Date: 09 04 16

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER															
		FOT	C/O	RDS				LD		LD			R.T.				
ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	0	0												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	0	0												
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	.07	.07												
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓	✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	69	68	68	68	67	69	68	69	68	68	69	69	69	68
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)		RESET MONDAY [A]		344296	209534												
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		79511	70352												
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	98	64.50 ①	1456		257		526		411		115		615 ①	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	9800	6450	14560 ①		25700 ①		52600 ①		41,100 ①		11500		61500	
HACH TEST KIT																DP 9/8/16	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.9	.9	.8		0.75		.71		1.3 ②		1.3 ②		~~12.7~~ 1.27 ②	

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① FSM notified of out of spec reading
② Out of spec. Add water as tank empties. FSM notified.

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

MASTER COPY

Start Date: 9/5/16 End Date: 9/11/16

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		AJP	NJ					PJP		NJ		NJ		NJ	
				FOT	C/O	9-13	R.T.	CD		CB/		CB/		R.T.		R.T.	RDS		CD
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	.07	.07													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	68	65	67	66	66	63	67	62	67	67	68	68	68	68	68
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		209534	93626													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		70352	67841													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	615 ①	146		12550		811		751		7180		519		1067	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	61500	14600		125,500		51100		75100		71800		51900		10600	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	1.27 ②	1.23 ②		1.15		1.08		1		.91		.96		.94	

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① FSM Notify of out of SPEC READING
② Out of SPEC. Add WATER AS TANK EMPTY FSM Notify

APPROVED FOR USE/DATE: Scott Sta 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 9-12-16 End Date: 9-18-16

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	2		2		2	
				REVIEWER															
				FOT	C/O		RDS							RDS				RDS	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	.07	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	68	66.9	67	64.9	66	65	66	65	~~62~~ 64 JKM 9/15/16	64	68	68	68	68	69
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			93626		76375												
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			67841		70706												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	1067 *		941 ①		768 ②		614 ④		514 ① 9/15/16 JKM	273 ①		1409 ①		278 ①	*
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	106700		94,100		76800		61400		51400	27300		140900		27800	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.94		.86		.81		.67 ③		.83	.89		.88		.80	

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① FSM notified out of spec
② Added chlorine

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 09/19/16 End Date: 09/25/16

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O		CB	RM	CB RDS	R.T.	LD	CB R.T.			4-13				
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	0	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	69	65	69	67	68	66	68	68	68	67	68	68	68	68	68
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		~~2781~~ ①	76315	137065												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		~~278100~~	760106	82276												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	2781 ①	607 ①		2193 ①		2940 ①		3018 ①		6391 ①		3605 ①		1037 ①	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	278100	60700		219300		294000		301000		639100		360500		103700	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.80	.61		.95		.83		.78		.77		.74		.84	

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① FSM NOTIFIED

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

MASTER COPY

Start Date: 9-26-16 End Date: 10-2-16

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER		BS	DH	BS	[illegible]	[illegible]	[illegible]	BS	PJD	SS	NL	NL	NL	DH	NL
		FOT	C/O	EOS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	97	[illegible]	[illegible]	R.T.	[illegible]	R.T.	[illegible]	[illegible]
ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	0	0												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	0	0												
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	0	0												
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		✓		✓		✓		✓		✓
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	68	67	68	68	68	68	66	69	65	69	68	67	68	69
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)		RESET MONDAY [A]		137065		131291											
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		82276		87118											
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	1027		8470		4250		11820		16936		7150		2993		2078	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	102700		84700		42500		118200		169300		71500		29930		20780	
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.84		.71		.80		.84		.80		.78		.73		.70	

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) FSM NOTIFIED

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 10/3/16 End Date: 10/9/16

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		MP	JL	AA	JL	AA	JL	AA	JL	JL	AA	JL	AA	JL	AA
				FOT	C/O	JL	KM	CB	JL	CB	JL	CB	JL	E.T	LD	DP	JL	KM	RDS
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	0	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY	[D]					✓ ②		②		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	69	68	69	68	69	65	69	67	68	68	69	66	68	69	69
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A] 10/3/16		2076	13129	99871												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A] 10/3/16		~~207800~~	87118	88666												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	2078 ①		2478 ①		19340		28290		36750		44950 ①		42600 ①		47000 ①
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	207800		247800		193400		282900 ②		367500 ②		44950 ①		42600		47000 ①
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.70		1.32 ③		.93		1.09		1.01		.93		.94		.91

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Fsm notified
② window configureing can not reset at this time
③ Adding water as space allows to bring into spec

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 10/10/16 End Date: 10/16/16

8

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O		LD				R.T.			RDS	CB	LD	93	LD	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	0	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓②		②		②		②	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	69	67	67	65	67	66	67	64	66	67	66	67	67	67	67
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		99871		102823												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		886666		81182												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	4.70①		192	68①		1628		2700①		158		345①		6150①	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	47,000		19,200	68100		162800		27000		15,800		34500		61500	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.91		.86	.79		.74		.72		.94		1.07		.94	

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Out of spec - FSM notified.
② Red indications not communicating

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 10/17/16 End Date: 10/23/16

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1		1		1		1	2	1	2	1	2
		REVIEWER															
		FOT	C/O	KM	MK			RT	RDS			CB		CB			
ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	0	0												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	0	0												
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	0	0												
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		✓		✓		✓		✓		✓
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	67	66	67	66	67	65	68	68	70	69	70	69	69	70	69
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)		RESET MONDAY [A]		102823		75008											
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		81182		90230											
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	6150		874		575		730 (1)		138		97		88		53
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	64500		87400		57500		73000		13,800		9700		8800		5300
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.94		0.83		.89		.76		.84		.8		.8		.73

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: 1) out of spec FSM notified

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 10-24-16 End Date: 10-30-16

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER															
		FOT	C/O			EDS	MC	LD					RT.				KM
ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	0	0												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	0	0												
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	0	0												
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		✓		✓		✓		✓		✓
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	69	69	68	69	69	69	69	69	69	69	69	69	69	69
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)	RESET MONDAY [A]			75008		72296											
DOMESTIC WATER GALLONS (gal)	RESET MONDAY [A]			90230		81244											
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	53		183		349		280 (1)		170		569 (1)		6	154
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	5300		18300		34900 (1)		28000 (1)		17000		56900		6100	15400
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.73		.75		.85 (1)		.71		.70		.59 (2)		1.0	.87

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: 1.) out of Spec Fsm notified
(2) out of spec, Added Chlorine

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 10-31-16 End Date: 11-6-16

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O														
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0														
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0														
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	0														
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]														✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓					✓		✓			✓		✓		✓
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	69					69		69		69	69	69	68	68	68
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		72290														
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		81240														
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	53					86		28		46		6.00		20 11/1/16 12.00	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	5300					86000		2800		4600		600		1200	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.73					.89		.76		.77		.98		1.01	

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Round sheet lost Due to weather conditions

APPROVED FOR USE/DATE: Scott Sitter 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 11/7/16 End Date: 11/13/16

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		MC		MC											
				FOT	C/O	R	ROS	R			R.T		KM	LD			43	EDS	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	0	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	68	67	67	67	67	67	67	67	67	67	68	68	68	68	68
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		72296		139400												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		81244		162473												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	12		75		51		7		10		13		1		NO
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	1200		7500		5100		700		1000		1300		100		1000
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	1.01		.93		.79		.73		.74		.71		.87		0.83

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 11/14/16 End Date: 11/20/16

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O														
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	0	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	67	67	69	64	68	64	67	66	67	68	68	67	67	67	67
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			139406		788-76.67												
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			162473		16118.3												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	70		✓		4		24		5		11		②00		0.0 ②
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	1000		200		400		2400		500		1100		0		0
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	0.83		.78		.71		.73		.62 ①		.83		.80		.72

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Adding chlorine, FSM notified.
② OUT OF SPEC. FSM NOTIFIED 456-FM-045-001

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 11-21-16 End Date: 11-27-16

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O														
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	0	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	67	68	67	66	67	68	68	68	68	68	67	68	67	68	68
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		78876.14		64955												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		76118.81		74607												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	0.00 ①		0.00 ①		0.0 ①		6.0		0 ①		0 ①		0 ①		3 ①
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	0		0		0		600		0		0		0		300
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.72		.74		.75		.71		1.1		1.05		.98		1.01

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① SEWAGE FLOW METER 456-FM-045-001 OOS FSM NOTIFIED AR# 1624904

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 112816 End Date: 120416

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1		1	2	1	
		REVIEWER															
		FOT	C/O		R.T.						CB	R.T.		SM	RDS		LD
ITEM	MIN / NORM / MAX																
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)	[E] 0.5		0	0													
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)	[E] 0.5		0	0													
412 ODOR ABS MOD FILTER (PDI-09) (in wg)	[E] 0.5		0	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]				✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]	SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01) (psig)	60 [E] 70		68	69	67	67	67	69	67	69	68	68	68	68	67	67	68
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)	RESET MONDAY [A]		24955		11551												
DOMESTIC WATER GALLONS (gal)	RESET MONDAY [A]		74607		13223												
					R.T. 11-28-16												
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A [B] 230		3 (1)		4 H		4		1		1		1		0 (1)		15 (1)
[NMED, DP-831] Max 23,000 gal (Reading × 100)	23,000		300		400		400		100		100		100		0		1600
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7 [C] 1.2		1.01		.91		.87		.81		.76		.75		.71		.73

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) FSM notified that sewage flow meter HS 456-FIM-045-001 should be reading more, but it is still in spec ~~because~~ because there is no minimum. AR 1629904.

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

MASTER COPY

Start Date: 12-5-16 End Date: 12-11-16

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER		MW	AW	JH	RT	JH	RT	MW	RT	RS	MH	LD	W	AW	EH
		FOT	C/O	CB		JH	RT	JH	RT	JH	RT	RS	MH	LD	W		EH
ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	0	0												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	0	0												
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	0	0												
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]				✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	68	65	66	66	67	65	67	66	68	68	68	68	68	67
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)		RESET MONDAY [A]		11551		133768											
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		132231		71432											
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	16 ①		1 ①		0 ①		1 ①		0 ①		0 ①		10 ①		0 ①	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	1600		100		0		100		0		0		1000		0	
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.73		.95		.84		.78		.78		.76		.77		.74	

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Flow meter FM-045-001 INACCURATE, AR 1629904

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 12/21/15 End Date: 12/28/15

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER		PJP		PJP		PJP		PJP							
		FOT	C/O	BT	GB	Q	RDS	Q	LD	KM			JK		JK		JS
ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	0	0												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	0	0												
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	0	0												
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]				✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	67	66	67	67	68	68	68	65	68	69	69	69	69	68	69
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)	RESET MONDAY [A]			133768		64295											
DOMESTIC WATER GALLONS (gal)	RESET MONDAY [A]			71432		69089											
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	0 ①		0 ①		0 ①		0 ①		0 ①	1900 ①	2.0 ①		2.0 ①	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	0		0		0		0		0	1900 ①	200 ①		200 ①	
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.74		1.0		1.01		.95		.93	0.83	0.85		0.71 ②	

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① flow meter FM-045-001 inaccurate AR#162904
② Adding Chlorine

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

MASTER COPY

Start Date: 12/19/16 End Date: 12/25/16

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
DAY																		
SHIFT				2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
REVIEWER																		
FOT				C/O	LD				LD		LD		CB			R.T.		
ITEM	MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	0	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	69	67	68	66	67	68	67	68	67	67	68	68	67	68	68
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		64295		76459												
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		69089		165750												
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	20 ①		12,009		1		1		4		42		0		183
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	200 ①		1200 ①		100		100		400		4200		0		18300
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	0.71 ②		1.29		1.18		1.15		1.08		1.09		1.03		1.04

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① FM-045-001 Flow meter INACCURATE AR# 1629904
② Adding Chlorine

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

MASTER COPY

Start Date: 12/26/16 End Date: 12/31/16

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		PJP	[illegible]	PJP	[illegible]	PJP	[illegible]	PJP	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
				FOT	C/O	~	R.T.	~	CB	~	CB	~	CB	R.T.	LD	0	LD		
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	0	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		N/A	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	68	69	67	68	67	67	68	68	67	66	68	68	68		
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		26459		37144												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		65750		50328												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	183		95		00		00		0		0		0		
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	18300		9500		0		0		0		0		0		
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	1.04		.97		.89		.96		1.2		(1)		1.15		

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS (1) Could not take reading, NO chlorine ACCU Vials in Frig. FSM Notified

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 21, 2016

Greg Jungclaus
Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8966
FAX

RE: ENVIRONMENTAL DP-831 Sewage OrderNo.: 1610D34

Dear Greg Jungclaus:

Hall Environmental Analysis Laboratory received 8 sample(s) on 10/27/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Workorder Sample Summary

WO#: **1610D34**
21-Nov-16

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL DP-831 Sewage

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1610D34-001	EC-SL2-20161026-1.3		10/26/2016 10:55:00 AM	10/27/2016 9:05:00 AM	Aqueous
1610D34-002	EC-SL2-20161026-2.3		10/26/2016 10:49:00 AM	10/27/2016 9:05:00 AM	Aqueous
1610D34-003	EC-SL2-20161026-3.3		10/26/2016 10:47:00 AM	10/27/2016 9:05:00 AM	Aqueous
1610D34-004	EC-ELB-20161026-1.1		10/26/2016 10:33:00 AM	10/27/2016 9:05:00 AM	Aqueous
1610D34-005	EC-ELC-20161026-1.2		10/26/2016 10:38:00 AM	10/27/2016 9:05:00 AM	Aqueous
1610D34-006	EC-ELC-20161026-2.2		10/26/2016 10:38:00 AM	10/27/2016 9:05:00 AM	Aqueous
1610D34-007	EC-H19-20161026-1.1		10/26/2016 10:14:00 AM	10/27/2016 9:05:00 AM	Aqueous
1610D34-008	EC-BLK-20161026-1.1		10/26/2016 11:00:00 AM	10/27/2016 9:05:00 AM	Aqueous

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1610D34**
Date: **11/21/2016**

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL DP-831 Sewage

All analytes reported are associated with passing CCVs.

METHOD: 300.0

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: none
Analysis: 300.0

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Calibration: All acceptance criteria were met.
2. Blanks: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Spikes: All acceptance criteria were met.
5. Samples: All acceptance criteria were met.

METHOD: SM2540C

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: SM2540C
Analysis: SM2540C

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Blanks: All acceptance criteria were met.
2. Spikes: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Samples: All acceptance criteria were met.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1610D34**
Date: **11/21/2016**

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL DP-831 Sewage

METHOD: SM4500 NorgC

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: SM4500 NorgC
Analysis: SM4500 NorgC

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Blanks: All acceptance criteria were met.
2. Spikes: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Samples: All acceptance criteria were met.

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-SL2-20161026-1.3
Project: ENVIRONMENTAL DP-831 Sewage
Collection Date: 10/26/2016 10:55:00 AM
Lab ID: 1610D34-001
Matrix: AQUEOUS
Received Date: 10/27/2016 9:05:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Nitrogen, Nitrate (As N)	ND	0.204	0.500		mg/L	5	10/27/2016 4:59:16 PM	R38299

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-SL2-20161026-2.3
Project: ENVIRONMENTAL DP-831 Sewage
Collection Date: 10/26/2016 10:49:00 AM
Lab ID: 1610D34-002
Matrix: AQUEOUS
Received Date: 10/27/2016 9:05:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
SM 4500 NORG C: TKN							Analyst: **CJS**	
Nitrogen, Kjeldahl, Total	130	4.9	10	D	mg/L	1	11/10/2016 10:03:00 AM	28505

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-SL2-20161026-3.3
Project: ENVIRONMENTAL DP-831 Sewage
Collection Date: 10/26/2016 10:47:00 AM
Lab ID: 1610D34-003
Matrix: AQUEOUS
Received Date: 10/27/2016 9:05:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	104	1.01	10.0		mg/L	20	11/2/2016 12:47:44 AM	A38383
Sulfate	48.1	0.711	2.50		mg/L	5	11/2/2016 12:35:19 AM	A38383
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	525	52.5	100	*D	mg/L	1	11/3/2016 7:08:00 PM	28406

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-ELB-20161026-1.1
Project: ENVIRONMENTAL DP-831 Sewage
Collection Date: 10/26/2016 10:33:00 AM
Lab ID: 1610D34-004
Matrix: AQUEOUS
Received Date: 10/27/2016 9:05:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	31400	253	2500		mg/L	5000	11/2/2016 1:37:22 AM	A38383
Sulfate	6620	142	500		mg/L	1000	11/2/2016 1:24:57 AM	A38383
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	41400	1050	2000	*D	mg/L	1	11/3/2016 7:08:00 PM	28406

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-ELC-20161026-1.2
Project: ENVIRONMENTAL DP-831 Sewage
Collection Date: 10/26/2016 10:38:00 AM
Lab ID: 1610D34-005
Matrix: AQUEOUS
Received Date: 10/27/2016 9:05:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	71400	253	2500		mg/L	5000	11/2/2016 2:02:11 AM	A38383
Sulfate	17000	142	500		mg/L	1000	11/2/2016 1:49:47 AM	A38383
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	84300	1050	2000	*D	mg/L	1	11/3/2016 7:08:00 PM	28406

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-ELC-20161026-2.2
Project: ENVIRONMENTAL DP-831 Sewage
Collection Date: 10/26/2016 10:38:00 AM
Lab ID: 1610D34-006
Matrix: AQUEOUS
Received Date: 10/27/2016 9:05:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	78300	253	2500		mg/L	5000	11/2/2016 2:27:01 AM	A38383
Sulfate	18500	142	500		mg/L	1000	11/2/2016 2:14:36 AM	A38383
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	86600	1050	2000	*D	mg/L	1	11/3/2016 7:08:00 PM	28406

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-H19-20161026-1.1
Project: ENVIRONMENTAL DP-831 Sewage
Collection Date: 10/26/2016 10:14:00 AM
Lab ID: 1610D34-007
Matrix: AQUEOUS
Received Date: 10/27/2016 9:05:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	189000	1010	10000		mg/L	2E+0	11/2/2016 2:51:50 AM	A38383
Sulfate	823	142	500		mg/L	1000	11/2/2016 2:39:25 AM	A38383
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	255000	1050	2000	*D	mg/L	1	11/3/2016 7:08:00 PM	28406

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-BLK-20161026-1.1
Project: ENVIRONMENTAL DP-831 Sewage
Collection Date: 10/26/2016 11:00:00 AM
Lab ID: 1610D34-008
Matrix: AQUEOUS
Received Date: 10/27/2016 9:05:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	0.121	0.0506	0.500	J	mg/L	1	11/2/2016 3:04:14 AM	A38383
Sulfate	ND	0.142	0.500		mg/L	1	11/2/2016 3:04:14 AM	A38383
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	ND	10.5	20.0		mg/L	1	11/3/2016 7:08:00 PM	28406

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

DATES REPORT

WO#: **1610D34**

21-Nov-16

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL DP-831 Sewage

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1610D34-001A	EC-SL2-20161026-1.3	10/26/2016 10:55:00 AM	Aqueous	EPA Method 300.0: Anions			10/27/2016 5:11:41 PM
				EPA Method 300.0: Anions			10/27/2016 4:59:16 PM
1610D34-002A	EC-SL2-20161026-2.3	10/26/2016 10:49:00 AM		SM 4500 Norg C: TKN		11/7/2016 10:51:51 AM	11/10/2016 10:03:00 AM
1610D34-003A	EC-SL2-20161026-3.3	10/26/2016 10:47:00 AM		EPA Method 300.0: Anions			11/2/2016 12:35:19 AM
				EPA Method 300.0: Anions			11/2/2016 12:47:44 AM
				SM2540C MOD: Total Dissolved Soli		11/1/2016 6:00:50 PM	11/3/2016 7:08:00 PM
1610D34-004A	EC-ELB-20161026-1.1	10/26/2016 10:33:00 AM		EPA Method 300.0: Anions			11/2/2016 1:24:57 AM
				EPA Method 300.0: Anions			11/2/2016 1:37:22 AM
				SM2540C MOD: Total Dissolved Soli		11/1/2016 6:00:50 PM	11/3/2016 7:08:00 PM
1610D34-005A	EC-ELC-20161026-1.2	10/26/2016 10:38:00 AM		EPA Method 300.0: Anions			11/2/2016 2:02:11 AM
				EPA Method 300.0: Anions			11/2/2016 1:49:47 AM
				SM2540C MOD: Total Dissolved Soli		11/1/2016 6:00:50 PM	11/3/2016 7:08:00 PM
1610D34-006A	EC-ELC-20161026-2.2			EPA Method 300.0: Anions			11/2/2016 2:27:01 AM
				EPA Method 300.0: Anions			11/2/2016 2:14:36 AM
				SM2540C MOD: Total Dissolved Soli		11/1/2016 6:00:50 PM	11/3/2016 7:08:00 PM
1610D34-007A	EC-H19-20161026-1.1	10/26/2016 10:14:00 AM		EPA Method 300.0: Anions			11/2/2016 2:51:50 AM
				EPA Method 300.0: Anions			11/2/2016 2:39:25 AM
				SM2540C MOD: Total Dissolved Soli		11/1/2016 6:00:50 PM	11/3/2016 7:08:00 PM
1610D34-008A	EC-BLK-20161026-1.1	10/26/2016 11:00:00 AM		EPA Method 300.0: Anions			11/2/2016 3:04:14 AM
				EPA Method 300.0: Anions			11/2/2016 3:16:39 AM
				SM2540C MOD: Total Dissolved Soli		11/1/2016 6:00:50 PM	11/3/2016 7:08:00 PM

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1610D34**

21-Nov-16

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL DP-831 Sewage

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R38299**	RunNo: **38299**
Prep Date:	Analysis Date: **10/27/2016**	SeqNo: **1195231** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R38299**	RunNo: **38299**
Prep Date:	Analysis Date: **10/27/2016**	SeqNo: **1195232** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R38299**	RunNo: **38299**
Prep Date:	Analysis Date: **10/27/2016**	SeqNo: **1195241** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	5.1	0.10	4.800	0	105	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R38299**	RunNo: **38299**
Prep Date:	Analysis Date: **10/27/2016**	SeqNo: **1195265** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	101	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R38299**	RunNo: **38299**
Prep Date:	Analysis Date: **10/27/2016**	SeqNo: **1195277** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	5.0	0.10	4.800	0	105	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A38383**	RunNo: **38383**
Prep Date:	Analysis Date: **11/1/2016**	SeqNo: **1198429** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1610D34**

21-Nov-16

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL DP-831 Sewage

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A38383**	RunNo: **38383**
Prep Date:	Analysis Date: **11/1/2016**	SeqNo: **1198430** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	97.8	90	110			
Sulfate	10	0.50	10.00	0	101	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1610D34**

21-Nov-16

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL DP-831 Sewage

Sample ID **MB-28406**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **28406**	RunNo: **38442**
Prep Date: **11/1/2016**	Analysis Date: **11/3/2016**	SeqNo: **1200329** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-28406**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **28406**	RunNo: **38442**
Prep Date: **11/1/2016**	Analysis Date: **11/3/2016**	SeqNo: **1200330** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1610D34**

21-Nov-16

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL DP-831 Sewage

Sample ID	**MB-28505**	SampType:	**MBLK**	TestCode:	**SM 4500 Norg C: TKN**					
Client ID:	**PBW**	Batch ID:	**28505**	RunNo:	**38617**					
Prep Date:	**11/7/2016**	Analysis Date:	**11/10/2016**	SeqNo:	**1205965**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	1.0								

Sample ID	**LCS-28505**	SampType:	**LCS**	TestCode:	**SM 4500 Norg C: TKN**					
Client ID:	**LCSW**	Batch ID:	**28505**	RunNo:	**38617**					
Prep Date:	**11/7/2016**	Analysis Date:	**11/10/2016**	SeqNo:	**1205966**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10	1.0	10.00	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: WIPP | Work Order Number: 1610D34 | RcptNo: 1

Received by/date: _____

Logged By: **Anne Thorne** 10/27/2016 9:05:00 AM Anne Thorne

Completed By: **Anne Thorne** 10/27/2016 Anne Thorne

Reviewed By: 10/27/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☑ No ☐ Not Present ☐
2. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
3. How was the sample delivered? FedEx

Log In

4. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☑ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
9. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
10. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
11. Were any sample containers received broken? Yes ☐ No ☑
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
14. Is it clear what analyses were requested? Yes ☑ No ☐
15. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 1
(<2 or >12 unless noted)
Adjusted? NO
Checked by: AJ

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.1	Good	Yes			

04681

CHAIN-OF-CUSTODY RECORD

C of C Control № 10017

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

RFA Control № 10017

SAMPLING PROGRAM ENVIRONMENTAL (DP-831 Sewage) LAB DESTINATION Hall Environmental Lab (HEAL)

SAMPLE TEAM MEMBERS Jerome Hernandez CARRIER/WAYBILL NO. Fed-Ex

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)
EC-SL2-20161026 - 1.3	Settling Lagoon 2	10-26-16 1055	Sewage	1 Liter	1610D54-001
2.3		1049		500mL	-002
3.3		1047			-003
EC-ELB-20161026 - 1.1	Evaporation Lagoon B	1033			-004
ELC 1.2	" C	1038			-005
ELC 2.2	"	1038			-006
H19 1.1	H-19	1014			-007
BLK 1.1	Blank	1100			-008

N/A

Special Instructions: Do Nitrate (NO_3) 1 Liter within 48 hours of collected time (1055 @ 10-26-16)

Possible Sample Hazards: ☐ Radiological ☒ Bio-Hazard

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Jerome Hernandez NWP 10-26-16 1300
   Received By: Lindsey Concha 10/27/16 @ 0905 Sample Temp: 4.1°C
2. Relinquished By: _____
   Received By: _____
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: _____

WP 02-EM3001- Environmental Monitoring | WHITE - Original to accompany samples | YELLOW - Field copy | PINK - Other

NICHOLS PRINTING INC.

04682

REQUEST FOR ANALYSIS

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED 10-26-16 RFA Control № 10017
LAB DESTINATION Hall Environmental
LABORATORY CONTACT Andy Freeman
SEND LAB REPORT TO NWP C of C Control № 10017
P.O. Box 2078 m/s 452-09
Carlsbad, New Mexico 88221
DATE REPORT REQUIRED Per S.O.W
PROJECT CONTACT C/o Greg Jurgolaus
PROJECT CONTACT PHONE NO (575) 234-8615

SAMPLING PROGRAM ENVIRONMENTAL

PURCHASE ORDER NO. 502542-4

1610D34

Sample Number	Sample Type	Sample Quantity	Preservative	Req't. Testing Program	Special Instructions
EC-SL2-20161026- 1.3	Sewage	1 Liter	≤4 °C	Nitrate	maximum hold time 48hrs 001
2.3		500 mL	H_2SO_4 toph ≤2, ≤4°C	TKN	N/A 002
3.3			≤4 °C	Sulfate, Chloride, TDS	003
EC-ELB-20161026 1.1					004
EC-ELC 1.2					005
ELC 2.2					006
H19 1.1					007
BLK 1.1	Blank				008

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL T RUSH _____ (Subject in rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NONHAZARD _____ RADIOLOGICAL _____ FLAMMABLE _____ SKIN IRRITANT _____ HIGHLY TOXIC _____ BIOLOGICAL X OTHER _____ (Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT _____ DISPOSAL BY LAB X

FOR LAB USE ONLY

RECEIVED BY Lindsey Concha DATE/TIME 10/27/16 @ 0905

Sample temp: 4.1°C

WP 02-EM3001- Environmental Monitoring WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

NICHOLS PRINTING INC.

04683

Water Level Measurement Field Data Sheet

From July to December Year 2016

Pond Name	Date	Time	Water Depth (ft)	Initials	Comments
Salt Storage Pond 2	7/12/16	0747	37.96	RJ	
Salt Storage Pond 3	7/12/16	0756	25.50	RJ	
Salt Storage Pond 2	8/3/16	0840	37.95	RJ	
Salt Storage Pond 3	N/A	———	———	N/A	Water pumped from sump July 29 – Aug. 8. 37,015 gl
Salt Storage Pond 2	9/14/16	09:40	23.06	RJ	up
Salt Storage Pond 3	9/14/16	09:45	22.08	RJ	up
Salt Storage Pond 2	10/11/16	1452	20.63	RJ	up
Salt Storage Pond 3	10/11/16	1459	21.29	RJ	up
Salt Storage Pond 2	11/3/16	1521	21.16	RJ	up
Salt Storage Pond 3	11/3/16	1530	24.50	RJ	up
Salt Storage Pond 2	N/A	———	———	NA	Pumping
Salt Storage Pond 3	12/12/16	1000	26.48	RJ	

Performer: Print Name: Richard Jimenez Signature: R Jimenez

Performer: Print Name: Signature:

Performer: Print Name: Signature:

04684

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

September 15, 2016

Greg Jungclaus

Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8966
FAX

RE: Env Monit (DP-831) OrderNo.: 1609017

Dear Greg Jungclaus:

Hall Environmental Analysis Laboratory received 8 sample(s) on 9/1/2016 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued September 09, 2016.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Workorder Sample Summary

WO#: **1609017**

15-Sep-16

CLIENT: Waste Isolation Pilot Plant
Project: Env Monit (DP-831)

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1609017-001	WR-SSP1-20160829-1.2		8/29/2016 11:04:00 AM	9/1/2016 8:50:00 AM	Aqueous
1609017-002	WR-SSP1-20160829-2.2		8/29/2016 11:04:00 AM	9/1/2016 8:50:00 AM	Aqueous
1609017-003	WR-SSP2-20160829-1.1		8/29/2016 11:13:00 AM	9/1/2016 8:50:00 AM	Aqueous
1609017-004	WR-SSP3-20160829-1.1		8/29/2016 11:20:00 AM	9/1/2016 8:50:00 AM	Aqueous
1609017-005	WR-SWP1-20160829-1.1		8/29/2016 11:48:00 AM	9/1/2016 8:50:00 AM	Aqueous
1609017-006	WR-SWP2-20160829-1.1		8/29/2016 11:55:00 AM	9/1/2016 8:50:00 AM	Aqueous
1609017-007	WR-SWP3-20160829-1.1		8/29/2016 12:09:00 PM	9/1/2016 8:50:00 AM	Aqueous
1609017-008	WR-Blk-20160829-1.1		8/29/2016 12:11:00 PM	9/1/2016 8:50:00 AM	Aqueous

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1609017**
Date: **9/15/2016**

CLIENT: Waste Isolation Pilot Plant
Project: Env Monit (DP-831)

METHOD: 300.0

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: none
Analysis: 300.0

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Calibration: All acceptance criteria were met.
2. Blanks: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Spikes: All acceptance criteria were met.
5. Samples: All acceptance criteria were met.

METHOD: SM2540C

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: SM2540C
Analysis: SM2540C

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Blanks: All acceptance criteria were met.
2. Spikes: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Samples: All acceptance criteria were met.

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: WR-SSP1-20160829-1.2
Project: Env Monit (DP-831)
Collection Date: 8/29/2016 11:04:00 AM
Lab ID: 1609017-001
Matrix: AQUEOUS
Received Date: 9/1/2016 8:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	14000	1010	10000		mg/L	2E+0	9/3/2016 1:00:09 AM	A36995
Sulfate	144	14.2	50.0		mg/L	100	9/3/2016 12:47:44 AM	A36995
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	24300	525	1000	*D	mg/L	1	9/3/2016 7:00:00 PM	27327

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: WR-SSP1-20160829-2.2
Project: Env Monit (DP-831)
Collection Date: 8/29/2016 11:04:00 AM
Lab ID: 1609017-002
Matrix: AQUEOUS
Received Date: 9/1/2016 8:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	13800	50.6	500		mg/L	1000	9/3/2016 1:12:34 AM	A36995
Sulfate	135	28.4	100		mg/L	200	9/6/2016 6:13:59 PM	A37019
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	22500	1050	2000	*D	mg/L	1	9/3/2016 7:00:00 PM	27327

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: WR-SSP2-20160829-1.1
Project: Env Monit (DP-831)
Collection Date: 8/29/2016 11:13:00 AM
Lab ID: 1609017-003
Matrix: AQUEOUS
Received Date: 9/1/2016 8:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	151000	1010	10000		mg/L	2E+0	9/3/2016 1:49:47 AM	A36995
Sulfate	17200	142	500		mg/L	1000	9/3/2016 1:37:22 AM	A36995
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	258000	1050	2000	*D	mg/L	1	9/3/2016 7:00:00 PM	27327

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: WR-SSP3-20160829-1.1
Project: Env Monit (DP-831)
Collection Date: 8/29/2016 11:20:00 AM
Lab ID: 1609017-004
Matrix: AQUEOUS
Received Date: 9/1/2016 8:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	165000	506	5000		mg/L	1E+0	9/6/2016 6:26:24 PM	A37019
Sulfate	14900	711	2500		mg/L	5000	9/3/2016 2:39:25 AM	A36995
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	237000	1050	2000	*D	mg/L	1	9/3/2016 7:00:00 PM	27327

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: WR-SWP1-20160829-1.1
Project: Env Monit (DP-831)
Collection Date: 8/29/2016 11:48:00 AM
Lab ID: 1609017-005 **Matrix:** AQUEOUS **Received Date:** 9/1/2016 8:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	176	5.06	50.0		mg/L	100	9/3/2016 3:04:15 AM	A36995
Sulfate	24.5	1.42	5.00		mg/L	10	9/3/2016 2:51:50 AM	A36995
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	406	10.5	20.0		mg/L	1	9/3/2016 7:00:00 PM	27327

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: WR-SWP2-20160829-1.1
Project: Env Monit (DP-831)
Collection Date: 8/29/2016 11:55:00 AM
Lab ID: 1609017-006
Matrix: AQUEOUS
Received Date: 9/1/2016 8:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	52.6	0.506	5.00		mg/L	10	9/3/2016 3:16:40 AM	A36995
Sulfate	9.33	1.42	5.00		mg/L	10	9/3/2016 3:16:40 AM	A36995
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	167	10.5	20.0		mg/L	1	9/3/2016 7:00:00 PM	27327

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: WR-SWP3-20160829-1.1
Project: Env Monit (DP-831)
Collection Date: 8/29/2016 12:09:00 PM
Lab ID: 1609017-007
Matrix: AQUEOUS
Received Date: 9/1/2016 8:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	108	0.506	5.00		mg/L	10	9/3/2016 3:41:29 AM	A36995
Sulfate	17.4	1.42	5.00		mg/L	10	9/3/2016 3:41:29 AM	A36995
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	279	10.5	20.0		mg/L	1	9/3/2016 7:00:00 PM	27327

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: WR-Blk-20160829-1.1
Project: Env Monit (DP-831)
Collection Date: 8/29/2016 12:11:00 PM
Lab ID: 1609017-008
Matrix: AQUEOUS
Received Date: 9/1/2016 8:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	0.115	0.0506	0.500	J	mg/L	1	9/3/2016 4:06:19 AM	A36995
Sulfate	ND	0.142	0.500		mg/L	1	9/3/2016 4:06:19 AM	A36995
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	ND	10.5	20.0		mg/L	1	9/3/2016 7:00:00 PM	27327

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

DATES REPORT

WO#: **1609017**

15-Sep-16

Client: Waste Isolation Pilot Plant

Project: Env Monit (DP-831)

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1609017-001A	WR-SSP1-20160829-1.2	8/29/2016 11:04:00 AM	Aqueous	EPA Method 300.0: Anions			9/3/2016 12:47:44 AM
				EPA Method 300.0: Anions			9/3/2016 1:00:09 AM
				SM2540C MOD: Total Dissolved Soli		9/2/2016 12:01:10 PM	9/3/2016 7:00:00 PM
1609017-002A	WR-SSP1-20160829-2.2			EPA Method 300.0: Anions			9/3/2016 1:12:34 AM
				EPA Method 300.0: Anions			9/3/2016 1:24:58 AM
				EPA Method 300.0: Anions			9/6/2016 6:13:59 PM
				SM2540C MOD: Total Dissolved Soli		9/2/2016 12:01:10 PM	9/3/2016 7:00:00 PM
1609017-003A	WR-SSP2-20160829-1.1	8/29/2016 11:13:00 AM		EPA Method 300.0: Anions			9/3/2016 1:37:22 AM
				EPA Method 300.0: Anions			9/3/2016 1:49:47 AM
				SM2540C MOD: Total Dissolved Soli		9/2/2016 12:01:10 PM	9/3/2016 7:00:00 PM
1609017-004A	WR-SSP3-20160829-1.1	8/29/2016 11:20:00 AM		EPA Method 300.0: Anions			9/6/2016 6:26:24 PM
				EPA Method 300.0: Anions			9/3/2016 2:39:25 AM
				EPA Method 300.0: Anions			9/3/2016 2:27:00 AM
				SM2540C MOD: Total Dissolved Soli		9/2/2016 12:01:10 PM	9/3/2016 7:00:00 PM
1609017-005A	WR-SWP1-20160829-1.1	8/29/2016 11:48:00 AM		EPA Method 300.0: Anions			9/3/2016 2:51:50 AM
				EPA Method 300.0: Anions			9/3/2016 3:04:15 AM
				SM2540C MOD: Total Dissolved Soli		9/2/2016 12:01:10 PM	9/3/2016 7:00:00 PM
1609017-006A	WR-SWP2-20160829-1.1	8/29/2016 11:55:00 AM		EPA Method 300.0: Anions			9/3/2016 3:16:40 AM
				EPA Method 300.0: Anions			9/3/2016 3:29:04 AM
				SM2540C MOD: Total Dissolved Soli		9/2/2016 12:01:10 PM	9/3/2016 7:00:00 PM
1609017-007A	WR-SWP3-20160829-1.1	8/29/2016 12:09:00 PM		EPA Method 300.0: Anions			9/3/2016 3:41:29 AM
				EPA Method 300.0: Anions			9/3/2016 3:53:54 AM
				SM2540C MOD: Total Dissolved Soli		9/2/2016 12:01:10 PM	9/3/2016 7:00:00 PM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

DATES REPORT

WO#: **1609017**

15-Sep-16

Client: Waste Isolation Pilot Plant

Project: Env Monit (DP-831)

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1609017-008A	WR-Blk-20160829-1.1	8/29/2016 12:11:00 PM	Aqueous	EPA Method 300.0: Anions			9/3/2016 4:18:44 AM
				EPA Method 300.0: Anions			9/3/2016 4:06:19 AM
				SM2540C MOD: Total Dissolved Soli		9/2/2016 12:01:10 PM	9/3/2016 7:00:00 PM

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1609017**

15-Sep-16

Client: Waste Isolation Pilot Plant

Project: Env Monit (DP-831)

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A36995**	RunNo: **36995**
Prep Date:	Analysis Date: **9/2/2016**	SeqNo: **1146512** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	0.11	0.50								J
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A36995**	RunNo: **36995**
Prep Date:	Analysis Date: **9/2/2016**	SeqNo: **1146513** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	95.8	90	110			
Sulfate	9.7	0.50	10.00	0	97.2	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A37019**	RunNo: **37019**
Prep Date:	Analysis Date: **9/6/2016**	SeqNo: **1147436** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A37019**	RunNo: **37019**
Prep Date:	Analysis Date: **9/6/2016**	SeqNo: **1147437** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.8	90	110			
Sulfate	9.6	0.50	10.00	0	95.7	90	110			

Sample ID **1609017-006AMS**	SampType: **MS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **WR-SWP2-20160829**	Batch ID: **A36995**	RunNo: **37138**
Prep Date:	Analysis Date: **9/13/2016**	SeqNo: **1151791** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	100	5.0	50.00	52.62	94.0	81.9	117			
Sulfate	100	5.0	100.0	9.334	92.5	83	118			

Sample ID **1609017-006AMSD**	SampType: **MSD**	TestCode: **EPA Method 300.0: Anions**
Client ID: **WR-SWP2-20160829**	Batch ID: **A36995**	RunNo: **37138**
Prep Date:	Analysis Date: **9/13/2016**	SeqNo: **1151792** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1609017**

15-Sep-16

Client: Waste Isolation Pilot Plant

Project: Env Monit (DP-831)

Sample ID	**1609017-006AMSD**	SampType:	**MSD**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**WR-SWP2-20160829**	Batch ID:	**A36995**		RunNo:	**37138**				
Prep Date:		Analysis Date:	**9/13/2016**		SeqNo:	**1151792**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	100	5.0	50.00	52.62	94.4	81.9	117	0.194	20	
Sulfate	100	5.0	100.0	9.334	91.9	83	118	0.585	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1609017**

15-Sep-16

Client: Waste Isolation Pilot Plant

Project: Env Monit (DP-831)

Sample ID	**MB-27327**	SampType: **MBLK**			TestCode: **SM2540C MOD: Total Dissolved Solids**					
Client ID:	**PBW**	Batch ID: **27327**			RunNo: **36982**					
Prep Date:	**9/2/2016**	Analysis Date: **9/3/2016**			SeqNo: **1145959**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	**LCS-27327**	SampType: **LCS**			TestCode: **SM2540C MOD: Total Dissolved Solids**					
Client ID:	**LCSW**	Batch ID: **27327**			RunNo: **36982**					
Prep Date:	**9/2/2016**	Analysis Date: **9/3/2016**			SeqNo: **1145960**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Sample ID	**1609017-006AMS**	SampType: **MS**			TestCode: **SM2540C MOD: Total Dissolved Solids**					
Client ID:	**WR-SWP2-20160829**	Batch ID: **27327**			RunNo: **36982**					
Prep Date:	**9/2/2016**	Analysis Date: **9/3/2016**			SeqNo: **1145974**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1200	20.0	1000	167.0	103	80	120			

Sample ID	**1609017-006AMSD**	SampType: **MSD**			TestCode: **SM2540C MOD: Total Dissolved Solids**					
Client ID:	**WR-SWP2-20160829**	Batch ID: **27327**			RunNo: **36982**					
Prep Date:	**9/2/2016**	Analysis Date: **9/3/2016**			SeqNo: **1145975**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1200	20.0	1000	167.0	103	80	120	0.167	5	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: WIPP | Work Order Number: 1609017 | RcptNo: 1

Received by/date: LC 09/01/16

Logged By: Anne Thorne 9/1/2016 8:50:00 AM Anne Thorne

Completed By: Anne Thorne 9/1/2016 Anne Thorne

Reviewed By: JO 9/01/16

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☑	No ☐	Not Present ☐
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	FedEx		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.4	Good	Yes			

04701

CHAIN-OF-CUSTODY RECORD

№ 09988

C of C Control _____

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

№ 09988

RFA Control _____

SAMPLING PROGRAM Env-Monit (CDP-831) LAB DESTINATION Hall Environment (HEAL) HEAL # 1609017

SAMPLE TEAM MEMBERS Jerome Hernandez, Stacey Britain CARRIER/WAYBILL NO. Fed Ex # 8739-5711-7374

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.
WR-SSP1-20160829-1.2	Salt Storage Pond 1	8-29-16 1104	Water run-off	500 mL		N/A -001
↓ 2.2	1	1104	↓	↓	↓	-002
SSP2 1.1	2	1113				-003
SSP3	3	1120				-004
SWP1	Storm Water Pond 1	1148				-005
SWP2	2	1155				-006
SWP3	3	1209				-007
BLK	Blank	1211	Blank			-008

N/A

Special Instructions: Use Storm Water Pond 2 For MS/MSD QC Sample

Possible Sample Hazards: ☐ Radiological ☐ Bio-Hazard N/A

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Jerome Hernandez NWP 8-30-16 1300
   Received By: Lindsey Concha 09/01/16 0850
   Sample Temp: 3.4
2. Relinquished By: _____
   Received By: _____
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: _____

REQUEST FOR ANALYSIS

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED 8-30-16
RFA Control № 09988
LAB DESTINATION Hall Environment
LABORATORY CONTACT Andy Freeman
SEND LAB REPORT TO NWP
C of C Control № 09988
P.O. Box 2078 M/S 452-09
Carlsbad, N. Mex 88221
DATE REPORT REQUIRED Per S.O.W
SAMPLING PROGRAM Env- Monit (DP-831)
PROJECT CONTACT C/o Greg Jongelaus
PURCHASE ORDER NO. ~~IN-8-30-16~~ 502542-4
PROJECT CONTACT PHONE NO (575) 234-8615 HEAL # 1609017

Sample Number	Sample Type	Sample Quantity	Preservative	Req't. Testing Program	Special Instructions
WR-SSP1-20160829-1,2	Water-Run-off	500mL	≤ 4°C	Sulfate, Chloride, TDS	7 Day hold Time -001
↓ 2,2	↓	↓	↓	↓	-002
SSP2 1,1					-003
SSP3					-004
SWP1					-005
SWP2					m/s/msd QC sample/7day
SWP3					7 Day hold Time-007
BLK	Blank				-008
		N/A			

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL X RUSH _____ (Subject in rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NONHAZARD X RADIOLOGICAL _____ FLAMMABLE _____ SKIN IRRITANT _____ HIGHLY TOXIC _____ BIOLOGICAL _____ OTHER _____ (Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT _____ DISPOSAL BY LAB X

FOR LAB USE ONLY

RECEIVED BY Lindsey Concha DATE/TIME 09/01/16 0850

Sample Temp: 3.4

04703

WP 02-EM3001- Environmental Monitoring WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

October 21, 2016

The report was revised for Page 2/31 only to report the missed holding time for nitrate.

Brett Seal
Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8966
FAX

RE: SSW Sampling R26

OrderNo.: 1609H68

Dear Brett Seal:

Hall Environmental Analysis Laboratory received 16 sample(s) on 9/30/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Workorder Sample Summary

WO#: **1609H68**
21-Oct-16

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R26

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1609H68-001	SSWC 28 11 R26N1		9/27/2016 8:57:00 AM	9/30/2016 9:25:00 AM	Aqueous
1609H68-002	SSW PZ12 R26N1		9/27/2016 11:16:00 AM	9/30/2016 9:25:00 AM	Aqueous
1609H68-003	SSW PZ10 R26N1		9/27/2016 12:22:00 PM	9/30/2016 9:25:00 AM	Aqueous
1609H68-004	SSW PZ9 R26N1		9/28/2016 9:12:00 AM	9/30/2016 9:25:00 AM	Aqueous
1609H68-005	SSW PZ7 R26N1		9/27/2016 1:26:00 PM	9/30/2016 9:25:00 AM	Aqueous
1609H68-006	SSW PZ13 R26N1		9/28/2016 9:37:00 AM	9/30/2016 9:25:00 AM	Aqueous
1609H68-007	SSW PZ11 R26N1		9/27/2016 2:42:00 PM	9/30/2016 9:25:00 AM	Aqueous
1609H68-008	SSW PZ11 R26N1EB		9/27/2016 2:55:00 PM	9/30/2016 9:25:00 AM	Aqueous
1609H68-009	SSW C2507 R26N1		9/28/2016 11:08:00 AM	9/30/2016 9:25:00 AM	Aqueous
1609H68-010	SSW PZ1 R26N1		9/28/2016 12:16:00 PM	9/30/2016 9:25:00 AM	Aqueous
1609H68-011	SSW PZ5 R26N1		9/28/2016 3:01:00 PM	9/30/2016 9:25:00 AM	Aqueous
1609H68-012	SSW PZ5 R26N1D		9/28/2016 3:02:00 PM	9/30/2016 9:25:00 AM	Aqueous
1609H68-013	SSW PZ5 R26N1EB		9/28/2016 3:12:00 PM	9/30/2016 9:25:00 AM	Aqueous
1609H68-014	SSW PZ6 R26N1		9/28/2016 1:37:00 PM	9/30/2016 9:25:00 AM	Aqueous
1609H68-015	SSW WQSP6A R26N1		9/29/2016 9:55:00 AM	9/30/2016 9:25:00 AM	Aqueous
1609H68-016	SSW WQSP6A R26N2		9/29/2016 9:58:00 AM	9/30/2016 9:25:00 AM	Aqueous

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1609H68**
Date: **10/26/2016**

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R26

All analytes reported are associated with passing CCVs.

METHOD: 300.0

HOLDING TIMES: All holding times for Preparation and Analysis were met except the nitrate result for sample SSW WQSP6A R26N1.

METHOD: Preparations: none
Analysis: 300.0

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Calibration: All acceptance criteria were met.
2. Blanks: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Spikes: All acceptance criteria were met.
5. Samples: All acceptance criteria were met.

METHOD: SM2540C

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: SM2540C
Analysis: SM2540C

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Blanks: All acceptance criteria were met.
2. Spikes: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Samples: All acceptance criteria were met.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1609H68**
Date: **10/21/2016**

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R26

All analytes reported are associated with passing CCVs.

METHOD: 300.0

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: none
Analysis: 300.0

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Calibration: All acceptance criteria were met.
2. Blanks: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Spikes: All acceptance criteria were met.
5. Samples: All acceptance criteria were met.

METHOD: SM2540C

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: SM2540C
Analysis: SM2540C

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Blanks: All acceptance criteria were met.
2. Spikes: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Samples: All acceptance criteria were met.

04707

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1609H68**
Date: **10/21/2016**

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R26

METHOD: SM4500 NorgC

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: SM4500 NorgC
Analysis: SM4500 NorgC

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Blanks: All acceptance criteria were met.
2. Spikes: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Samples: All acceptance criteria were met.

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R26
Lab ID: 1609H68-001 **Matrix:** AQUEOUS

Client Sample ID: SSWC 28 11 R26N1
Collection Date: 9/27/2016 8:57:00 AM
Received Date: 9/30/2016 9:25:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	1100	10.1	100		mg/L	200	10/5/2016 2:28:29 AM	A37688
Sulfate	422	28.4	100		mg/L	200	10/5/2016 2:28:29 AM	A37688
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	2820	52.5	100	*D	mg/L	1	10/6/2016 7:17:00 AM	27878

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R26
Lab ID: 1609H68-002 **Matrix:** AQUEOUS

Client Sample ID: SSW PZ12 R26N1
Collection Date: 9/27/2016 11:16:00 AM
Received Date: 9/30/2016 9:25:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	2460	25.3	250		mg/L	500	10/5/2016 2:53:18 AM	A37688
Sulfate	548	71.1	250		mg/L	500	10/5/2016 2:53:18 AM	A37688
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	6240	52.5	100	*D	mg/L	1	10/6/2016 7:17:00 AM	27878

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R26
Lab ID: 1609H68-003 **Matrix:** AQUEOUS

Client Sample ID: SSW PZ10 R26N1
Collection Date: 9/27/2016 12:22:00 PM
Received Date: 9/30/2016 9:25:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	113	0.506	5.00		mg/L	10	10/5/2016 3:05:43 AM	A37688
Sulfate	116	1.42	5.00		mg/L	10	10/5/2016 3:05:43 AM	A37688
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	805	52.5	100	*D	mg/L	1	10/6/2016 7:17:00 AM	27878

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R26
Lab ID: 1609H68-004 **Matrix:** AQUEOUS

Client Sample ID: SSW PZ9 R26N1
Collection Date: 9/28/2016 9:12:00 AM
Received Date: 9/30/2016 9:25:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	99200	506	5000		mg/L	1E+0	10/5/2016 4:07:46 AM	A37688
Sulfate	4860	142	500		mg/L	1000	10/5/2016 3:55:21 AM	A37688
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	353000	1050	2000	*D	mg/L	1	10/6/2016 7:17:00 AM	27878

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R26
Lab ID: 1609H68-005 **Matrix:** AQUEOUS

Client Sample ID: SSW PZ7 R26N1
Collection Date: 9/27/2016 1:26:00 PM
Received Date: 9/30/2016 9:25:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	51600	506	5000		mg/L	1E+0	10/5/2016 4:32:36 AM	A37688
Sulfate	2850	142	500		mg/L	1000	10/5/2016 4:20:11 AM	A37688
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	99300	1050	2000	*D	mg/L	1	10/6/2016 7:17:00 AM	27878

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R26
Lab ID: 1609H68-006 **Matrix:** AQUEOUS

Client Sample ID: SSW PZ13 R26N1
Collection Date: 9/28/2016 9:37:00 AM
Received Date: 9/30/2016 9:25:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	153000	506	5000		mg/L	1E+0	10/5/2016 4:57:25 AM	A37688
Sulfate	2790	142	500		mg/L	1000	10/5/2016 4:45:00 AM	A37688
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	236000	1050	2000	*D	mg/L	1	10/6/2016 7:17:00 AM	27878

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R26
Lab ID: 1609H68-007 **Matrix:** AQUEOUS

Client Sample ID: SSW PZ11 R26N1
Collection Date: 9/27/2016 2:42:00 PM
Received Date: 9/30/2016 9:25:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	43300	506	5000		mg/L	1E+0	10/5/2016 5:22:15 AM	A37688
Sulfate	2240	142	500		mg/L	1000	10/5/2016 5:09:49 AM	A37688
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	82700	1050	2000	*D	mg/L	1	10/6/2016 7:17:00 AM	27878

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R26
Lab ID: 1609H68-008 **Matrix:** AQUEOUS

Client Sample ID: SSW PZ11 R26N1EB
Collection Date: 9/27/2016 2:55:00 PM
Received Date: 9/30/2016 9:25:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	0.817	0.0506	0.500		mg/L	1	10/5/2016 5:34:39 AM	A37688
Sulfate	0.164	0.142	0.500	J	mg/L	1	10/5/2016 5:34:39 AM	A37688
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	16.0	10.5	20.0	J	mg/L	1	10/6/2016 7:17:00 AM	27878

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R26
Lab ID: 1609H68-009 **Matrix:** AQUEOUS

Client Sample ID: SSW C2507 R26N1
Collection Date: 9/28/2016 11:08:00 AM
Received Date: 9/30/2016 9:25:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	2960	50.6	500		mg/L	1000	10/5/2016 6:36:43 AM	A37688
Sulfate	626	14.2	50.0		mg/L	100	10/5/2016 6:24:18 AM	A37688
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	7280	52.5	100	*D	mg/L	1	10/6/2016 7:17:00 AM	27878

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R26
Lab ID: 1609H68-010 **Matrix:** AQUEOUS

Client Sample ID: SSW PZ1 R26N1
Collection Date: 9/28/2016 12:16:00 PM
Received Date: 9/30/2016 9:25:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	34000	100	1000		mg/L	2000	10/7/2016 1:07:12 PM	R37811
Sulfate	1940	14.2	50.0		mg/L	100	10/5/2016 6:49:07 AM	A37688
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	67000	1050	2000	*D	mg/L	1	10/6/2016 7:17:00 AM	27878

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R26
Lab ID: 1609H68-012 **Matrix:** AQUEOUS

Client Sample ID: SSW PZ5 R26N1D
Collection Date: 9/28/2016 3:02:00 PM
Received Date: 9/30/2016 9:25:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	7260	50.6	500		mg/L	1000	10/6/2016 11:12:32 AM	R37783
Sulfate	788	14.2	50.0		mg/L	100	10/6/2016 11:00:07 AM	R37783
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	15500	1050	2000	*D	mg/L	1	10/6/2016 7:17:00 AM	27878

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R26
Lab ID: 1609H68-013 **Matrix:** AQUEOUS

Client Sample ID: SSW PZ5 R26N1EB
Collection Date: 9/28/2016 3:12:00 PM
Received Date: 9/30/2016 9:25:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	0.480	0.0506	0.500	J	mg/L	1	10/6/2016 11:24:57 AM	R37783
Sulfate	ND	0.142	0.500		mg/L	1	10/6/2016 11:24:57 AM	R37783
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	14.0	10.5	20.0	J	mg/L	1	10/6/2016 7:17:00 AM	27878

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R26
Lab ID: 1609H68-014 **Matrix:** AQUEOUS

Client Sample ID: SSW PZ6 R26N1
Collection Date: 9/28/2016 1:37:00 PM
Received Date: 9/30/2016 9:25:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	21900	101	1000		mg/L	2000	10/7/2016 10:04:48 PM	R37812
Sulfate	1330	14.2	50.0		mg/L	100	10/6/2016 11:49:45 AM	R37783
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	43100	1050	2000	*D	mg/L	1	10/6/2016 7:17:00 AM	27878

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R26
Lab ID: 1609H68-015 **Matrix:** AQUEOUS

Client Sample ID: SSW WQSP6A R26N1
Collection Date: 9/29/2016 9:55:00 AM
Received Date: 9/30/2016 9:25:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	286	1.01	10.0		mg/L	20	10/6/2016 12:51:49 PM	R37783
Nitrogen, Nitrate (As N)	5.61	0.0407	0.100	H	mg/L	1	10/6/2016 12:39:24 PM	R37783
Sulfate	1860	7.11	25.0		mg/L	50	10/7/2016 10:17:13 PM	R37812
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	3490	10.5	20.0	*	mg/L	1	10/6/2016 7:17:00 AM	27878

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R26
Lab ID: 1609H68-016 **Matrix:** AQUEOUS

Client Sample ID: SSW WQSP6A R26N2
Collection Date: 9/29/2016 9:58:00 AM
Received Date: 9/30/2016 9:25:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Nitrate+Nitrite as N	4.80	0.462	1.00		mg/L	5	10/6/2016 1:04:14 PM	R37783
SM 4500 NORG C: TKN							Analyst: **CJS**	
Nitrogen, Kjeldahl, Total	0.56	0.49	1.0	J	mg/L	1	10/17/2016 1:37:00 PM	28054

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

DATES REPORT

WO#: **1609H68**
21-Oct-16

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R26

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1609H68-001A	SSWC 28 11 R26N1	9/27/2016 8:57:00 AM	Aqueous	EPA Method 300.0: Anions			10/5/2016 2:28:29 AM
				EPA Method 300.0: Anions			10/5/2016 1:51:15 AM
				SM2540C MOD: Total Dissolved Soli		10/4/2016 12:07:40 PM	10/6/2016 7:17:00 AM
1609H68-002A	SSW PZ12 R26N1	9/27/2016 11:16:00 AM		EPA Method 300.0: Anions			10/5/2016 2:40:53 AM
				EPA Method 300.0: Anions			10/5/2016 2:53:18 AM
				SM2540C MOD: Total Dissolved Soli		10/4/2016 12:07:40 PM	10/6/2016 7:17:00 AM
1609H68-003A	SSW PZ10 R26N1	9/27/2016 12:22:00 PM		EPA Method 300.0: Anions			10/5/2016 3:05:43 AM
				EPA Method 300.0: Anions			10/5/2016 3:18:08 AM
				SM2540C MOD: Total Dissolved Soli		10/4/2016 12:07:40 PM	10/6/2016 7:17:00 AM
1609H68-004A	SSW PZ9 R26N1	9/28/2016 9:12:00 AM		EPA Method 300.0: Anions			10/5/2016 3:55:21 AM
				EPA Method 300.0: Anions			10/5/2016 4:07:46 AM
				SM2540C MOD: Total Dissolved Soli		10/4/2016 12:07:40 PM	10/6/2016 7:17:00 AM
1609H68-005A	SSW PZ7 R26N1	9/27/2016 1:26:00 PM		EPA Method 300.0: Anions			10/5/2016 4:20:11 AM
				EPA Method 300.0: Anions			10/5/2016 4:32:36 AM
				SM2540C MOD: Total Dissolved Soli		10/4/2016 12:07:40 PM	10/6/2016 7:17:00 AM
1609H68-006A	SSW PZ13 R26N1	9/28/2016 9:37:00 AM		EPA Method 300.0: Anions			10/5/2016 4:45:00 AM
				EPA Method 300.0: Anions			10/5/2016 4:57:25 AM
				SM2540C MOD: Total Dissolved Soli		10/4/2016 12:07:40 PM	10/6/2016 7:17:00 AM
1609H68-007A	SSW PZ11 R26N1	9/27/2016 2:42:00 PM		EPA Method 300.0: Anions			10/5/2016 5:09:49 AM
				EPA Method 300.0: Anions			10/5/2016 5:22:15 AM
				SM2540C MOD: Total Dissolved Soli		10/4/2016 12:07:40 PM	10/6/2016 7:17:00 AM
1609H68-008A	SSW PZ11 R26N1EB	9/27/2016 2:55:00 PM		EPA Method 300.0: Anions			10/5/2016 5:34:39 AM
				EPA Method 300.0: Anions			10/5/2016 5:47:04 AM

04725

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

DATES REPORT

WO#: **1609H68**
21-Oct-16

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R26

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1609H68-008A	SSW PZ11 R26N1EB	9/27/2016 2:55:00 PM	Aqueous	SM2540C MOD: Total Dissolved Soli		10/4/2016 12:07:40 PM	10/6/2016 7:17:00 AM
1609H68-009A	SSW C2507 R26N1	9/28/2016 11:08:00 AM		EPA Method 300.0: Anions			10/5/2016 6:36:43 AM
				EPA Method 300.0: Anions			10/5/2016 6:24:18 AM
				SM2540C MOD: Total Dissolved Soli		10/4/2016 12:07:40 PM	10/6/2016 7:17:00 AM
1609H68-010A	SSW PZ1 R26N1	9/28/2016 12:16:00 PM		EPA Method 300.0: Anions			10/5/2016 7:01:32 AM
				EPA Method 300.0: Anions			10/7/2016 1:07:12 PM
				EPA Method 300.0: Anions			10/5/2016 6:49:07 AM
				SM2540C MOD: Total Dissolved Soli		10/4/2016 12:07:40 PM	10/6/2016 7:17:00 AM
1609H68-011A	SSW PZ5 R26N1	9/28/2016 3:01:00 PM		EPA Method 300.0: Anions			10/6/2016 10:35:18 AM
				EPA Method 300.0: Anions			10/6/2016 10:47:42 AM
				SM2540C MOD: Total Dissolved Soli		10/4/2016 12:07:40 PM	10/6/2016 7:17:00 AM
1609H68-012A	SSW PZ5 R26N1D	9/28/2016 3:02:00 PM		EPA Method 300.0: Anions			10/6/2016 11:00:07 AM
				EPA Method 300.0: Anions			10/6/2016 11:12:32 AM
				SM2540C MOD: Total Dissolved Soli		10/4/2016 12:07:40 PM	10/6/2016 7:17:00 AM
1609H68-013A	SSW PZ5 R26N1EB	9/28/2016 3:12:00 PM		EPA Method 300.0: Anions			10/6/2016 11:24:57 AM
				EPA Method 300.0: Anions			10/6/2016 11:37:21 AM
				SM2540C MOD: Total Dissolved Soli		10/4/2016 12:07:40 PM	10/6/2016 7:17:00 AM
1609H68-014A	SSW PZ6 R26N1	9/28/2016 1:37:00 PM		EPA Method 300.0: Anions			10/6/2016 11:49:45 AM
				EPA Method 300.0: Anions			10/6/2016 12:02:10 PM
				EPA Method 300.0: Anions			10/7/2016 10:04:48 PM
				SM2540C MOD: Total Dissolved Soli		10/4/2016 12:07:40 PM	10/6/2016 7:17:00 AM
1609H68-015A	SSW WQSP6A R26N1	9/29/2016 9:55:00 AM		EPA Method 300.0: Anions			10/6/2016 12:39:24 PM
				EPA Method 300.0: Anions			10/6/2016 12:51:49 PM

04726

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

DATES REPORT

WO#: **1609H68**

21-Oct-16

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R26

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1609H68-015A	SSW WQSP6A R26N1	9/29/2016 9:55:00 AM	Aqueous	EPA Method 300.0: Anions			10/7/2016 10:17:13 PM
				SM2540C MOD: Total Dissolved Soli		10/4/2016 12:07:40 PM	10/6/2016 7:17:00 AM
1609H68-016A	SSW WQSP6A R26N2	9/29/2016 9:58:00 AM		EPA Method 300.0: Anions			10/6/2016 1:04:14 PM
				SM 4500 Norg C: TKN		10/13/2016 11:33:44 PM	10/17/2016 1:37:00 PM

04727

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1609H68**

21-Oct-16

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R26

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A37688**	RunNo: **37688**
Prep Date:	Analysis Date: **10/5/2016**	SeqNo: **1173925** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	0.10	0.50								J
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A37688**	RunNo: **37688**
Prep Date:	Analysis Date: **10/5/2016**	SeqNo: **1173926** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	98.5	90	110			
Sulfate	10	0.50	10.00	0	101	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R37783**	RunNo: **37783**
Prep Date:	Analysis Date: **10/6/2016**	SeqNo: **1176974** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	102	90	110			
Nitrogen, Nitrate (As N)	7.9	0.10	7.200	0	109	90	110			
Sulfate	31	0.50	30.00	0	105	90	110			
Nitrate+Nitrite as N	13	0.20	12.00	0	107	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R37783**	RunNo: **37783**
Prep Date:	Analysis Date: **10/6/2016**	SeqNo: **1176976** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R37783**	RunNo: **37783**
Prep Date:	Analysis Date: **10/6/2016**	SeqNo: **1176977** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.0	0.50	5.000	0	100	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	106	90	110			
Sulfate	10	0.50	10.00	0	104	90	110			
Nitrate+Nitrite as N	3.7	0.20	3.500	0	104	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1609H68**

21-Oct-16

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R26

Sample ID **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R37783** RunNo: **37783**

Prep Date: Analysis Date: **10/6/2016** SeqNo: **1176986** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.5	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	98.0	90	110			
Sulfate	12	0.50	12.50	0	96.6	90	110			
Nitrate+Nitrite as N	4.9	0.20	5.000	0	98.0	90	110			

Sample ID **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R37783** RunNo: **37783**

Prep Date: Analysis Date: **10/6/2016** SeqNo: **1176998** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.9	90	110			
Nitrogen, Nitrate (As N)	5.0	0.10	4.800	0	104	90	110			
Sulfate	20	0.50	20.00	0	101	90	110			
Nitrate+Nitrite as N	8.2	0.20	8.000	0	103	90	110			

Sample ID **A6** SampType: **ccv_6** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R37783** RunNo: **37783**

Prep Date: Analysis Date: **10/6/2016** SeqNo: **1177010** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	102	90	110			
Nitrogen, Nitrate (As N)	7.8	0.10	7.200	0	108	90	110			
Sulfate	31	0.50	30.00	0	104	90	110			
Nitrate+Nitrite as N	13	0.20	12.00	0	106	90	110			

Sample ID **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R37783** RunNo: **37783**

Prep Date: Analysis Date: **10/6/2016** SeqNo: **1177022** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.6	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	98.7	90	110			
Sulfate	12	0.50	12.50	0	97.1	90	110			
Nitrate+Nitrite as N	4.9	0.20	5.000	0	98.6	90	110			

Sample ID **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R37783** RunNo: **37783**

Prep Date: Analysis Date: **10/6/2016** SeqNo: **1177034** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1609H68**

21-Oct-16

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R26

Sample ID **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R37783** RunNo: **37783**

Prep Date: Analysis Date: **10/6/2016** SeqNo: **1177034** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.1	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	103	90	110			
Sulfate	20	0.50	20.00	0	100	90	110			
Nitrate+Nitrite as N	8.2	0.20	8.000	0	102	90	110			

Sample ID **A6** SampType: **ccv_6** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R37783** RunNo: **37783**

Prep Date: Analysis Date: **10/7/2016** SeqNo: **1177046** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	101	90	110			
Nitrogen, Nitrate (As N)	7.8	0.10	7.200	0	108	90	110			
Sulfate	31	0.50	30.00	0	104	90	110			
Nitrate+Nitrite as N	13	0.20	12.00	0	106	90	110			

Sample ID **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R37783** RunNo: **37783**

Prep Date: Analysis Date: **10/7/2016** SeqNo: **1177056** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	97.4	90	110			
Sulfate	12	0.50	12.50	0	95.5	90	110			
Nitrate+Nitrite as N	5.0	0.20	5.000	0	99.2	90	110			

Sample ID **A6** SampType: **CCV_6** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R37811** RunNo: **37811**

Prep Date: Analysis Date: **10/7/2016** SeqNo: **1177747** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	13	0.50	12.00	0	105	90	110			

Sample ID **MB** SampType: **MBLK** TestCode: **EPA Method 300.0: Anions**

Client ID: **PBW** Batch ID: **R37811** RunNo: **37811**

Prep Date: Analysis Date: **10/7/2016** SeqNo: **1177748** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1609H68**

21-Oct-16

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R26

Sample ID **LCS** SampType: **LCS** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R37811** RunNo: **37811**
Prep Date: Analysis Date: **10/7/2016** SeqNo: **1177749** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.0	0.50	5.000	0	101	90	110			

Sample ID **A4** SampType: **CCV_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R37811** RunNo: **37811**
Prep Date: Analysis Date: **10/7/2016** SeqNo: **1177758** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	95.0	90	110			

Sample ID **A5** SampType: **CCV_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R37811** RunNo: **37811**
Prep Date: Analysis Date: **10/7/2016** SeqNo: **1177770** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	8.0	0.50	8.000	0	99.5	90	110			

Sample ID **A6** SampType: **CCV_6** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R37811** RunNo: **37811**
Prep Date: Analysis Date: **10/7/2016** SeqNo: **1177791** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	104	90	110			

Sample ID **MB** SampType: **MBLK** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R37811** RunNo: **37811**
Prep Date: Analysis Date: **10/7/2016** SeqNo: **1177811** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	0.093	0.50								J

Sample ID **LCS** SampType: **LCS** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R37811** RunNo: **37811**
Prep Date: Analysis Date: **10/7/2016** SeqNo: **1177813** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.0	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1609H68**

21-Oct-16

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R26

Sample ID **A4** SampType: **CCV_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R37811** RunNo: **37811**
Prep Date: Analysis Date: **10/7/2016** SeqNo: **1177815** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.2	90	110			

Sample ID **A5** SampType: **CCV_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R37812** RunNo: **37812**
Prep Date: Analysis Date: **10/7/2016** SeqNo: **1177836** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.4	90	110			
Sulfate	20	0.50	20.00	0	98.8	90	110			

Sample ID **A6** SampType: **CCV_6** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R37812** RunNo: **37812**
Prep Date: Analysis Date: **10/7/2016** SeqNo: **1177848** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	103	90	110			
Sulfate	31	0.50	30.00	0	103	90	110			

Sample ID **A4** SampType: **CCV_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R37812** RunNo: **37812**
Prep Date: Analysis Date: **10/7/2016** SeqNo: **1177860** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.3	90	110			
Sulfate	12	0.50	12.50	0	94.4	90	110			

Sample ID **A5** SampType: **CCV_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R37812** RunNo: **37812**
Prep Date: Analysis Date: **10/7/2016** SeqNo: **1177872** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.9	0.50	8.000	0	98.7	90	110			
Sulfate	20	0.50	20.00	0	99.2	90	110			

Sample ID **A6** SampType: **CCV_6** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R37812** RunNo: **37812**
Prep Date: Analysis Date: **10/7/2016** SeqNo: **1177884** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	103	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1609H68**

21-Oct-16

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R26

Sample ID **A6** SampType: **CCV_6** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R37812** RunNo: **37812**
Prep Date: Analysis Date: **10/7/2016** SeqNo: **1177884** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	31	0.50	30.00	0	102	90	110			

Sample ID **MB** SampType: **MBLK** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R37812** RunNo: **37812**
Prep Date: Analysis Date: **10/7/2016** SeqNo: **1177891** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS** SampType: **LCS** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R37812** RunNo: **37812**
Prep Date: Analysis Date: **10/7/2016** SeqNo: **1177892** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.0	90	110			
Sulfate	9.8	0.50	10.00	0	97.6	90	110			

Sample ID **A4** SampType: **CCV_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R37812** RunNo: **37812**
Prep Date: Analysis Date: **10/7/2016** SeqNo: **1177896** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.0	0.50	5.000	0	100	90	110			
Sulfate	12	0.50	12.50	0	99.5	90	110			

Sample ID **A5** SampType: **CCV_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R37812** RunNo: **37812**
Prep Date: Analysis Date: **10/8/2016** SeqNo: **1177908** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	8.0	0.50	8.000	0	99.5	90	110			
Sulfate	20	0.50	20.00	0	99.9	90	110			

Sample ID **A6** SampType: **CCV_6** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R37812** RunNo: **37812**
Prep Date: Analysis Date: **10/8/2016** SeqNo: **1177920** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	103	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

WO#: **1609H68**

Hall Environmental Analysis Laboratory, Inc.

21-Oct-16

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R26

Sample ID **MB-27878** SampType: **MBLK** TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW** Batch ID: **27878** RunNo: **37715**
Prep Date: **10/4/2016** Analysis Date: **10/6/2016** SeqNo: **1174754** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	19.0	20.0								J

Sample ID **LCS-27878** SampType: **LCS** TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW** Batch ID: **27878** RunNo: **37715**
Prep Date: **10/4/2016** Analysis Date: **10/6/2016** SeqNo: **1174755** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	80	120			

Sample ID **1609H68-001AMS** SampType: **MS** TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **SSWC 28 11 R26N1** Batch ID: **27878** RunNo: **37715**
Prep Date: **10/4/2016** Analysis Date: **10/6/2016** SeqNo: **1174778** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	8310	100	5000	2825	110	80	120			D

Sample ID **1609H68-001AMSD** SampType: **MSD** TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **SSWC 28 11 R26N1** Batch ID: **27878** RunNo: **37715**
Prep Date: **10/4/2016** Analysis Date: **10/6/2016** SeqNo: **1174779** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	8320	100	5000	2825	110	80	120	0.120	5	D

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

CHAIN OF CUSTODY RECORD

№ 1065

Page 1 of 2

Project Number:	Project Name:
TS02542-2	SSW Sampling R26

Sampler(s): Brett Seal, Allen Hall, John Thurston

Sample Date	Sample Time	Matrix	Sample Number	Total Number of Containers	TDS	Chloride	SL Haste							Analytical Laboratory: HEAL Albuquerque NM. HEAL # Comments 1609H168
9/27/16	0857	SSW	SSWC2811 R26 NI	1	X	X	X							use for MS/MSD -001
9/27/16	1116		SSW PZ12 R26 NI	1	X	X	X							-002
9/27/16	1222		SSW PZ10 R26 NI	1	X	X	X							-003
9/28/16	0912		SSW PZ9 R26 NI	1	X	X	X							-004
9/27/16	1326		SSW PZ7 R26 NI	1	X	X	X							-005
9/28/16	0937		SSW PZ13 R26 NI	1	X	X	X							-006
9/27/16	1442		SSW PZ11 R26 NI	1	X	X	X							-007
9/27/16	1455		SSW PZ11 R26 NIEB	1	X	X	X							Equ. Blank -008
9/28/16	1108		SSW C2507 R26 NI	1	X	X	X							-009
9/28/16	1216		SSW PZ1 R26 NI	1	X	X	X							-010
9/28/16	1501		SSW PZ5 R26 NI	1	X	X	X							-011
9/28/16	1502		SSW PZ5 R26 NID	1	X	X	X							-012
9/28/16	1512		SSW PZ5 R26 NIEB	1	X	X	X							Equ. Blank -013
9/28/16	1337		SSW PZ6 R26 NI	1	X	X	X							-014

Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)
[signature] 9/28/16 1307	Lindsey Cornejo 09/30/16 0925		
Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received at Laboratory: (Signature, Date/Time)

Requested Turnaround Time: 30 Days

☑ Routine ☐ Rush _____

Sample Disposal:

☐ Return to Client ☒ Disposal by Lab

Carrier / Airbill No.: 554180073 6

Sample Receipt Remarks: 4.8 - CF - 2.0 = 2.8°C

Results To:
Brett Seal
RES
PO Box 2078, MS 452-09
Carlsbad, NM 88221-2078
Phone: 575-234-8866 FAX: 575-234-6003
EDD: Brett.Seal@WIPP.WS

Special Instructions:
High TDS: PZ-1, PZ-11, PZ-9, PZ-6, PZ-5, PZ-13 PZ-1
Report all data to three sig figs

WHITE – Analytical Laboratory
DI – Deionized Water
GW – Groundwater

YELLOW – Field Copy
AF – Air Filter(s)
AN – Animal(s)

PINK – Record Copy
SE – Sediment
SO – Soil

SW – Surface Water
VG – Vegetation

Form CofC/RFA, Rev. 0 – NICHOLS PRINTING, INC.

04735

CHAIN OF CUSTODY RECORD

№ 1240

Page 2 of 2

Project Number:	Project Name:			Total Number of Containers	Requested Analyses									Analytical Laboratory
T502542-2	SSW Sampling R26				TDS	Chloride	Sulfate	Nitrate	TRU					HEAL
Sampler(s): Brett Seal, Allen Hall, John Thurston														Albuquerque NM
Sample Date	Sample Time	Matrix	Sample Number											HEAL # Comments 16091168
9/29/16	0955	SSW	SSWW2SP6AR26N1	1	x	x	x	x						-015
9/29/16	0958	SSW	SSWW2SP6AR26N2	1				x	x					-016

BS 9/29/16

Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)
9/29/16 1307	Lindsey Concha 09/30/16 0925		
Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received at Laboratory: (Signature, Date/Time)

Requested Turnaround Time: 30

☒ Routine ☐ Rush _____

Sample Disposal:

☐ Return to Client ☒ Disposal by Lab

Carrier / Airbill No.:

5 541800 0736

Sample Receipt Remarks:

4.8 − CF − 2.0 = 2.8°C

Special Instructions:

Results To:

Brett Seal

RES
PO Box 2078, MS 452-09
Carlsbad, NM 88221-2078

Phone: 575 234-8266 FAX: 575-234-6003

EDD: Brett.Seal@WIPP.was

WHITE – Analytical Laboratory
DI – Deionized Water
GW – Groundwater

YELLOW – Field Copy
AF – Air Filter(s)
AN – Animal(s)

PINK – Record Copy
SE – Sediment
SO – Soil

SW – Surface Water
VG – Vegetation

Form CofC/RFA, Rev. 0 – NICHOLS PRINTING, INC

04736

Table 7 - Monitoring Well Watger Levels and Chemical Analyses

	Field and General Chemistry Parameters								Other	Water Level Monitoring (Ft AMSL)	
Monitoring Site	Sample Date	pH (SU)	Temp. (^{0}C)	Specific Conductivity @25 ^{0}C (µS/cm)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)	9/12/16-9/14/16	12/5/16 & 12/12/16
PZ-1	9/28/2016	6.50	25.22	88,610	NA	**1,940**	**34,000**	**67,000**	NA	3371.88	3372.20
PZ-2	NS	NS	NS	NS	NS	NS	NS	NS	NS	3371.28	3371.82
PZ-3	NS	NS	NS	NS	NS	NS	NS	NS	NS	3371.48	3372.05
PZ-4	NS	NS	NS	NS	NS	NS	NS	NS	NS	3366.55	3367.27
PZ-5	9/28/2016	7.19	24.63	84,690	NA	**748**	**7,170**	**17,400**	NA	3372.09	3372.81
PZ-6	9/28/2016	6.75	25.94	87,200	NA	**1,330**	**21,900**	**43,100**	NA	3370.25	3370.74
PZ-7	9/27/2016	6.36	24.04	93,010	NA	**2,850**	**51,600**	**99,300**	NA	3376.21	3377.69
PZ-8	NS	NS	NS	NS	NS	NS	NS	NS	NS	3355.55	3355.58
PZ-9	9/28/2016	6.14	22.61	93,490	NA	**4,860**	**99,200**	**353,000**	NA	3362.05	3362.28
PZ-10	9/27/2016	7.50	22.37	4,403	NA	116	113	805	NA	3369.08	3369.47
PZ-11	9/27/2016	6.50	22.28	96,390	NA	**2,240**	**43,300**	**82,700**	NA	3372.42	3375.79
PZ-12	9/27/2016	7.10	21.99	35,710	NA	548	**2,460**	**6,240**	NA	3356.61	3357.53
PZ-13	9/28/2016	Bailed			NA	**2,790**	**153,000**	**236,000**	NA	3355.76	3356.07
PZ-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	3352.55	3352.67
PZ-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	3382.66	3384.42
C-2811	9/27/2016	7.26	20.09	16,250	NA	422	**1,100**	**2,820**	NA	3347.53	3349.28
C-2505	NS	NS	NS	NS	NS	NS	NS	NS	NS	NR	3368.71
C-2506	NS	NS	NS	NS	NS	NS	NS	NS	NS	NR	3369.40
C-2507	9/28/2016	7.11	22.06	38,440	NA	**626**	**2,960**	**7,280**	NA	3365.13	3365.66
WQSP-6A	9/29/2016	7.17	22.76	13,990	5.61	**1,860**	**286**	**3,490**	<1.0	3195.64	3195.81

Explanation:

NA: Not Analyzed, parameter not required, per permit conditions.

NS: Not Sampled, not required per permit conditions

NR: Not recurded due to well being inaccessable

PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty using Low-Flow pumps

	AMSL: Above Mean Sea Level

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

JUL 3 1 2017

Ms. Michelle Hunter, Acting Bureau Chief
New Mexico Environment Department
Ground Water Quality Bureau
Harold Runnels Building
1190 Saint Francis Drive
P.O. Box 5469
Santa Fe, NM 87502

Subject: Semi-Annual Discharge Monitoring Report for January 1 through June 30, 2017, Discharge Permit 831

Dear Ms. Hunter:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Semi-Annual Discharge Monitoring Report, including the required attachments on compact disc, for the period of January 1, 2016 through June 30, 2017. This report is required by Discharge Permit 831.

If you have any questions about this report or require any additional information, please contact me at (575) 234-7488.

Sincerely,

George T. Basabilvazo

George T. Basabilvazo, Director
Environmental Protection Division

Enclosure (2)

cc: w/o Enclosures
J. Keiling, NMED *ED
CBFO M&RC
*ED denotes electronic distribution

1701738

JUL 3 1 2017

MAIL & RECORDS CENTER COPY

CBFO:OEP:GTB:AC:17-1057:UFC 5486.00

04739

JUL 3 1 2017

Ms. Hunter:

bcc:w/o enclosure

G. Basabilvazo, CBFO	* ED
T. Shrader, CBFO	ED
A. Stone, CBFO	ED
A. Ward, CBFO	ED
M. Briggs, NWP	ED
C. Ceballos, NWP	ED
M. Gonzales, NWP	ED
B. Hill, NWP	ED
W. Rodriguez, NWP	ED
C. Navarrette, NWP	ED
B. Shagula, NWP	ED
W. Jaco, RES	ED
S. Jones, RES	ED
S. Kouba, RES	ED
H. Moore, RES	ED
W. Most, RES	ED
L. Ramos, RES	ED
R. Salness, RES	ED

bcc:w/enclosures

L. Babb, NWP	ED
D. Cook, NWP	ED
R. St. John, NWP	ED
R. Chavez, RES	ED
K. Day, RES	ED
J. Haschets, RES	ED
A. Waldram, RES	ED

RCRA Chronology

K. Urquidez, RES	ED

*ED denotes electronic distribution

MAIL & RECORDS
CENTER COPY

Waste Isolation Pilot Plant Semi-Annual Discharge Monitoring Report for Discharge Permit DP-831 for Reporting Period January 1, 2017 through June 30, 2017

U.S. Department of Energy

July 2017

MAIL & RECORDS
CENTER COPY
04741

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR
DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JANUARY 1, 2017 THROUGH JUNE 30, 2017

REPORTING REQUIREMENTS OF DP-831 OPERATIONAL PLAN

Part B. Applicable to the Facultative Lagoon System

Condition 8. *– The permittee shall measure the thickness of the sludge blanket in each pond of the Facultative Lagoon System once within the effective term of this Discharge Permit, but before the end of 2018. When sludge accumulation exceeds 1/3 of the total depth of any pond, the permittee shall remove the sludge in a manner, which is protective of the pond liner. Removed solids shall be contained, transported, and disposed of in accordance with all local, state, and federal regulations. The permittee shall maintain solids blanket measurements and solids disposal manifests for solids transported from the facility for off-site disposal. The permittee shall submit all measurements and manifests to NMED in the semi-annual monitoring report immediately following the solids thickness measurement.*

No sludge measurements occurred during this reporting period. These measurements will be performed prior to the end of 2018.

Part D. Applicable to the Storm Water Runoff Impoundments in Contact with Salt Stockpiles (Salt Storage Ponds 1, 2, and 3) and Salt Stockpiles (Salt Cells 1, 2, and 3).

Condition 9. *– The permittee shall measure the thickness of the solids blanket in each impoundment once within the effective term of this Discharge Permit, but before the end of 2018. Removed solids shall be contained, transported, and disposed of in accordance with all local, state, and federal regulations. The permittee shall maintain solids blanket measurements and solids disposal manifests for solids transported from the facility for off-site disposal. The permittee shall submit all measurements and manifests to NMED in the semi-annual monitoring report immediately following the solids thickness measurement.*

No sludge measurements on Salt Storage Ponds 1, 2, and 3 occurred during this reporting period. These measurements will be performed prior to the end of 2018.

Condition 10. *– The permittee shall inspect the leak detection systems for Salt Storage Ponds 2 and 3 on a monthly basis for the presence of liquid. The permittee shall keep a log of the inspection findings and repairs made. The inspection log, including a statement whether or not liquids were observed in the leak detection systems, shall be submitted to NMED in the semi-annual monitoring reports.*

Monthly inspections of the Salt Storage Pond 2 and 3 leak detection systems occurred during this reporting period. Liquid was observed in the leak detection systems. Pumping of the sumps was performed in April for Salt Storage Pond 2 and May for Salt Storage Pond 3.

04742

From April 4-13, 2017, water was pumped from the leak detection system sump for Salt Storage Pond 2 to measure the volume of water accumulated, since it was last pumped on December 16, 2016, and to determine the leakage rate. From the March 2016 action leakage rate (ALR) study, the ALR for Salt Storage Pond 2 was calculated to be 706 gallons per day. The actual leakage rate determined from the April 4-13 pumping event was 83 gallons per day. This is well below the rate recommended by the EPA (EPA 530-R-92-004, NTIS #PB 92-128 214).

From April 18, 2017, through May 15, 2017, water was pumped from the leak detection system sump for Salt Storage Pond 3 to measure the volume of water accumulated since it was last pumped on December 22, 2016, and to calculate the leakage rate. The ALR study determined that the ALR for Salt Storage Pond 3 was 1,880 gallons per day. The leakage rate determined from the May 15 pumping event was 301 gallons per day. This is also well below the rate recommended by the EPA (EPA 530-R-92-004, NTIS #PB 92-128 214).

There were no repairs required to the leak detection system during this reporting period. A portable document format (pdf) file of the inspection logs can be found on the accompanying compact disc (CD) with the file name "Salt Pond Sump Inspection 1st Half 2017.pdf."

Condition 11. *– The permittee shall conduct regular maintenance of the earthen cover on the Salt Cell 1, and SPDV material pile. Inspections shall be conducted monthly and after storm events of 2 inches or greater in a 24-hour period to evaluate potential erosion and vegetation success of the cover. In the event of significant erosion or failure of vegetative success, the permittee shall provide a plan and schedule for repair within 90 days of discovery. General observations and cover repair shall be reported to NMED.*

The earthen cover of the Salt Cell 1 and the Site and Preliminary Design Validation (SPDV) material pile were inspected monthly for January through June. On both piles, the synthetic covers were noted as needing repair. A separate subcontract for repairs to the SPDV liner is currently being developed. None of the storm events generated rates of more than 2 inches in 24 hours.

REQUIREMENTS OF DP-831 MONITORING AND REPORTING SECTION

Part B. Applicable to the Facultative Sewage Lagoon System

Condition 15. *– The volume of domestic influent discharged to the Facultative lagoon System shall be measured monthly using a totalizing flow meter on the influent line to the system or the totalizing meter that measures total domestic water usage. Volumes of other authorized discharges to the Facultative Lagoon System shall be calculated by a time/volume method or volumetric measurement of the transport container(s). NMED may require comprehensive laboratory analyses of such wastewater prior to discharge when NMED determines that*

additional information is needed. Monthly meter readings, the units of measurement, monthly discharge volumes and other volumetric calculations for the previous 6-month period shall be submitted to NMED semi-annually in the monitoring reports.

Table 1 shows the volume of water discharged to the Facultative Lagoon System for this reporting period. Discharged water volume is based on total domestic water use. No miscellaneous non-hazardous water was discharged to Evaporation Lagoons B or C.

Table 1 – Discharge to Facultative Lagoon System

Month	Volume (gallons)
January	251,588
February	200,916
March	246,065
April	311,447
May	348,527
June	307,004
Total	**1,665,547**

Weekly meter readings of the domestic water meter (456-FIY-010-001) are found on the accompanying CD with the file name "Domestic Water Usage 1st Half of 2017.pdf."

No water, other than non-hazardous sewage water with some non-hazardous condensate from compressors, was discharged into the Facultative Lagoon System.

Condition 16. *– The permittee shall collect a wastewater sample on a semi-annual basis (once every six months) from the influent to the Facultative Lagoon System. The grab sample shall be analyzed for TKN, NO_3-N, SO_4, TDS, and Cl. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.*

Table 2 summarizes the analytical results for samples collected from the influent of the Facultative Lagoon System on May 4, 2017.

Laboratory analytical results and QA/QC Summary Report for the Facultative Lagoon System are found as a pdf file on the accompanying CD name "Facultative Lagoon and H-19 Analytical and QA-QC.pdf."

Table 2 – Facultative Lagoon System Analytical Data

Analyte	Sample Date	Settling Lagoon 2 Concentration (mg/L)
TKN	05/24/17	120
NO_3-N	05/24/17	ND

Analyte	Sample Date	Settling Lagoon 2 Concentration (mg/L)
SO_4	05/24/17	46
TDS	05/24/17	370
Cl	05/24/17	100

TKN: Total Kjeldahl nitrogen
TDS: Total dissolved solids
ND: Not detected, analyte below the method detection limit

Part C. Applicable to the Evaporation Pond H-19 and Storm Water Impoundments Not in Contact with Salt Stockpiles (Storm Water Ponds 1, 2, and 3)

Condition 17. *– The volume and origin of all wastewater discharged to the Evaporation Pond H-19 that is derived from miscellaneous non-hazardous sources shall be measured monthly and reported to NMED. Discharge volumes to the Evaporation Pond H-19 shall be calculated by a time/volume method or volumetric measurement of the transport container(s). NMED may require comprehensive laboratory analyses of such wastewater prior to discharge when NMED determines that additional information is needed. Monthly discharge volumes and other volumetric calculations for the previous 6-month period shall be submitted to NMED semi-annually in the monitoring reports.*

Table 3 shows the volume of miscellaneous non-hazardous water discharged to Evaporation Pond H-19 for this reporting period. Water disposed in Evaporation Pond H-19 is from groundwater well development, and from sampling of WIPP monitoring wells.

Table 3 – Discharge to H-19 Evaporation Pond

Month	Volume (gallons)	Water Origin
January	1,675	Groundwater Activities
February	700	Groundwater Activities
March	800	Groundwater Activities
April	300	Groundwater Activities
May	2,690	Groundwater Activities
June	160	Groundwater Activities
Total	**6,325**	

Condition 18. *– A sample shall be collected semi-annually from the Evaporation Pond H-19 and analyzed for SO_4, Cl, and TDS. Samples shall be collected annually after a significant storm event from each of the storm water ponds, Storm Water Ponds 1, 2, and 3 and analyzed for SO_4, Cl, and TDS. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring report.*

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

Table 4 summarizes the analytical results for samples from Evaporation Pond H-19. Storm Water Ponds 1, 2, and 3 were not sampled since no significant rain event occurred during this reporting period. Evaporation Pond H-19 was sampled on May 24, 2017.

Table 4 – Storm Water Ponds and Evaporation Pond H-19 (EP H-19) Analytical Data

Analyte	Sample Date	Evaporation Pond H-19	Storm Water Pond 1	Storm Water Pond 2	Storm Water Pond 3
SO_4 (mg/L)	05/24/17 for EP H-19	330	NS	NS	NS
Cl (mg/L)	05/24/17 for EP H-19	340,000	NS	NS	NS
TDS (mg/L)	05/24/17 for EP H-19	475,000	NS	NS	NS

NS: Not Sampled – No significant storm event occurred this reporting period

Laboratory analytical results and the QA/QC Summary Report for Evaporation Pond H-19 are found as a pdf file, on the accompanying CD, named "Facultative Lagoon and H-19 Analytical and QA-QC 1st Half of 2017.pdf."

Condition 19. *– The water depth shall be measured monthly to the nearest tenth of a foot (0.1 ft) in the Storm Water ponds 1, 2, and 3. The approximate volume of storm water shall be calculated and submitted to NMED in the semi-annual monitoring reports.*

Table 5 shows the monthly measurements of water depth and derived volumes for the three Storm Water Ponds over the reporting period.

Table 5 – Storm Water Ponds Depths and Volumes

	January 01/23/17	February 02/06/17	March 03/09/17	April 04/17/17	May 05/12/17	June 06/8/17
Storm Water Pond 1						
Water Depth (ft)	2.1	2.0	1.7	1.3	0.8	0.6
Water Volume (gal)	292,169	279,256	236,518	180,866	111,302	83,477
Storm Water Pond 2						
Water Depth (ft)	7.0	4.6	4.2	4.1	3.6	3.6
Water Volume (gal)	1,615,326	1,580,957	1,443,482	1,409,114	1,237,271	1,237,271
Storm Water Pond 3						
Water Depth (ft)	2.5	2.5	2.2,	2.1	1.6	1.7
Water Volume (gal)	3,605,983	3,605,983	3,173,265	3,029,026	2,307,829	2,452,069

Part D. Applicable to the Storm Water Runoff Impoundments in Contact with Salt Stockpiles (Salt Storage Ponds 1, 2, and 3) and Salt Stockpiles (Salt Cells 1, 2, and 3)

Condition 20. *– A sample shall be collected annually after a significant storm event from each of the Salt Storage Cells 1, 2, and 3 and analyzed for SO_4, Cl, and TDS. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.*

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

No significant rainfall event occurred during this reporting period. Therefore, Salt Storage Ponds 1, 2, and 3 were not sampled.

Condition 21. *– The water depth shall be measured monthly to the nearest tenth of a foot (0.1 ft) in the Salt Storage Ponds 1, 2, and 3. The approximate volume of storm water shall be calculated and submitted to NMED in the semi-annual monitoring reports.*

Table 6 shows the monthly measurements of water depth and derived volumes for the three Salt Storage Ponds over the reporting period.

Table 6 – Salt Storage Ponds Depths and Volumes

	January 01/23/17	February 02/06/17	March 03/09/17	April 04/17/17	May 05/12/17	June 06/08/17
Salt Storage Pond 1						
Water Depth (ft)	1.8	1.7	1.3	0.7	0.5	0.3
Water Volume (gal)	2,049,290	1,935,440	236,518	796,946	569,247	341,548
Salt Storage Pond 2						
Water Depth (ft)	7.0	7.0	6.7	6.5	600	6.1
Water Volume (gal)	2,507,296	2,507,296	2,399,840	2,328,203	2,149,111	2,184,929
Salt Storage Pond 3						
Water Depth (ft)	13.9	13.9	13.7	13.3	13.0	12.8
Water Volume (gal)	15,902,517	15,902,517	15,673,704	15,206,078	14,872,858	14,644,045

Ground Water Monitoring and Reports

***Condition** 22. – Depth to the water table shall be measured to the nearest hundredth of a foot (0.01 ft) quarterly in the piezometers/monitoring wells:*

- *PZ-1, PZ-2, PZ-3, PZ-4, PZ5, PZ-6, PZ-7, PZ-8, PZ-9, PZ-10, PZ-11, PZ-12, PZ-13, PZ-14 and PZ-15*
- *C-2505, C-2506, C-2507, C-2811, and WQSP-6A*

Water levels in the piezometers and monitoring wells were obtained March 15-16, 2017, and June 6-8, 2017. These were taken in accordance with quarterly milestones outlined in the Ground Water Monitoring Schedule specified in the Discharge Permit (DP-831) renewal, dated July 29, 2014. Depths to groundwater measured to the nearest hundredth of a foot (0.01 ft) are included in Table 7 – Water Level and Water Quality for Piezometers and Monitoring Wells.

***Condition** 23. – The permittee shall perform semi-annual ground water sampling in the following piezometers/monitoring wells and analyze the samples for temperature, pH, specific conductance, SO_4, TDS, and Cl:*

- *Piezometers: PZ-1, PZ-5, PZ-6, PZ-7, PZ-9, PZ-10, PZ-11, PZ-12, and PZ-13*
- *Monitoring Wells: C-2507, C-2811, and WQSP-6A*

Ground water sample collection, preservation, transport and analysis shall be performed according to the following procedure:

a) Measure the depth-to-most-shallow ground water from the top of the well casing to the nearest hundredth of a foot.
b) Purge three well volumes of water from the well prior to sample collection.
c) Obtain samples from the well for analysis.
d) Properly prepare, preserve and transport samples.
e) Analyze samples in accordance with the methods authorized in this Discharge Permit.

Depth-to-most-shallow ground water measurements, analytical results, including the laboratory QA/QC summary report, and a facility layout map showing the location and number of each well shall be submitted to NMED in the semi-annual monitoring reports.

The piezometers and monitoring wells, required to be sampled according to Condition 23, were sampled for field and general chemistry in May 2017. Five piezometers and one well were sampled on May 30, 2017, four piezometers and one well were sampled on May 25, 2017, and one well was sampled on June 1, 2017. Results from the laboratory analysis of the water samples are also presented in Table 7.

WQSP-6A was sampled on June 1, 2017 and showed levels of sulfate, chloride, and total dissolved solids at concentrations above the standards of 20.6.2.3103 NMAC, *Standards for Ground Water for Human Health and Domestic Water Supply*. Although the concentrations were higher than the standards, they are less than background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285).

Laboratory analytical results and QA/QC Summary Report are found as a pdf file on the accompanying CD, named "Shallow Surface Water Analytical and QA-QC 1st Half of 2017.pdf". The facility layout map showing the location and number of each well is noted in Figure 1 – DP-831 Facility Layout Map.

Condition 24. *– The permittee shall perform semi-annual ground water sampling from monitoring well WQSP-6A and analyzed for TKN and NO_3. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.*

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

The sample taken from WQSP-6A on June 1, 2017 was also analyzed for TKN and NO_3. Total Kjeldahl nitrogen (TKN) was below the detection limit of 1 mg/L (Table 7). Nitrate was detected at a concentration of 5.27 mg/L, which is below the standards.

The Shallow Subsurface Water identified at the WIPP site has not affected the Dewey Lake groundwater in WQSP-6A based on the consistency of analyzed parameters in WQSP-6A.

Laboratory analytical results and QA/QC Summary Report for WQSP-6A samples are found as a pdf file on the accompanying CD named "Shallow Surface Water Analytical and QA-QC 1st Half of 2017.pdf".

Condition 25. *– Hydrographs shall be submitted annually for all monitoring wells and piezometers covered under Condition 22 of this Discharge Permit. At a minimum, graphs shall include the previous five years of water level data, or for recently installed wells, all data since the well was installed. Data for several wells may be included on one graph.*

The hydrographs of all monitoring wells and piezometers will be included in the second 2017 semi-annual report, which is due February 1, 2018.

Condition 26. *– A potentiometric map for facility area shall be submitted annually. The map shall incorporate the most recent water level data for all monitoring wells and piezometers installed in the shallow subsurface water (SSW).*

The potentiometric map that incorporates the most recent water level data for all monitoring wells and piezometers installed in the shallow subsurface wells will be included in the second 2017 semi-annual report, which is due February 1, 2018.

Condition 27. *– A single table in a paper and electronic format (EXCEL spreadsheet) of water level measurements and water quality data with only those constituents analyzed and water levels measured during a single event shown in columns. Tabulated field measurements to include temperature, pH, and electrical conductivity corrected to 25 degrees Celsius. Monitoring sites shall be shown in rows. The second column shall contain the date of the sampling event. Values exceeding standards shall be bolded. Any constituent not analyzed for a particular site shall be shown as "NA", any site not sampled shall be shown as "NS" with an associated reason, and any site not measured for water levels shall be shown as "NM" with an associated reason.*

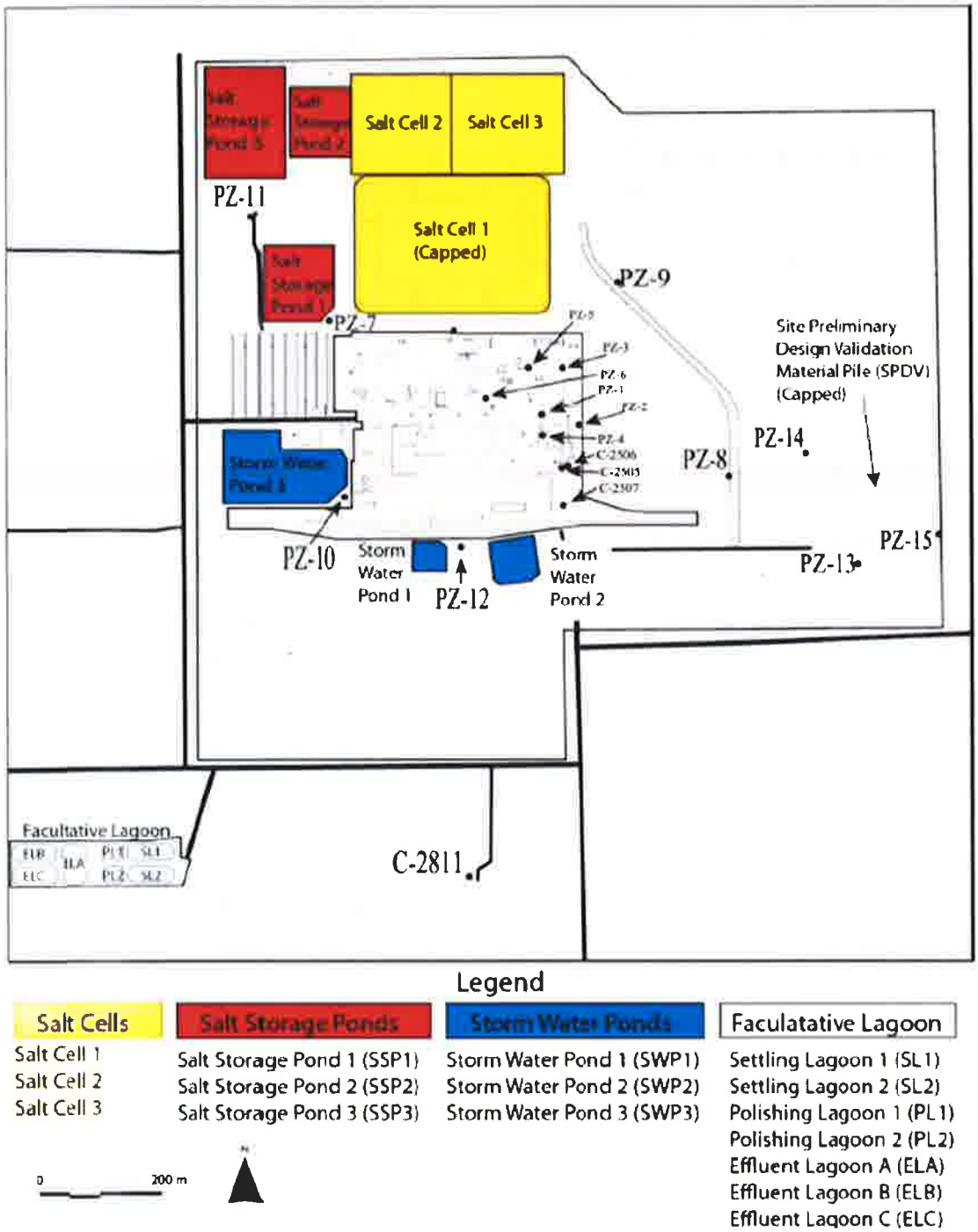
Table 7 – Water Level and Water Quality for Piezometers and Monitoring Wells is included with this report and in electronic Excel format on the accompanying CD. The file name on the CD is "Table 7 Jan-June 2017 WIPP DMR for DP-831."

Condition 28. *– A single table that includes all available ground water data to date shall be submitted annually. For each monitoring well, the name of the well shall be entered in the far left column in a row by itself. Sampling events, beginning with the earliest event first, shall be entered in subsequent rows with the sampling date in the second column and the corresponding analytical data in columns further to the right. Each new sampling event shall be added as an*

additional row to the existing spreadsheet with the corresponding date of the sampling event noted in the second column next to the monitoring well name.

The required table, with the available ground water data to date, will be included in the second 2017 semi-annual report, which is due February 1, 2018.

Figure 1 – DP-831 Facility Layout Map



WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JANUARY 1, 2017 THROUGH JUNE 30, 2017

Table 7 – Water Level and Water Quality for Piezometers and Monitoring Wells

	Field and General Chemistry Parameters								Other	Water Level Feet From Surface	
Monitoring Site	Sample Date	pH	Temp. (°C)	Specific Conductivity @ 25 °C (µS/cm)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)	3/15/17-3/16/17	6/6/17-6/08/17
PZ-1	5/31/2017	6.61	26.87	91,550	NA	**1,890**	**37,600**	**71,200**	NA	40.98	41.09
PZ-2	NS	NS	NS	NS	NS	NS	NS	NS	NS	41.374	41.59
PZ-3	NS	NS	NS	NS	NS	NS	NS	NS	NS	43.78	43.91
PZ-4	NS	NS	NS	NS	NS	NS	NS	NS	NS	44.45	44.6
PZ-5	5/31/2017	7.33	24.83	58,740	NA	**737**	**4,470**	**10,300**	NA	42.18	42.35
PZ-6	5/31/2017	6.98	25.59	93,770	NA	**1,230**	**21,000**	**39,300**	NA	42.35	42.56
PZ-7	5/30/2017	6.49	22.47	96,950	NA	**2,890**	**59,800**	**111,000**	NA	35.78	35.82
PZ-8	NS	NS	NS	NS	NS	NS	NS	NS	NS	62.65	62.54
PZ-9	5/30/2017	6.34	29.98	83,770	NA	**5,200**	**113,000**	**169,000**	NA	58.74	58.54
PZ-10	5/30/2017	7.43	23.10	5,628	NA	203	173	998	NA	36.45	36.95
PZ-11	5/30/2017	6.93	23.68	94,550	NA	**911**	**18,000**	**40,000**	NA	42.71	43.05
PZ-12	5/30/2017	7.11	22.73	35,850	NA	509	**2,470**	**6,100**	NA	49.92	51.13
PZ-13	5/31/2017	Bailed			NA	**2,730**	**150,000**	**251,000**	NA	67.49	65.21
PZ-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	67.77	66.93
PZ-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	46.74	46.93
C-2811	5/30/2017	7.27	21.94	16,570	NA	479	**1,020**	**3,100**	NA	49.37	49.75
C-2505	NS	NS	NS	NS	NS	NS	NS	NS	NS	43.99	44.18
C-2506	NS	NS	NS	NS	NS	NS	NS	NS	NS	43.282	43.43
C-2507	5/31/2017	7.19	23.58	44,840	NA	**683**	**3,490**	**8,020**	NA	43.92	44.04
WQSP-6A	6/1/2017	6.93	22.64	14,040	5.27	**1,870**	**322**	**3,380**	<1.0	167.93	168.21
Explanation:	NA: Not Analyzed, parameter not required, per permit conditions.										
	NS: Not Sampled, not required per permit conditions										
	PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty using Low-Flow pumps										
	"**Bold**" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply										
	NR: Water levels were not recorded for this period, as wells were not accessible										

04753

Discharge to Facultative Lagoon System
January through June 2017

Date	Gallons Domestic	Gallons for the Month	Avg. Gal per day
1/1 - 1/8	46,309		
1/9 - 1/15	65,871		
1/16 - 1/22	66,255		
1/23 - 1/29	73,153	251,588	8,116
1/30 - 2/5	18,474		
2/6 - 2/12*	60,814		
2/13 - 2/19*	60,814		
2/20 - 2/26*	60,814	200,916	7,176
2/27 - 3/5*	60,814		
3/6 - 3/12	11,138		
3/13 - 3/19	50,276		
3/20 - 3/26	63,126		
3/27 - 4/2	60,711	246,065	7,030
4/3 - 4/9	126,156		
4/10 - 4/16	63,017		
4/17 - 4/23	56,980		
4/24 - 4/30	65,294	311,447	11,123
5/1 - 5/7	135,959		
5/8 - 5/14	65,797		
5/15 - 5/21	76,102		
5/22 - 5/28	70,669	348,527	12,447
5/29 - 6/4	63,956		
6/5 - 6/11	58,580		
6/12 - 6/18	62,401		
6/19 - 6/25	60,008		
6/26 - 7/2	62,059	307,004	8,772
	Total Flow	1,665,547	

*Gallons Domestic water estimated by using the average of January and March known flows.
The domestice water flow meter was malfunctioning.

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

MASTER COPY

Start Date: 04/2017 End Date: 07/02/17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1		1	2	1		1	2	1	2	1	2
				REVIEWER															
				FOT	C/O														
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	SEC	SEC													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	↓	↓													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5															
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		/		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①		①		①		①		①		①		①		①
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	48	69	69	69	69	67	69	69	69	69	69	69	69	69	69
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		56445		67194												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		60008		62059												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	3 ②	0 ②		262 ②		0 ②		0 ②		0 ②		0 ②		0 ②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	300 ①	0 ①		2600 ①		0 ①		0 ①		0 ①		0 ①		0 ①	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.84	.86		.80		.78		.81		.71		.88		1.17	

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: 1) CHLORINATOR TAGGED
2) AR# 1429890

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 6-19-17 End Date: 6-25-17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER		AC		AC		AC		AC							
		FOT	C/O		LD		R.T.										
ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	SEC	SEC												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5														
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5														
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]				✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		①		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	69	68	69	67	69	68	69	68	69	68	68	68	68	68
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)	RESET MONDAY [A]			77035		56465											
DOMESTIC WATER GALLONS (gal)	RESET MONDAY [A]			62401		6000											
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	0 ②		0 ②		11 ②		110 ②		0 ②		10 ②		10 ②		3 ②
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	0 ②		0 ②		1100 ②		1100 ②		0 ②		1000 ②		1000 ②		300 ②
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.99		.96		.89		.86		0.7		.85		.84		.86

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① CHLORINATOR TAGGED
② AR # 1629890

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

MASTER COPY

Start Date: 6-12-18 End Date: 6-18-17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER															
		FOT	C/O		RT											RT	
ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	Sec.	SEC												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	↓	↓												
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	↓	↓												
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓	✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		①		①	②		①		①		①		①		①
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	69	69	69	69.43	68	68	69	68	68	69	69	69	69	69
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)	RESET MONDAY [A]			58244		73035											
DOMESTIC WATER GALLONS (gal)	RESET MONDAY [A]			58580		62401											
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	25 ②		6 ②	0 ①	13 ③		131 ④		0 ②		2 ②		0 ②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	2500 ③		600 ③	1610 ④	1300 ④		13100 ⑤		0		200 ⑤		0 ③	
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.79		.70 ③	.99	1.20		1.19		1.10		1.09		.99	

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Chlorinator tagged
② AR # 16298 90
③ Added chlorine

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 06/05/17 End Date: 06/11/17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		JD		JT	TS	JRC		JT	TS	AC	CB	DC	MM	AC	RT
				FOT	C/O														
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	SEC	SEC													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	↓	↓													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	↓	↓													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		(1)		(1)		(1)		(1)		(1)		(1)		(1)		(1)
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	68	68	68	64	69	69	69	68	69	69	69	69	69	69	69
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		62561		58244												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		63956		58580												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	0 (2)		0 (2)		11 (2)		76 (2)		78 (2)		420 (2)		0 (2)		25 (2)
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	100 (2)		100 (2)		1100 (2)		7600 (2)		7800 (2)		42000 (2)		2400		2500 (2)
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.84		.81		.77		.76		.90		.83		.84		.79

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) Chlorinator tagged
(2) AR# 162980

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 5-29-17 End Date: 06-04-17

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

				SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
			DAY															
			SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
			REVIEWER		MM								PM		PM			
			FOT	C/O	LD			LD										
ITEM	MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	sec	sec													
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5															
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5															
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		/		✓		✓		/		-	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		(1)		(1)		(1)		(1)		(1)		(1)		(1)		(1)
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	68	67	67	68	68	68	67	68	68	67	67	68	67	67	68
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		59887		68541												
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		70669		43956												
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	0 (2)		1 (2)		1 (2)		0 (2)		10 (2)		0 (2)		10 (2)		0 (2)
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	0 (2)		100 (2)		100 (2)		100 (2)		1000 (2)		100 (2)		1000 (2)		100 (2)
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	1.1		1.09		.90		.86		.89		.80		.87		.84

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) Chlorinator TAGGed
(2) AR# 1629890

APPROVED FOR USE/DATE: Scott Ashton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

MASTER COPY

Start Date: 5/22/17 End Date: 5/28/17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		ND		AK	ND	AK	ND	AK	ND						
				FOT	C/O				RT.				RT.				MC		95
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	SEC	SEC													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5															
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5															
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①		①		①		①		①		①		①		①
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	68	66	67	67	67	67	68	66	67	67	67	68	68	68	68
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		69501		59887												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		76102		70469												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	0 ②		0 ②		2 ②		2 ②		17 ②		0 ②		0 ②		0 ②
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	0 ②		0 ②		200 ②		200 ②		1700 ②		0 ②		0 ②		0 ②
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.74		.88		.80		.89		.83		.84		.72		1.1

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① CHLORINATOR TAGGED
② AR# 1629890

APPROVED FOR USE/DATE: Scott Sattler 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

MASTER COPY

Start Date: 5/15/17 End Date: 5/21/17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O														
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	SEC	SEC													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	↓	↓													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	↓	↓													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		—		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①		①		①		①		①		①		①		①
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	67	64	67	65	65 ③	65	67	67	67	66	68	68	68	68	68
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			56164		69531												
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			65797		76102												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	0 ②		0 ②		120 ②		0 ②		0 ②		0 ②		0 ②		0 ②
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	0 ②		0 ②		12000		0 ②		0 ②		0 ②		0 ②		0 ②
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	1.1		.97		③		.90		.83		.80		.76		.74

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① CHLORINATOR TAGGED
② AR # 1629890
③ DW outage to fix gauge

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 5/8/17 (17 Cont 6/28/17) End Date: 5/14/17 (Cont 6/28/17)

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		AM	AM	JR	AT	JR	AT	JR	PJP	AM	AM	AM	AM	AM	AM
				FOT	C/O			LD				LD			RT	LD	RT		
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	SEC	SEC													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	↓	↓													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5															
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①		①		①		①		①		①		①		①
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	67	66	67	67	67	67	68	67	67	66	67	67	67	67	67
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		1410325.99		56164.35												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		135959.58		65792.35												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	1609		1637		2		0 ②		0 ②		2		1		0 ②
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	160900		163300		200		0		0		200		100		0
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.94		.90		.87		.77		1.2		1.08		1.12		1.1

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① chlorinator tagged
② AR# 1629890

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 05/01/17 End Date: 05/07/17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
DAY				2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
SHIFT					N	P/P			N				P/P		P/P		P/P	
REVIEWER																		
FOT				C/O		93	KM	LD	R.T.				~		~		93	
ITEM	MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	0	SEC													
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	0	↓													
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	.02	↓													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		✓		✓		~		~		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		①		①		①		①		①		①		①		①
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	67	67	67	66	67	66	66	67	68	69	67	67	67	66	67
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		69130.0		140705.99												
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		65294.0		135959.58												
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	0 ②		280 ②		88 ②		90 ②		213		607		311		1609
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	0 ②		28000		8800		9000		21300		60700		31100		160900
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	1.01		.97		.89		.83		.85		.80		.77		.94

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: 1) chlorinator Tag
2) AR# 1629840

APPROVED FOR USE/DATE: Scott Sitta 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 04/24/17 End Date: 04/30/17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		AM		AM		AM									
				FOT	C/O	CO		CO		CD		RT		CD		CD			
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	.07	.02													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①		①		①		①		①		①		①		①
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	67	64	67	66	67	66	67	67	67	67	67	67	67	67	67
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			82375		69130												
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			56980		65294												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	0 ①②		39 ②	0 ②		0 ③		34 ②		84 ②		656 ②		0 ②③	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	0 ②③		3900	0 ③		0 ③		8400		8400		65600		0 ③	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	1.06		1.02	.95		.98		.72④		1.07		1.03		1.01	

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
① CHLORINATOR IS TAGGED
② AR# 162 9840
③ FSM NOTIFIED
④ added chlorine

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 4.17.17 End Date: 4.23.17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O														
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	.02	.02													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①		①		①		①		①		①		①		①
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	67	67	67	66	67	67	67	67	67	67	67	66	67	67	67
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			73319.46		82375												
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			63016.94		56980												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	②		②		②		②		③		③		③		③
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	②		② 4100		② 5600		② 12200		23400		28100		28100		00
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.88		.80		.79		673		.74		1.17		1.10		1.04

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Chlorinator is tagged ② A.R.# 10279340 ③ FSM Notified

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY COPY

Start Date: 4/10/17 End Date: 4/16/17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER		JJ	AM	JJ	AM	JJ	AM	JJ	PJP	AM	MM	AM	MM	AM	MM
		FOT	C/O	BT	AM	LD	BT	BT	AM	LD	BT	AM	E.T.	AM	Q	AM	KM
ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	0	0												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	0	0												
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	.02	.02												
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		✓		✓		✓		✓		✓
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		✓		✓		②		②		②		②		②	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	66	63	64	68	67	66	67	67	68	67	67	68	68	66	67
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)	RESET MONDAY [A]			106429		73319.46											
DOMESTIC WATER GALLONS (gal)	RESET MONDAY [A]			126156		43616.94											
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	0 0		0 0		4 0		4 0		10 0		0 0		0 0	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	0 0		0 0		4000		4000		1000 0		0 0		0 0	
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.78		.89		.92		.94		.84		.89		.90		.86

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① AR# 1629840 ② CHLORINATOR TAGGED

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

MASTER COPY

Start Date: 04/03/17 End Date: 04/09/17

Location:	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
456, PUMPHOUSE BUILDING	REVIEWER		[illegible]	PAD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	FOT	C/O	R.T.	~	R.T.	LD	[illegible]	[illegible]	R.T.	LD	~	~	[illegible]	[illegible]	~	~

ITEM	MIN	NORM	MAX	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[F]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	0	.02													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		/		✓		~		✓		~	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	67	67	67	67	67	66	66	66	67	67	66	67	67	67	66
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		55966		106429												
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		60711		126156												
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	0 ①		2 ①		18 ①		0 ①		0 ①		0 ①		0 ①		0 ①
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	0 ①		200 ①		1800 ①		0 ①		0 ①		0 ①		0 ①		0 ①
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	1.10		1.09		.96		.88		.86		.81		.76		.78

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① AR # 1629840
② Chlorinator tank # 2 has a leak AR # 1736774

APPROVED FOR USE/DATE: [signature] 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

MASTER COPY

Start Date: 3-27-17 End Date: 4-2-17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		AM	BK	AM	AL	AM	AL	AM	AL	JS	PLP	JS	PLP	JS	PLP
				FOT	C/O			CB	R.T.								~		~
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	0	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	67	67	67	66	67	66	67	63	67	67	67	67	67	67	67
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		49990		55966												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		62126		60711												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	0 ①		0 ①		3 ①		0 ①		0 ①		0 ①		0 ①		0 ①
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	0 ①		0 ①		260 ①		0 ①		0 ①		0 ①		0 ①		0 ①
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	1.12		1.08		.96		.96		.94		.73		1.14		1.10

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① AR # 1629840

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

MASTER COPY

Start Date: 3/20/17 End Date: 3/26/17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		MP	mc					MP							
				FOT	C/O		R.T.							R.T.	LD				LD
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	0	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	67	67	67	66	67	65	67	66	66	67	67	67	67	67	67
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			53326		49990												
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			50276		62126												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	0 (1)		87		0 (1)		0 0		0 0		0 (1)		0 (1)		0 (1)
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	0 (1)		8700		0 (1)		0 (1)		0 (1)		0 (1)		0 (1)		0 (1)
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.79		.74		.95		.91		.88		.81		.81		1.12

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) AR # 1629840

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 031317 End Date: 031917

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER		JF	AM	JF	AM	JF	AM	JF	AM	AM	MM	AM	MM	AM	MM
		FOT	C/O	JF	KB	LD	GS	JF	M	LD	GS	KB	O	KB	KM	KB	O
ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	0	0												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	0	0												
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	0	0												
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		✓		✓		✓		✓		✓
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	65	65	68	68	67	67	68	67	67	67	67	67	67	67
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)	RESET MONDAY [A]			47995,3		53326											
DOMESTIC WATER GALLONS (gal)	RESET MONDAY [A]			11138,2		50276											
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	0 ①		0 ①		0 ①		0 ①		1 ①		0 ①		0 ①	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	0 ①		0 ①		0 ①		0 ①		100 ①		0 ①		0 ①	
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.89		.78		.97		.84		.83		.78		.73		.79

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① AR 1629840

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

MASTER COPY

Start Date: 030617 End Date: 031217

Location:	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
456, PUMPHOUSE BUILDING	REVIEWER		NL	AL	NL	AL	NL	AL	NL	AL	AL	AW	AL	AW	AL	AW
	FOT	C/O	R.T.	93			RM		R.T.				93			

ITEM	MIN	NORM	MAX	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	0	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	68	65	68	68	68	64	66	68	68	68	68	68	68	68	65
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		49020.25		47995.34												
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		0		11138.26												
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	0 ①		3		0 ①		0 ①		0 ①		0 ①		0 ①		0 ①
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	0 ①		300		0 ①		0 ①		0 ①		0 ①		0 ①		0 ①
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	1.17		1.18		1.06		1.0		.90		.84		.86		.89

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① FSM NOTIFIED

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 2/27/17 End Date: 3/5/17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER		MW	BB	MW	AP	MW	AP	MW	AP	JK	AT	JD	AT	KD	AT
		FOT	C/O		LD	CB	ET				JM	LD	MC	LD	M	KD	BB
ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	0	0												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	0	0												
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	0	0												
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		✓		✓		✓		✓		✓
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	68	67	68	66	68	67	68	68	68	68	68	68	68	68
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)		RESET MONDAY [A]		52157.04		49020.25											
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		0		0											
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	0 ①	0 ①	0 ①	0 ①	0 ①	0 ①	0 ①	0 ①	0 ①	0 ①	0 ①	0 ①	0 ①	0 ①
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	0 ①	0 ①	0 ①	0 ①	0 ①	0 ①	0 ①	0 ①	0 ①	0 ①	0 ①	0 ①	0 ①	0 ①
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.84	.73	.74	.71			.89		.78		1.11		1.17	

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① FSM NOTIFIED

APPROVED FOR USE/DATE: Scott Sitter 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

MASTER COPY

Start Date: 2/20/17 End Date: 2/26/17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O														
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	0	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	68	69	69	68	68	69	68	69	68	68	68	68	68	68	68
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		59778		52157.04												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		0		0												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	00		0 0		0 0		0 0		0 0		0 0		0 0		0 0
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	00		0 0		0 0		0 0		0 0		0 0		0 0		0 0
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.83		.74		1.0		.95		.98		.89		.90		.84

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① FSM NOTIFIED

APPROVED FOR USE/DATE: Scott Sitterle 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 2/13/17 End Date: 2/19/17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER															
		FOT	C/O														
ITEM	MIN	NORM / MAX															
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E] 0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E] 0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E] 0.5	0	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]				✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]	✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E] 70	68	68	68	68	68	67	68	68	67	68	68	68	68	68	68
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)	RESET MONDAY [A]		55009		59778												
DOMESTIC WATER GALLONS (gal)	RESET MONDAY [A]		0		0												
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B] 230	0		0		0		0		0		0		0		0
[NMED, DP-831] Max 23,000 gal (Reading × 100)		23,000	0		0		0		0		0		0		0		0
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C] 1.2	.96		.95		.90		.79		.76		.59 (2)		.87		.83

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① FSM Notified ② adding cL-2, fsm notified

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 2/6/17 End Date: 2/12/17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER		N	PJP	N	PG	N	JC	N	JC	PJP	AW	PJP	AW	L	AW
		FOT	C/O	R.T.	L	R.T.	LD	R.T.				L	L	GS	L	L	

ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	0	0												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	0	0												
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	0	0												
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					(3)	✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	68	67	67	65	68	67	68	68	68	67	67	68	68	67	68
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)	RESET MONDAY [A]			13490		55007											
DOMESTIC WATER GALLONS (gal)	RESET MONDAY [A]			18474		0											
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	0(1)		0 (1)		0 (1)		0 (1)		0 (1)		0 (1)		0 (1)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	0(1)		0 (1)		0 (1)		0 (1)		0 (1)		0 (1)		0 (1)	
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	1.42 (2)		1.29 (2)		1.22 (2)		1.1		1.1		1.0		1.2	.96

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) Notified FSM
(2) Adding water FSM notified
(3) begin to security alert not work FSM notified.

APPROVED FOR USE/DATE: (3/14/16) 2.03.16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

MASTER COPY

Start Date: 1-30-17 End Date: 2-5-17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2		2
				REVIEWER		AW	AW	AW	AW	AW	AW	AW	AW	JS	PJP	JS	PJP	JS	PJP
				FOT	C/O	KH	BT	KH	KM	K.T. R.T. 2-1-17	R.T.	KH	KM	KH	JM	LD	93	LD	MC
ITEM	MIN	NORM	MAX																
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5		0	0													
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5		0	0													
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5		0	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						(2)		(2)		(2)		(2)		(2)		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS [F]		SAT [G]			✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70		68	69	67	66	67	67	67	67	68	67	67	68	67	68	68
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS (gal)		RESET MONDAY [A]			119728.46		13490												
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]			73153.12		18474												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING	N/A	[B]	230		0 ①		0 ①		0 ①		13		17		11 ② 2-2-17		0 ①		2 ①
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000		0 ①		0 ①		0 ①		1300		1700		1100		0 ①		0 ①
HACH TEST KIT																			
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2		.94		.94		.86		.85		.77		1.49 ③		1.49 ③		1.42 ③

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Notified FSM
② ALT CMS down due to CMS outage — working good 2-4-17
③ Adding water FSM notified

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 1/23/17 End Date: 1/29/17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O														
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	0	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		(2)		1/31/17 mlc ✓ (2)	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	67	68	68	68	67	63	67	68	67	68	68	68	68	68	68
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		55349.45		119728.46												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		65871.29		73153.12												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	0 (1)		0 (1)		10 (1)		0 (1)		0 (1)		0 (1)		0 (1)		0 (1)
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	0 (1)		0 (1)		1800		0 (1)		0 (1)		0 (1)		0 (1)		0 (1)
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.93		.84		1.1		1.0		1.0		1.0		.99		.94

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) notified FSM
(2) off line due to CMS outage.

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 1-16-17 End Date: 1-22-17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O			LD		LD				LD					
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	0	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	67	67	67	66	67	67	67	67	66	67	66	67	68	68	68
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			55349.45	46300													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			65871.24	6.2558													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	0			0		3		0		0		0		0	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	0			0		300		0		0		0		0	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.93	.89		.91		.93		.97		1.06		.95		.87	

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① FSM, notified FSM

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

MASTER COPY

Start Date: 010917 End Date: 011517

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		MP	MP												
				FOT	C/O			RM				RM							
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	0	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	67	66	67	68	67	68	67	65	68	67	67	67	67	67	67
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			36918		55349.45												
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			44309		65871.24												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	0 ①		22		0 ①		0 ①		0 ①		① ①		0 ①		0 ①
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	0 ①		2200		0 ①		0 ①		0 ①		① ①		0 ①		0 ②
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.84		.81		.87		.74		.87		.81		.87		.93

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: 1) FSM notified

APPROVED FOR USE/DATE: 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

MASTER COPY

Start Date: 1/2/17 End Date: 1/8/17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O		LO								MK			97	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	0	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	67	67	68	67	67	65	67	66	67	67	67	68	68	65	68
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			37144		36918												
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			50328		46309												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	0		0		0 ①		0 ①		0 ①		0 ①		9		0 ①
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	0		0		0 ①		0 ①		0 ①		0 ①		900		0 ①
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	1.12		1.16		1.03		1.02		1.03		.96		.81		.84

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① FSM NOTIFIED

APPROVED FOR USE/DATE: [signature] 3/14/16

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

June 13, 2017

Greg Jungclaus
Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL:
FAX

RE: 502542-4 OrderNo.: 1705C95

Dear Greg Jungclaus:

Hall Environmental Analysis Laboratory received 8 sample(s) on 5/25/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Workorder Sample Summary

WO#: **1705C95**
13-Jun-17

CLIENT: Waste Isolation Pilot Plant
Project: 502542-4

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1705C95-001	EC-SL2-20170524-1.3		5/24/2017 8:44:00 AM	5/25/2017 9:00:00 AM	Aqueous
1705C95-002	EC-SL2-20170524-2.3		5/24/2017 8:40:00 AM	5/25/2017 9:00:00 AM	Aqueous
1705C95-003	EC-SL2-20170524-3.3		5/24/2017 8:47:00 AM	5/25/2017 9:00:00 AM	Aqueous
1705C95-004	EC-ELB-20170524-1.1		5/24/2017 8:15:00 AM	5/25/2017 9:00:00 AM	Aqueous
1705C95-005	EC-ELC-20170524-1.2		5/24/2017 8:23:00 AM	5/25/2017 9:00:00 AM	Aqueous
1705C95-006	EC-ELC-20170524-2.2		5/24/2017 8:23:00 AM	5/25/2017 9:00:00 AM	Aqueous
1705C95-007	EC-H19-20170524-1.1		5/24/2017 9:48:00 AM	5/25/2017 9:00:00 AM	Aqueous
1705C95-008	EC-BLK-20170524-1.1		5/24/2017 8:53:00 AM	5/25/2017 9:00:00 AM	Aqueous

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-SL2-20170524-1.3
Project: 502542-4
Collection Date: 5/24/2017 8:44:00 AM
Lab ID: 1705C95-001
Matrix: AQUEOUS
Received Date: 5/25/2017 9:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Nitrogen, Nitrate (As N)	ND	0.11	0.50		mg/L	5	5/25/2017 6:39:51 PM	R43067

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-SL2-20170524-2.3
Project: 502542-4
Collection Date: 5/24/2017 8:40:00 AM
Lab ID: 1705C95-002
Matrix: AQUEOUS
Received Date: 5/25/2017 9:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
SM 4500 NORG C: TKN							Analyst: **CJS**	
Nitrogen, Kjeldahl, Total	120	2.2	5.0	D	mg/L	1	6/1/2017 10:39:00 AM	32021

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-SL2-20170524-3.3
Project: 502542-4
Collection Date: 5/24/2017 8:47:00 AM
Lab ID: 1705C95-003
Matrix: AQUEOUS
Received Date: 5/25/2017 9:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	100	2.5	5.0		mg/L	10	5/25/2017 7:04:40 PM	R43067
Sulfate	46	0.96	5.0		mg/L	10	5/25/2017 7:04:40 PM	R43067
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	370	118	200	D	mg/L	1	6/1/2017 4:41:00 PM	32045

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-ELB-20170524-1.1
Project: 502542-4
Collection Date: 5/24/2017 8:15:00 AM
Lab ID: 1705C95-004
Matrix: AQUEOUS
Received Date: 5/25/2017 9:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	130000	5000	10000		mg/L	2E+0	6/5/2017 2:17:42 PM	R43274
Sulfate	90000	480	2500		mg/L	5000	6/8/2017 2:46:47 AM	R43344
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	360000	1180	2000	*D	mg/L	1	6/1/2017 4:41:00 PM	32045

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-ELC-20170524-1.2
Project: 502542-4
Collection Date: 5/24/2017 8:23:00 AM
Lab ID: 1705C95-005
Matrix: AQUEOUS
Received Date: 5/25/2017 9:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	190000	12000	25000		mg/L	5E+0	6/5/2017 2:30:07 PM	R43274
Sulfate	62000	480	2500		mg/L	5000	6/8/2017 2:59:12 AM	R43344
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	332000	1180	2000	*D	mg/L	1	6/1/2017 4:41:00 PM	32045

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-ELC-20170524-2.2
Project: 502542-4
Collection Date: 5/24/2017 8:23:00 AM
Lab ID: 1705C95-006
Matrix: AQUEOUS
Received Date: 5/25/2017 9:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Chloride	170000	5000	10000		mg/L	2E+0	6/5/2017 2:42:31 PM	R43274
Sulfate	67000	480	2500		mg/L	5000	6/8/2017 3:11:37 AM	R43344
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	340000	1180	2000	*D	mg/L	1	6/1/2017 4:41:00 PM	32045

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-H19-20170524-1.1
Project: 502542-4
Collection Date: 5/24/2017 9:48:00 AM
Lab ID: 1705C95-007
Matrix: AQUEOUS
Received Date: 5/25/2017 9:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	340000	5000	10000		mg/L	2E+0	5/25/2017 9:21:13 PM	R43067
Sulfate	330	48	250		mg/L	500	5/31/2017 1:50:51 AM	A43150
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	475000	1180	2000	*D	mg/L	1	6/1/2017 4:41:00 PM	32045

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-BLK-20170524-1.1
Project: 502542-4
Collection Date: 5/24/2017 8:53:00 AM
Lab ID: 1705C95-008
Matrix: AQUEOUS
Received Date: 5/25/2017 9:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	ND	0.25	0.50		mg/L	1	5/25/2017 9:33:37 PM	R43067
Sulfate	0.11	0.096	0.50	J	mg/L	1	5/25/2017 9:33:37 PM	R43067
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	ND	11.8	20.0		mg/L	1	6/1/2017 4:41:00 PM	32045

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

DATES REPORT

WO#: **1705C95**

13-Jun-17

Client: Waste Isolation Pilot Plant

Project: 502542-4

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1705C95-001A	EC-SL2-20170524-1.3	5/24/2017 8:44:00 AM	Aqueous	EPA Method 300.0: Anions			5/25/2017 6:52:16 PM
				EPA Method 300.0: Anions			5/25/2017 6:39:51 PM
1705C95-002A	EC-SL2-20170524-2.3	5/24/2017 8:40:00 AM		SM 4500 Norg C: TKN		5/30/2017 11:36:07 AM	6/1/2017 10:39:00 AM
1705C95-003A	EC-SL2-20170524-3.3	5/24/2017 8:47:00 AM		EPA Method 300.0: Anions			5/25/2017 7:04:40 PM
				EPA Method 300.0: Anions			5/25/2017 7:17:05 PM
				SM2540C MOD: Total Dissolved Soli		5/31/2017 11:41:58 AM	6/1/2017 4:41:00 PM
1705C95-004A	EC-ELB-20170524-1.1	5/24/2017 8:15:00 AM		EPA Method 300.0: Anions			5/25/2017 7:54:19 PM
				EPA Method 300.0: Anions			6/8/2017 2:46:47 AM
				EPA Method 300.0: Anions			6/5/2017 2:17:42 PM
				EPA Method 300.0: Anions			6/2/2017 4:24:59 AM
				EPA Method 300.0: Anions			5/25/2017 8:06:44 PM
				EPA Method 300.0: Anions			5/31/2017 12:48:47 AM
				SM2540C MOD: Total Dissolved Soli		5/31/2017 11:41:58 AM	6/1/2017 4:41:00 PM
1705C95-005A	EC-ELC-20170524-1.2	5/24/2017 8:23:00 AM		EPA Method 300.0: Anions			5/31/2017 1:01:11 AM
				EPA Method 300.0: Anions			6/2/2017 4:37:24 AM
				EPA Method 300.0: Anions			5/25/2017 8:19:09 PM
				EPA Method 300.0: Anions			6/5/2017 2:30:07 PM
				EPA Method 300.0: Anions			6/8/2017 2:59:12 AM
				EPA Method 300.0: Anions			5/25/2017 8:31:33 PM
				SM2540C MOD: Total Dissolved Soli		5/31/2017 11:41:58 AM	6/1/2017 4:41:00 PM
1705C95-006A	EC-ELC-20170524-2.2			EPA Method 300.0: Anions			6/2/2017 4:49:49 AM
				EPA Method 300.0: Anions			6/5/2017 2:42:31 PM
				EPA Method 300.0: Anions			5/31/2017 1:38:26 AM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

DATES REPORT

WO#: **1705C95**

13-Jun-17

Client: Waste Isolation Pilot Plant

Project: 502542-4

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1705C95-006A	EC-ELC-20170524-2.2	5/24/2017 8:23:00 AM	Aqueous	EPA Method 300.0: Anions			5/25/2017 8:56:23 PM
				EPA Method 300.0: Anions			5/25/2017 8:43:58 PM
				EPA Method 300.0: Anions			6/8/2017 3:11:37 AM
				SM2540C MOD: Total Dissolved Soli		5/31/2017 11:41:58 AM	6/1/2017 4:41:00 PM
1705C95-007A	EC-H19-20170524-1.1	5/24/2017 9:48:00 AM		EPA Method 300.0: Anions			5/25/2017 9:08:48 PM
				EPA Method 300.0: Anions			5/25/2017 9:21:13 PM
				EPA Method 300.0: Anions			5/31/2017 1:50:51 AM
				SM2540C MOD: Total Dissolved Soli		5/31/2017 11:41:58 AM	6/1/2017 4:41:00 PM
1705C95-008A	EC-BLK-20170524-1.1	5/24/2017 8:53:00 AM		EPA Method 300.0: Anions			5/25/2017 9:46:02 PM
				EPA Method 300.0: Anions			5/25/2017 9:33:37 PM
				SM2540C MOD: Total Dissolved Soli		5/31/2017 11:41:58 AM	6/1/2017 4:41:00 PM

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1705C95**

13-Jun-17

Client: Waste Isolation Pilot Plant

Project: 502542-4

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R43067**	RunNo: **43067**
Prep Date:	Analysis Date: **5/25/2017**	SeqNo: **1355888** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R43067**	RunNo: **43067**
Prep Date:	Analysis Date: **5/25/2017**	SeqNo: **1355889** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.7	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.5	90	110			
Sulfate	9.6	0.50	10.00	0	96.0	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A43150**	RunNo: **43150**
Prep Date:	Analysis Date: **5/30/2017**	SeqNo: **1358200** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	0.13	0.50								J

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A43150**	RunNo: **43150**
Prep Date:	Analysis Date: **5/30/2017**	SeqNo: **1358201** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	10	0.50	10.00	0	100	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R43274**	RunNo: **43274**
Prep Date:	Analysis Date: **6/5/2017**	SeqNo: **1362207** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R43274**	RunNo: **43274**
Prep Date:	Analysis Date: **6/5/2017**	SeqNo: **1362208** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.7	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1705C95**

13-Jun-17

Client: Waste Isolation Pilot Plant

Project: 502542-4

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R43344**	RunNo: **43344**
Prep Date:	Analysis Date: **6/7/2017**	SeqNo: **1364768** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R43344**	RunNo: **43344**
Prep Date:	Analysis Date: **6/7/2017**	SeqNo: **1364769** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	104	90	110			
Chloride	4.7	0.50	5.000	0	94.8	90	110			
Nitrogen, Nitrite (As N)	0.93	0.10	1.000	0	93.2	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	96.3	90	110			
Sulfate	9.6	0.50	10.00	0	96.1	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1705C95**

13-Jun-17

Client: Waste Isolation Pilot Plant

Project: 502542-4

Sample ID **MB-32045**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **32045**	RunNo: **43199**
Prep Date: **5/31/2017**	Analysis Date: **6/1/2017**	SeqNo: **1359898** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-32045**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **32045**	RunNo: **43199**
Prep Date: **5/31/2017**	Analysis Date: **6/1/2017**	SeqNo: **1359899** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1000	20.0	1000	0	100	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1705C95**

13-Jun-17

Client: Waste Isolation Pilot Plant

Project: 502542-4

Sample ID	**MB-32021**	SampType:	**MBLK**	TestCode:	**SM 4500 Norg C: TKN**					
Client ID:	**PBW**	Batch ID:	**32021**	RunNo:	**43193**					
Prep Date:	**5/30/2017**	Analysis Date:	**6/1/2017**	SeqNo:	**1359816**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	1.0								

Sample ID	**LCS-32021**	SampType:	**LCS**	TestCode:	**SM 4500 Norg C: TKN**					
Client ID:	**LCSW**	Batch ID:	**32021**	RunNo:	**43193**					
Prep Date:	**5/30/2017**	Analysis Date:	**6/1/2017**	SeqNo:	**1359817**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10	1.0	10.00	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: WIPP | Work Order Number: 1705C95 | RcptNo: 1

Received By: **Anne Thorne** 5/25/2017 9:00:00 AM

Completed By: **Anne Thorne** 5/25/2017 9:37:16 AM

Reviewed By: AJ 5/25/17

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☑	No ☐	Not Present ☐
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	FedEx		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 1

(<2 or >12 unless noted)

Adjusted? NO

Checked by: Re

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

CHAIN-OF-CUSTODY RECORD

C of C Control № 10126

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

RFA Control № 10126

SAMPLING PROGRAM ENVIRONMENTAL

LAB DESTINATION 11-5-2847 ~~WIPP Lab~~ Hall Environmental Lab (HEAL)

SAMPLE TEAM MEMBERS Jerome Hernandez, Stacey Britain

CARRIER/WAYBILL NO. 11-5-2847 ~~Hand~~ Fed-Ex HEAL # 1705C95

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)
EC-SL2-20170524 - 1.3	Settling Lagoon 2	5-24-17 0844	Sewage	1 Liter	-001
2.3		0840		500 mL	-002
3.3		0847			-003
EC-ELB-20170524 - 1.1	Evaporation Lagoon B	0815			-004
EC-ELC-20170524 - 1.2	C	0823			-005
2.2	C	0823			-006
EC-H19-20170524- 1.1	H-19	0948			-007
EC-BLK-20170524 - 1.1	Blank	0853	Blank		-008

Special Instructions: Do Nitrate (1 Liter Settling Lagoon 2, 1.3) within 48 hours of time collected (5-24-17 0844)

Possible Sample Hazards: ☐ Radiological ☒ Bio-Hazard Sewage Sample

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Jerome Hernandez NWP 5-24-17 1300
   Received By: [signature] 05/25/17 09.00 1.0°C
2. Relinquished By: _____
   Received By: _____
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: _____

WP 02-EM3001- Environmental Monitoring | WHITE - Original to accompany samples | YELLOW - Field copy | PINK - Other

NICHOLS PRINTING INC.

04798

REQUEST FOR ANALYSIS

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED 5-24-17 RFA Control Nº 10126

LAB DESTINATION Hall Environmetal

LABORATORY CONTACT Andy Freeman

SEND LAB REPORT TO NWP C of C Control Nº 10126

P.O. Box 2078 m/s 452-09

Carlsbad, New Mexico 88221

DATE REPORT REQUIRED Per S.O.W

PROJECT CONTACT C/o Greg Jungclaus

PROJECT CONTACT PHONE NO (575)234-8615

SAMPLING PROGRAM ENVIRONMENTAL

PURCHASE ORDER NO. 502542-4

HEAL # 1705C95

Sample Number	Sample Type	Sample Quantity	Preservative	Req't. Testing Program	Special Instructions
EC-SL2-20170524- 1.3	Sewage	1 Liter	≤4°C	Nitrate	maximum hold time 48 hr
2.3		500 mL	H_2SO_4 to pH≤2, ≤4°C	TKN	N/A 002
3.3			≤4°C	Sulfate, Chloride, TDS	003
EC-ELB-20170524- 1.1					004
EC-ELC-20170524- 1.2					005
2.2					006
EC-H19-20170524- 1.1					007
EC-BLK-20170524 1.1	Blank				008

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL X RUSH _____ (Subject in rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NONHAZARD _____ RADIOLOGICAL _____ FLAMMABLE _____ SKIN IRRITANT _____ HIGHLY TOXIC _____ BIOLOGICAL X OTHER _____ (Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT _____ DISPOSAL BY LAB X

FOR LAB USE ONLY

RECEIVED BY [signature] DATE/TIME 05/25/17 09.00

1.0°C

WP 02-EM3001- Environmental Monitoring | WHITE - Original to accompany samples | YELLOW - Field copy | PINK - Other

NICHOLS PRINTING INC

04799

Water Level Measurement Field Data Sheet

From January to June Year 2017

Pond Name	Date	Time	Water Depth (ft)	Initials	Comments
Salt Storage Pond 2	1/11/17	1400	20.72	RJ	
Salt Storage Pond 3	"	1404	31.77	RJ	
Salt Storage Pond 2	2/17/17	0910	21.40	RJ	
Salt Storage Pond 3	"	0920	33.19	RJ	
Salt Storage Pond 2	3/16/17	0921	27.54	RJ	
Salt Storage Pond 3	"	0930	41.26	RJ	
Salt Storage Pond 2	4/5/17	1006	43.63	RJ	Water pumped from Sump #2 on April 4-13
Salt Storage Pond 3	"	1000	32.60	RJ	
Salt Storage Pond 2	5/18/17	1506	29.85	RJ	
Salt Storage Pond 3	5/18/17	1455	641.41	RJ	Water Pumped from Sump #3 on April 18-May 15
Salt Storage Pond 2	6/8/17	1119	30.70	RJ	
Salt Storage Pond 3	6/8/17	1130	38.83	RJ	

Performer: Print Name: Richard Jimenez Signature: [signature]

Performer: Print Name: Signature:

Performer: Print Name: Signature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

June 13, 2017

Brett Seal
Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8966
FAX

RE: SSW Sampling R27 OrderNo.: 1706086

Dear Brett Seal:

Hall Environmental Analysis Laboratory received 16 sample(s) on 6/2/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Workorder Sample Summary

WO#: **1706086**

13-Jun-17

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R27

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1706086-001	SSWC 28 11 R27N1		5/30/2017 8:41:00 AM	6/2/2017 7:20:00 AM	Aqueous
1706086-002	SSW PZ12 R27N1		5/30/2017 9:48:00 AM	6/2/2017 7:20:00 AM	Aqueous
1706086-003	SSW PZ10 R27N1		5/30/2017 10:53:00 AM	6/2/2017 7:20:00 AM	Aqueous
1706086-004	SSW PZ9 R27N1		5/30/2017 2:58:00 PM	6/2/2017 7:20:00 AM	Aqueous
1706086-005	SSW PZ7 R27N1		5/30/2017 12:21:00 PM	6/2/2017 7:20:00 AM	Aqueous
1706086-006	SSW PZ13 R27N1		5/31/2017 7:55:00 AM	6/2/2017 7:20:00 AM	Aqueous
1706086-007	SSW PZ11 R27N1		5/30/2017 4:23:00 PM	6/2/2017 7:20:00 AM	Aqueous
1706086-008	SSW PZ11 R27N1EB		5/30/2017 4:28:00 PM	6/2/2017 7:20:00 AM	Aqueous
1706086-009	SSW C2507 R27N1		5/31/2017 10:05:00 AM	6/2/2017 7:20:00 AM	Aqueous
1706086-010	SSW PZ1 R27N1		5/31/2017 11:18:00 AM	6/2/2017 7:20:00 AM	Aqueous
1706086-011	SSW PZ5 R27N1		5/31/2017 2:14:00 PM	6/2/2017 7:20:00 AM	Aqueous
1706086-012	SSW PZ5 R27N1D		5/31/2017 2:17:00 PM	6/2/2017 7:20:00 AM	Aqueous
1706086-013	SSW PZ5 R27N1EB		5/31/2017 2:30:00 PM	6/2/2017 7:20:00 AM	Aqueous
1706086-014	SSW PZ6 R27N1		5/31/2017 12:33:00 PM	6/2/2017 7:20:00 AM	Aqueous
1706086-015	SSW WQSP6A R27N1		6/1/2017 8:18:00 AM	6/2/2017 7:20:00 AM	Aqueous
1706086-016	SSW WQSP6A R27N2		6/1/2017 8:20:00 AM	6/2/2017 7:20:00 AM	Aqueous

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWC 28 11 R27N1
Project: SSW Sampling R27
Collection Date: 5/30/2017 8:41:00 AM
Lab ID: 1706086-001
Matrix: AQUEOUS
Received Date: 6/2/2017 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	1020	50.0	100		mg/L	200	6/5/2017 3:24:23 PM	R43275
Sulfate	479	0.960	5.00		mg/L	10	6/5/2017 3:11:59 PM	R43275
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	3100	11.8	20.0	*	mg/L	1	6/7/2017 7:28:00 PM	32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSW PZ12 R27N1
Project: SSW Sampling R27
Collection Date: 5/30/2017 9:48:00 AM
Lab ID: 1706086-002
Matrix: AQUEOUS
Received Date: 6/2/2017 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	2470	250	500		mg/L	1000	6/5/2017 4:14:01 PM	R43275
Sulfate	509	9.60	50.0		mg/L	100	6/5/2017 4:01:36 PM	R43275
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	6100	59.1	100	*D	mg/L	1	6/7/2017 7:28:00 PM	32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSW PZ10 R27N1
Project: SSW Sampling R27
Collection Date: 5/30/2017 10:53:00 AM
Lab ID: 1706086-003
Matrix: AQUEOUS
Received Date: 6/2/2017 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	173	2.50	5.00		mg/L	10	6/5/2017 4:26:26 PM	R43275
Sulfate	203	0.960	5.00		mg/L	10	6/5/2017 4:26:26 PM	R43275
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	998	11.8	20.0	*	mg/L	1	6/7/2017 7:28:00 PM	32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSW PZ9 R27N1
Project: SSW Sampling R27
Collection Date: 5/30/2017 2:58:00 PM
Lab ID: 1706086-004
Matrix: AQUEOUS
Received Date: 6/2/2017 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	113000	2500	5000		mg/L	1E+0	6/5/2017 5:03:40 PM	R43275
Sulfate	5200	96.0	500		mg/L	1000	6/5/2017 4:51:15 PM	R43275
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	169000	1180	2000	*D	mg/L	1	6/7/2017 7:28:00 PM	32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSW PZ7 R27N1
Project: SSW Sampling R27
Collection Date: 5/30/2017 12:21:00 PM
Lab ID: 1706086-005
Matrix: AQUEOUS
Received Date: 6/2/2017 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	59800	2500	5000		mg/L	1E+0	6/5/2017 5:28:30 PM	R43275
Sulfate	2890	96.0	500		mg/L	1000	6/5/2017 5:16:05 PM	R43275
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	111000	1180	2000	*D	mg/L	1	6/7/2017 7:28:00 PM	32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSW PZ13 R27N1
Project: SSW Sampling R27
Collection Date: 5/31/2017 7:55:00 AM
Lab ID: 1706086-006
Matrix: AQUEOUS
Received Date: 6/2/2017 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	150000	2500	5000		mg/L	1E+0	6/5/2017 5:53:19 PM	R43275
Sulfate	2730	96.0	500		mg/L	1000	6/5/2017 5:40:55 PM	R43275
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	251000	1180	2000	*D	mg/L	1	6/7/2017 7:28:00 PM	32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSW PZ11 R27N1
Project: SSW Sampling R27
Collection Date: 5/30/2017 4:23:00 PM
Lab ID: 1706086-007
Matrix: AQUEOUS
Received Date: 6/2/2017 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	18000	2500	5000		mg/L	1E+0	6/5/2017 6:42:59 PM	R43275
Sulfate	911	96.0	500		mg/L	1000	6/5/2017 6:30:34 PM	R43275
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	40000	1180	2000	*D	mg/L	1	6/7/2017 7:28:00 PM	32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSW PZ11 R27N1EB
Project: SSW Sampling R27
Collection Date: 5/30/2017 4:28:00 PM
Lab ID: 1706086-008
Matrix: AQUEOUS
Received Date: 6/2/2017 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	1.22	0.250	0.500		mg/L	1	6/5/2017 6:55:24 PM	R43275
Sulfate	0.171	0.0960	0.500	J	mg/L	1	6/5/2017 6:55:24 PM	R43275
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	ND	11.8	20.0		mg/L	1	6/7/2017 7:28:00 PM	32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSW C2507 R27N1
Project: SSW Sampling R27
Collection Date: 5/31/2017 10:05:00 AM
Lab ID: 1706086-009
Matrix: AQUEOUS
Received Date: 6/2/2017 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	3490	250	500		mg/L	1000	6/5/2017 7:57:27 PM	R43275
Sulfate	683	9.60	50.0		mg/L	100	6/5/2017 7:45:02 PM	R43275
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	8020	59.1	100	*D	mg/L	1	6/7/2017 7:28:00 PM	32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSW PZ1 R27N1
Project: SSW Sampling R27
Collection Date: 5/31/2017 11:18:00 AM
Lab ID: 1706086-010
Matrix: AQUEOUS
Received Date: 6/2/2017 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	37600	500	1000		mg/L	2000	6/5/2017 8:22:16 PM	R43275
Sulfate	1890	9.60	50.0		mg/L	100	6/5/2017 8:09:51 PM	R43275
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	71200	1180	2000	*D	mg/L	1	6/7/2017 7:28:00 PM	32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSW PZ5 R27N1
Project: SSW Sampling R27
Collection Date: 5/31/2017 2:14:00 PM
Lab ID: 1706086-011
Matrix: AQUEOUS
Received Date: 6/2/2017 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	4470	250	500		mg/L	1000	6/5/2017 9:11:55 PM	R43275
Sulfate	737	9.60	50.0		mg/L	100	6/5/2017 8:59:30 PM	R43275
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	10300	118	200	*D	mg/L	1	6/7/2017 7:28:00 PM	32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSW PZ5 R27N1D
Project: SSW Sampling R27
Collection Date: 5/31/2017 2:17:00 PM
Lab ID: 1706086-012
Matrix: AQUEOUS
Received Date: 6/2/2017 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	4990	250	500		mg/L	1000	6/5/2017 9:36:45 PM	R43275
Sulfate	790	9.60	50.0		mg/L	100	6/5/2017 9:24:20 PM	R43275
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	10200	118	200	*D	mg/L	1	6/7/2017 7:28:00 PM	32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSW PZ5 R27N1EB
Project: SSW Sampling R27
Collection Date: 5/31/2017 2:30:00 PM
Lab ID: 1706086-013
Matrix: AQUEOUS
Received Date: 6/2/2017 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	ND	0.250	0.500		mg/L	1	6/5/2017 9:49:10 PM	R43275
Sulfate	0.183	0.0960	0.500	J	mg/L	1	6/5/2017 9:49:10 PM	R43275
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	ND	11.8	20.0		mg/L	1	6/7/2017 7:28:00 PM	32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSW PZ6 R27N1
Project: SSW Sampling R27
Collection Date: 5/31/2017 12:33:00 PM
Lab ID: 1706086-014
Matrix: AQUEOUS
Received Date: 6/2/2017 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	21000	500	1000		mg/L	2000	6/5/2017 10:26:24 PM	R43275
Sulfate	1230	9.60	50.0		mg/L	100	6/5/2017 10:14:00 PM	R43275
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	39300	1180	2000	*D	mg/L	1	6/7/2017 7:28:00 PM	32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSW WQSP6A R27N1
Project: SSW Sampling R27
Collection Date: 6/1/2017 8:18:00 AM
Lab ID: 1706086-015
Matrix: AQUEOUS
Received Date: 6/2/2017 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	322	5.00	10.0		mg/L	20	6/3/2017 1:35:21 AM	R43245
Nitrogen, Nitrate (As N)	5.27	0.0215	0.100		mg/L	1	6/3/2017 1:22:57 AM	R43245
Sulfate	1870	4.80	25.0		mg/L	50	6/5/2017 10:38:49 PM	R43275
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	3380	23.6	40.0	*D	mg/L	1	6/7/2017 7:28:00 PM	32136

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSW WQSP6A R27N2
Project: SSW Sampling R27
Collection Date: 6/1/2017 8:20:00 AM
Lab ID: 1706086-016
Matrix: AQUEOUS
Received Date: 6/2/2017 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Nitrate+Nitrite as N	4.78	0.130	1.00		mg/L	5	6/5/2017 11:40:54 PM	A43275
SM 4500 NORG C: TKN							Analyst: **CJS**	
Nitrogen, Kjeldahl, Total	ND	0.440	1.00		mg/L	1	6/6/2017 3:53:00 PM	32138

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

DATES REPORT

WO#: **1706086**

13-Jun-17

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R27

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1706086-001A	SSWC 28 11 R27N1	5/30/2017 8:41:00 AM	Aqueous	EPA Method 300.0: Anions			6/5/2017 3:24:23 PM
				EPA Method 300.0: Anions			6/5/2017 3:11:59 PM
				SM2540C MOD: Total Dissolved Soli		6/6/2017 10:47:54 AM	6/7/2017 7:28:00 PM
1706086-002A	SSW PZ12 R27N1	5/30/2017 9:48:00 AM		EPA Method 300.0: Anions			6/5/2017 4:01:36 PM
				EPA Method 300.0: Anions			6/5/2017 4:14:01 PM
				SM2540C MOD: Total Dissolved Soli		6/6/2017 10:47:54 AM	6/7/2017 7:28:00 PM
1706086-003A	SSW PZ10 R27N1	5/30/2017 10:53:00 AM		EPA Method 300.0: Anions			6/5/2017 4:26:26 PM
				EPA Method 300.0: Anions			6/5/2017 4:38:51 PM
				SM2540C MOD: Total Dissolved Soli		6/6/2017 10:47:54 AM	6/7/2017 7:28:00 PM
1706086-004A	SSW PZ9 R27N1	5/30/2017 2:58:00 PM		EPA Method 300.0: Anions			6/5/2017 4:51:15 PM
				EPA Method 300.0: Anions			6/5/2017 5:03:40 PM
				SM2540C MOD: Total Dissolved Soli		6/6/2017 10:47:54 AM	6/7/2017 7:28:00 PM
1706086-005A	SSW PZ7 R27N1	5/30/2017 12:21:00 PM		EPA Method 300.0: Anions			6/5/2017 5:16:05 PM
				EPA Method 300.0: Anions			6/5/2017 5:28:30 PM
				SM2540C MOD: Total Dissolved Soli		6/6/2017 10:47:54 AM	6/7/2017 7:28:00 PM
1706086-006A	SSW PZ13 R27N1	5/31/2017 7:55:00 AM		EPA Method 300.0: Anions			6/5/2017 5:40:55 PM
				EPA Method 300.0: Anions			6/5/2017 5:53:19 PM
				SM2540C MOD: Total Dissolved Soli		6/6/2017 10:47:54 AM	6/7/2017 7:28:00 PM
1706086-007A	SSW PZ11 R27N1	5/30/2017 4:23:00 PM		EPA Method 300.0: Anions			6/5/2017 6:30:34 PM
				EPA Method 300.0: Anions			6/5/2017 6:42:59 PM
				SM2540C MOD: Total Dissolved Soli		6/6/2017 10:47:54 AM	6/7/2017 7:28:00 PM
1706086-008A	SSW PZ11 R27N1EB	5/30/2017 4:28:00 PM		EPA Method 300.0: Anions			6/5/2017 6:55:24 PM
				EPA Method 300.0: Anions			6/5/2017 7:32:37 PM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

DATES REPORT

WO#: **1706086**

13-Jun-17

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R27

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1706086-008A	SSW PZ11 R27N1EB	5/30/2017 4:28:00 PM	Aqueous	SM2540C MOD: Total Dissolved Soli		6/6/2017 10:47:54 AM	6/7/2017 7:28:00 PM
1706086-009A	SSW C2507 R27N1	5/31/2017 10:05:00 AM		EPA Method 300.0: Anions			6/5/2017 7:57:27 PM
				EPA Method 300.0: Anions			6/5/2017 7:45:02 PM
				SM2540C MOD: Total Dissolved Soli		6/6/2017 10:47:54 AM	6/7/2017 7:28:00 PM
1706086-010A	SSW PZ1 R27N1	5/31/2017 11:18:00 AM		EPA Method 300.0: Anions			6/5/2017 8:09:51 PM
				EPA Method 300.0: Anions			6/5/2017 8:22:16 PM
				SM2540C MOD: Total Dissolved Soli		6/6/2017 10:47:54 AM	6/7/2017 7:28:00 PM
1706086-011A	SSW PZ5 R27N1	5/31/2017 2:14:00 PM		EPA Method 300.0: Anions			6/5/2017 8:59:30 PM
				EPA Method 300.0: Anions			6/5/2017 9:11:55 PM
				SM2540C MOD: Total Dissolved Soli		6/6/2017 10:47:54 AM	6/7/2017 7:28:00 PM
1706086-012A	SSW PZ5 R27N1D	5/31/2017 2:17:00 PM		EPA Method 300.0: Anions			6/5/2017 9:24:20 PM
				EPA Method 300.0: Anions			6/5/2017 9:36:45 PM
				SM2540C MOD: Total Dissolved Soli		6/6/2017 10:47:54 AM	6/7/2017 7:28:00 PM
1706086-013A	SSW PZ5 R27N1EB	5/31/2017 2:30:00 PM		EPA Method 300.0: Anions			6/5/2017 9:49:10 PM
				EPA Method 300.0: Anions			6/5/2017 10:01:35 PM
				SM2540C MOD: Total Dissolved Soli		6/6/2017 10:47:54 AM	6/7/2017 7:28:00 PM
1706086-014A	SSW PZ6 R27N1	5/31/2017 12:33:00 PM		EPA Method 300.0: Anions			6/5/2017 10:14:00 PM
				EPA Method 300.0: Anions			6/5/2017 10:26:24 PM
				SM2540C MOD: Total Dissolved Soli		6/6/2017 10:47:54 AM	6/7/2017 7:28:00 PM
1706086-015A	SSW WQSP6A R27N1	6/1/2017 8:18:00 AM		EPA Method 300.0: Anions			6/3/2017 1:22:57 AM
				EPA Method 300.0: Anions			6/3/2017 1:35:21 AM
				EPA Method 300.0: Anions			6/5/2017 10:38:49 PM
				SM2540C MOD: Total Dissolved Soli		6/6/2017 10:47:54 AM	6/7/2017 7:28:00 PM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

DATES REPORT

WO#: **1706086**

13-Jun-17

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R27

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1706086-016A	SSW WQSP6A R27N2	6/1/2017 8:20:00 AM	Aqueous	EPA Method 300.0: Anions			6/5/2017 11:40:54 PM
				SM 4500 Norg C: TKN		6/6/2017 10:45:58 AM	6/6/2017 3:53:00 PM

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706086**

13-Jun-17

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R27

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R43245**	RunNo: **43245**							
Prep Date:	Analysis Date: **6/2/2017**	SeqNo: **1361340**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.6	0.50	8.000	0	94.9	90	110			
Nitrogen, Nitrate (As N)	4.7	0.10	4.800	0	97.6	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R43245**	RunNo: **43245**							
Prep Date:	Analysis Date: **6/2/2017**	SeqNo: **1361342**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R43245**	RunNo: **43245**							
Prep Date:	Analysis Date: **6/2/2017**	SeqNo: **1361343**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.4	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	98.5	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R43245**	RunNo: **43245**							
Prep Date:	Analysis Date: **6/2/2017**	SeqNo: **1361352**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	100	90	110			
Nitrogen, Nitrate (As N)	7.5	0.10	7.200	0	104	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R43245**	RunNo: **43245**							
Prep Date:	Analysis Date: **6/2/2017**	SeqNo: **1361364**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.5	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	96.3	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R43245**	RunNo: **43245**							
Prep Date:	Analysis Date: **6/2/2017**	SeqNo: **1361376**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706086**

13-Jun-17

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R27

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R43245**	RunNo: **43245**
Prep Date:	Analysis Date: **6/2/2017**	SeqNo: **1361376** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	95.9	90	110			
Nitrogen, Nitrate (As N)	4.8	0.10	4.800	0	100	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R43245**	RunNo: **43245**
Prep Date:	Analysis Date: **6/3/2017**	SeqNo: **1361388** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	100	90	110			
Nitrogen, Nitrate (As N)	7.7	0.10	7.200	0	106	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R43245**	RunNo: **43245**
Prep Date:	Analysis Date: **6/3/2017**	SeqNo: **1361400** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	93.0	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	96.4	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R43275**	RunNo: **43275**
Prep Date:	Analysis Date: **6/5/2017**	SeqNo: **1362277** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	11	0.50	12.00	0	95.2	90	110			
Sulfate	29	0.50	30.00	0	96.5	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R43275**	RunNo: **43275**
Prep Date:	Analysis Date: **6/5/2017**	SeqNo: **1362278** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	11	0.50	12.00	0	95.5	90	110			
Sulfate	29	0.50	30.00	0	96.9	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R43275**	RunNo: **43275**
Prep Date:	Analysis Date: **6/5/2017**	SeqNo: **1362280** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706086**

13-Jun-17

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R27

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R43275**	RunNo: **43275**
Prep Date:	Analysis Date: **6/5/2017**	SeqNo: **1362280** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R43275**	RunNo: **43275**
Prep Date:	Analysis Date: **6/5/2017**	SeqNo: **1362281** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.4	90	110			
Sulfate	9.5	0.50	10.00	0	94.9	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R43275**	RunNo: **43275**
Prep Date:	Analysis Date: **6/5/2017**	SeqNo: **1362290** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.5	0.50	5.000	0	90.7	90	110			
Sulfate	12	0.50	12.50	0	93.2	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R43275**	RunNo: **43275**
Prep Date:	Analysis Date: **6/5/2017**	SeqNo: **1362302** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.6	0.50	8.000	0	95.4	90	110			
Sulfate	19	0.50	20.00	0	97.2	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R43275**	RunNo: **43275**
Prep Date:	Analysis Date: **6/5/2017**	SeqNo: **1362314** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	101	90	110			
Sulfate	30	0.50	30.00	0	102	90	110			

Sample ID **1706086-008AMS**	SampType: **ms**	TestCode: **EPA Method 300.0: Anions**
Client ID: **SSW PZ11 R27N1E**	Batch ID: **R43275**	RunNo: **43275**
Prep Date:	Analysis Date: **6/5/2017**	SeqNo: **1362319** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706086**

13-Jun-17

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R27

Sample ID	**1706086-008AMS**	SampType:	**ms**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**SSW PZ11 R27N1E**	Batch ID:	**R43275**		RunNo:	**43275**				
Prep Date:		Analysis Date:	**6/5/2017**		SeqNo:	**1362319**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.49	0.500	5.000	1.217	85.5	80.8	121			
Sulfate	9.25	0.500	10.00	0.1714	90.8	87.1	118			

Sample ID	**1706086-008AMSD**	SampType:	**msd**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**SSW PZ11 R27N1E**	Batch ID:	**R43275**		RunNo:	**43275**				
Prep Date:		Analysis Date:	**6/5/2017**		SeqNo:	**1362320**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.67	0.500	5.000	1.217	89.1	80.8	121	3.17	20	
Sulfate	9.61	0.500	10.00	0.1714	94.4	87.1	118	3.82	20	

Sample ID	**A4**	SampType:	**ccv_4**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**BatchQC**	Batch ID:	**R43275**		RunNo:	**43275**				
Prep Date:		Analysis Date:	**6/5/2017**		SeqNo:	**1362326**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.0	90	110			
Sulfate	12	0.50	12.50	0	95.0	90	110			

Sample ID	**A5**	SampType:	**ccv_5**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**BatchQC**	Batch ID:	**R43275**		RunNo:	**43275**				
Prep Date:		Analysis Date:	**6/5/2017**		SeqNo:	**1362337**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.7	90	110			
Sulfate	20	0.50	20.00	0	98.5	90	110			

Sample ID	**MB**	SampType:	**mblk**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**PBW**	Batch ID:	**A43275**		RunNo:	**43275**				
Prep Date:		Analysis Date:	**6/5/2017**		SeqNo:	**1362339**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	ND	0.20								

Sample ID	**LCS**	SampType:	**lcs**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**LCSW**	Batch ID:	**A43275**		RunNo:	**43275**				
Prep Date:		Analysis Date:	**6/5/2017**		SeqNo:	**1362340**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.4	0.20	3.500	0	97.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706086**

13-Jun-17

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R27

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R43275**	RunNo: **43275**
Prep Date:	Analysis Date: **6/6/2017**	SeqNo: **1362349** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	102	90	110			
Sulfate	31	0.50	30.00	0	102	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R43275**	RunNo: **43275**
Prep Date:	Analysis Date: **6/6/2017**	SeqNo: **1362361** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.4	90	110			
Sulfate	12	0.50	12.50	0	95.9	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R43275**	RunNo: **43275**
Prep Date:	Analysis Date: **6/6/2017**	SeqNo: **1362369** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	96.9	90	110			
Sulfate	20	0.50	20.00	0	98.6	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706086**

13-Jun-17

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R27

Sample ID	**MB-32136**	SampType:	**MBLK**		TestCode:	**SM2540C MOD: Total Dissolved Solids**				
Client ID:	**PBW**	Batch ID:	**32136**		RunNo:	**43331**				
Prep Date:	**6/6/2017**	Analysis Date:	**6/7/2017**		SeqNo:	**1363993**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	**LCS-32136**	SampType:	**LCS**		TestCode:	**SM2540C MOD: Total Dissolved Solids**				
Client ID:	**LCSW**	Batch ID:	**32136**		RunNo:	**43331**				
Prep Date:	**6/6/2017**	Analysis Date:	**6/7/2017**		SeqNo:	**1363994**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Sample ID	**1706086-001AMS**	SampType:	**MS**		TestCode:	**SM2540C MOD: Total Dissolved Solids**				
Client ID:	**SSWC 28 11 R27N1**	Batch ID:	**32136**		RunNo:	**43331**				
Prep Date:	**6/6/2017**	Analysis Date:	**6/7/2017**		SeqNo:	**1363996**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	4080	20.0	1000	3100	98.1	80	120			

Sample ID	**1706086-001AMSD**	SampType:	**MSD**		TestCode:	**SM2540C MOD: Total Dissolved Solids**				
Client ID:	**SSWC 28 11 R27N1**	Batch ID:	**32136**		RunNo:	**43331**				
Prep Date:	**6/6/2017**	Analysis Date:	**6/7/2017**		SeqNo:	**1363997**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	4080	20.0	1000	3100	97.9	80	120	0.0490	5	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706086**

13-Jun-17

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R27

Sample ID	**MB-32138**	SampType: **MBLK**			TestCode: **SM 4500 Norg C: TKN**					
Client ID:	**PBW**	Batch ID: **32138**			RunNo: **43312**					
Prep Date:	**6/6/2017**	Analysis Date: **6/6/2017**			SeqNo: **1363354**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	1.0								

Sample ID	**LCS-32138**	SampType: **LCS**			TestCode: **SM 4500 Norg C: TKN**					
Client ID:	**LCSW**	Batch ID: **32138**			RunNo: **43312**					
Prep Date:	**6/6/2017**	Analysis Date: **6/6/2017**			SeqNo: **1363355**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10	1.0	10.00	0	101	80	120			

Sample ID	**1706086-016AMS**	SampType: **MS**			TestCode: **SM 4500 Norg C: TKN**					
Client ID:	**SSW WQSP6A R27**	Batch ID: **32138**			RunNo: **43312**					
Prep Date:	**6/6/2017**	Analysis Date: **6/6/2017**			SeqNo: **1363359**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10.1	1.00	10.00	0	101	75	125			

Sample ID	**1706086-016AMSD**	SampType: **MSD**			TestCode: **SM 4500 Norg C: TKN**					
Client ID:	**SSW WQSP6A R27**	Batch ID: **32138**			RunNo: **43312**					
Prep Date:	**6/6/2017**	Analysis Date: **6/6/2017**			SeqNo: **1363360**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	9.94	1.00	10.00	0	99.4	75	125	1.40	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: WIPP | Work Order Number: 1706086 | RcptNo: 1

Received By: **Anne Thorne** 6/2/2017 7:20:00 AM

Completed By: **Anne Thorne** 6/2/2017 7:49:08 AM

Reviewed By: 6/2/17

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☑	No ☐	Not Present ☐
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	FedEx		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 1
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	(<2 or >12 unless noted) Adjusted? no
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: SRC

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

CHAIN OF CUSTODY RECORD

№ 1104

Page 1 of 2

Project Number:	Project Name:
T502542-2	SSW Sampling R27

Sampler(s): Bret Seal, Allen Hall

Analytical Laboratory: HEAL, Albuquerque NM

Sample Date	Sample Time	Matrix	Sample Number	Total Number of Containers	TDS	Chlorides	Sulfates and Sulfides SW-1	Comments
5-30-17	0841	SW	SSW C2811 R27NI	1	X	X	X	Use for MS/MSD 1706086-001
5-30-17	0948		SSW PZ12 R27NI	1	X	X	X	-002
5-30-17	1053		SSW PZ10 R27NI	1	X	X	X	-003
5-30-17	1458		SSW PZ9 R27NI	1	X	X	X	-004
5-30-17	1221		SSW PZ7 R27NI	1	X	X	X	-005
5-31-17	0755		SSW PZ13 R27NI	1	X	X	X	-006
5-30-17	1623		SSW PZ11 R27NI	1	X	X	X	-007
5-30-17	1628		SSW PZ11 R27NI EB	1	X	X	X	EQUIP BLANK -008
5-31-17	1005		SSW C2507 R27NI	1	X	X	X	-009
5-31-17	1118		SSW PZ1 R27NI	1	X	X	X	-010
5-31-17	1414		SSW PZ5 R27NI	1	X	X	X	-011
5-31-17	1417		SSW PZ5 R27NI D	1	X	X	X	-012
5-31-17	1430		SSW PZ5 R27NI EB	1	X	X	X	Equip Blank -013
5-31-17	1233	↓	SSW PZ6 R27NI	1	X	X	X	-014

Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)
6/1/17 1301	06/02/17 0720		
Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received at Laboratory: (Signature, Date/Time)

Requested Turnaround Time: 30 DAYS

☒ Routine ☐ Rush _____

Sample Disposal:

☐ Return to Client ☒ Disposal by Lab

Carrier / Airbill No.: 8075 2092 2343

Sample Receipt Remarks:

Results To:

Bret Seal
RES
PO Box 2078, MS 452-09
Carlsbad, NM 88221-2078
Phone: 575-234-8866 FAX: 575-234-6003
EDD: Bret.Seal@WIPP.WS

Special Instructions:

High TDS: PZ-7, PZ-11, PZ-9
PZ-6, PZ-5, PZ-13, PZ-1

Report all data to three significant figures.

1.0

WHITE – Analytical Laboratory
DI – Deionized Water
GW – Groundwater

YELLOW – Field Copy
AF – Air Filter(s)
AN – Animal(s)

PINK – Record Copy
SE – Sediment
SO – Soil

SW – Surface Water
VG – Vegetation

04830

CHAIN OF CUSTODY RECORD

№ 1105

Page 2 of 2

Project Number:	Project Name:
T502542-2	SSW Sampling R27

Sampler(s): Brett Seal, Allen Hall

Sample Date	Sample Time	Matrix	Sample Number	Total Number of Containers	TDS	Chlorides	Sulfates	Nitrates	TKN					Analytical Laboratory / Comments
														HEAL Albuquerque NM
6-1-17	0818	SSW	SSW WQSP6A R27N1	1	X	X	X	X						1706086-015
6-1-17	0830	SSW	SSW WQSP6A R27N2	1				X	X					1706086-016

NA ASK

Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)
6/1/17 1301	06/02/17 0120		
Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received at Laboratory: (Signature, Date/Time)

Requested Turnaround Time: 30 Days

☒ Routine ☐ Rush _____

Sample Disposal:

☐ Return to Client ☒ Disposal by Lab

Carrier / Airbill No.: 8075 2092 2743

Sample Receipt Remarks:

Special Instructions: 1.0

Results To:

Brett Seal
RES
PO Box 2078, MS 452-09
Carlsbad, NM 88221-2078
Phone: 575-234-8866 FAX: 575-234-6003
EDD: Brett.Seal@WIPP.ws

WHITE – Analytical Laboratory
DI – Deionized Water
GW – Groundwater

YELLOW – Field Copy
AF – Air Filter(s)
AN – Animal(s)

PINK – Record Copy
SE – Sediment
SO – Soil

SW – Surface Water
VG – Vegetation

04831

Table 7 – Water Level and Water Quality for Piezometers and Monitori

	Field and General Chemistry Parameters							
Monitoring Site	Sample Date	pH	Temp. (°C)	Specific Conductivity @ 25 °C (µS/cm)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)
PZ-1	5/31/2017	6.61	26.87	91,550	NA	**1,890**	**37,600**	**71,200**
PZ-2	NS	NS	NS	NS	NS	NS	NS	NS
PZ-3	NS	NS	NS	NS	NS	NS	NS	NS
PZ-4	NS	NS	NS	NS	NS	NS	NS	NS
PZ-5	5/31/2017	7.33	24.83	58,740	NA	**737**	**4,470**	**10,300**
PZ-6	5/31/2017	6.98	25.59	93,770	NA	**1,230**	**21,000**	**39,300**
PZ-7	5/30/2017	6.49	22.47	96,950	NA	**2,890**	**59,800**	**111,000**
PZ-8	NS	NS	NS	NS	NS	NS	NS	NS
PZ-9	5/30/2017	6.34	29.98	83,770	NA	**5,200**	**113,000**	**169,000**
PZ-10	5/30/2017	7.43	23.10	5,628	NA	203	173	998
PZ-11	5/30/2017	6.93	23.68	94,550	NA	**911**	**18,000**	**40,000**
PZ-12	5/30/2017	7.11	22.73	35,850	NA	509	**2,470**	**6,100**
PZ-13	5/31/2017	Bailed			NA	**2,730**	**150,000**	**251,000**
PZ-14	NS	NS	NS	NS	NS	NS	NS	NS
PZ-15	NS	NS	NS	NS	NS	NS	NS	NS
C-2811	5/30/2017	7.27	21.94	16,570	NA	479	**1,020**	**3,100**
C-2505	NS	NS	NS	NS	NS	NS	NS	NS
C-2506	NS	NS	NS	NS	NS	NS	NS	NS
C-2507	5/31/2017	7.19	23.58	44,840	NA	**683**	**3,490**	**8,020**
WQSP-6A	6/1/2017	6.93	22.64	14,040	5.27	**1,870**	**322**	**3,380**

Explanation:
- NA: Not Analyzed, parameter not required, per permit conditions.
- NS: Not Sampled, not required per permit conditions
- PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty us
- "**Bold**" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Wat
- NR: Water levels were not recorded for this period, as wells were not accessible

ing Wells

Other	Water Level Monitoring (Ft AMSL)	
TKN (mg/L)	3/15/17-3/16/17	6/6/17-6/08/17
NA	3372.30	3372.19
NS	3371.986	3371.77
NS	3372.34	3372.21
NS	3367.56	3367.41
NA	3373.06	3372.89
NA	3370.98	3370.77
NA	3378.06	3378.02
NS	3355.54	3355.65
NA	3362.35	3362.55
NA	3369.28	3368.78
NA	3376.07	3375.73
NA	3359.00	3357.79
NA	3354.75	3357.03
NS	3352.81	3353.65
NS	3384.12	3383.93
NA	3349.47	3349.09
NS	3368.94	3368.75
NS	3369.558	3369.41
NA	3365.99	3365.87
<1.0	3195.87	3195.59

sing Low-Flow pumps

ter Supply

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

FEB 0 1 2018

Ms. Michelle Hunter, Bureau Chief
New Mexico Environment Department
Ground Water Quality Bureau
Harold Runnels Building
1190 Saint Francis Drive
P.O. Box 5469
Santa Fe, NM 87502

Subject: Semi-Annual Discharge Monitoring Report for July 1, 2017, through December 31, 2017, Discharge Permit 831

Dear Ms. Hunter:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Semi-Annual Discharge Monitoring Report, including the required attachments on compact disc, for the period of July 1, 2017, through December 31, 2017. This report is required by Discharge Permit 831.

If you have any questions about this report or require any additional information, please contact me at (575) 234-7488.

Sincerely,

George T. Basabilvazo

George T. Basabilvazo, Director
Environmental Protection Division

Enclosure (2)

cc: w/o enclosures
S. Pullen, NMED GWQB * ED
R. Maestas, NMED ED
CBFO M&RC
*ED denotes electronic distribution

1800229 FEB 0 2 2018

MAIL & RECORDS
CENTER COPY

CBFO:OEP:GTB:AC:18-0306:UFC 5486.00

04834

FEB 0 1 2018

bcc: w/o enclosures

G. Basabilvazo, CBFO	*ED
A. Stone, CBFO	ED
A. Ward, CBFO	ED
D. Cook, NWP	ED
K. Donovan, NWP	ED
M. Gonzales, NWP	ED
B. Hill, NWP	ED
E. Najar, NWP	ED
W. Rodriguez, NWP	ED
B. Shagula, NWP	ED
R. Chavez, RES	ED
J. Haschets, RES	ED
W. Jaco, RES	ED
S. Jones, RES	ED
S. Kouba, RES	ED
W. Most, RES	ED
L. Pastorello, RES	ED
R. Salness, RES	ED
L. Ramos, RES	ED
A. Waldram, RES	ED

*ED denotes electronic distribution

MAIL & RECORDS
CENTER COPY

CBFO:OEP:GTB:AC:18-0306:UFC 5486.00

Waste Isolation Pilot Plant Semi-Annual Discharge Monitoring Report for Discharge Permit DP-831 for Reporting Period July 1, 2017 through December 31, 2017

U.S. Department of Energy

January 2018

MAIL & RECORDS
CENTER COPY

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR
DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2017 THROUGH DECEMBER 31, 2017

REPORTING REQUIREMENTS OF DP-831 OPERATIONAL PLAN

Part B. Applicable to the Facultative Lagoon System

Condition 8. *– The permittee shall measure the thickness of the sludge blanket in each pond of the Facultative Lagoon System once within the effective term of this Discharge Permit, but before the end of 2018. When sludge accumulation exceeds 1/3 of the total depth of any pond, the permittee shall remove the sludge in a manner, which is protective of the pond liner. Removed solids shall be contained, transported, and disposed of in accordance with all local, state, and federal regulations. The permittee shall maintain solids blanket measurements and solids disposal manifests for solids transported from the facility for off-site disposal. The permittee shall submit all measurements and manifests to NMED in the semi-annual monitoring report immediately following the solids thickness measurement.*

Sludge blanket measurements were performed on all of the Facultative Lagoon System ponds on November 29, 2017. None of the sludge blankets reached the 1/3 total depth in any of the ponds. Table 1 shows the measurement points and results of the measurements.

Table 1- Sludge Blanket Measurements of the Facultative Lagoon System and EP H-19

Lagoon	Location	Date	Sludge Thickness (in.)	Maximum Allowable Thickness (in.)*
Evaporative Lagoon A	West Side	11/29/2017	1.00	16
Evaporative Lagoon B	Southeast Side	11/29/2017	0.75	24
Evaporative Lagoon C	Northeast Side	11/29/2017	2.75	24
Polishing Lagoon 1	Weir Platform	11/29/2017	1.25	24
Polishing Lagoon 2	Weir Platform	11/29/2017	4.00	24
Settling Lagoon 1	Weir Platform	11/29/2017	3.25	24
Settling Lagoon 2	Weir Platform	11/29/2017	22.50	24
Evaporation Pond H-19	Northwest Side	11/29/2017	3.00	12

*Maximum allowable thickness corresponds to the 1/3 of the total depth of the lagoon.

Part D. Applicable to the Storm Water Runoff Impoundments in Contact with Salt Stockpiles (Salt Storage Ponds 1, 2, and 3) and Salt Stockpiles (Salt Cells 1, 2, and 3).

Condition 9. *– The permittee shall measure the thickness of the solids blanket in each impoundment once within the effective term of this Discharge Permit, but before the end of 2018. Removed solids shall be contained, transported, and disposed of in accordance with all local, state, and federal regulations. The permittee shall maintain solids blanket measurements and solids disposal manifests for solids transported from the facility for off-site disposal. The permittee shall submit all measurements and manifests to NMED in the semi-annual monitoring report immediately following the solids thickness measurement.*

No sludge measurements occurred during this reporting period. These measurements will be performed in the first quarter of 2018.

Condition 10. *– The permittee shall inspect the leak detection systems for Salt Storage Ponds 2 and 3 on a monthly basis for the presence of liquid. The permittee shall keep a log of the inspection findings and repairs made. The inspection log, including a statement whether or not liquids were observed in the leak detection systems, shall be submitted to NMED in the semi-annual monitoring reports.*

Monthly inspections of the Salt Storage Pond 2 and 3 leak detection systems occurred during this reporting period. Water was observed in both of the leak detection systems. Due to their design, the sumps associated with the leak detection systems cannot be pumped completely dry. Therefore, some water will remain in the sump at all times. Water level is measured in each salt storage pond monthly. Water level is measured in feet from the top of the sump access pipe to the water in the sump. The water levels in both Salt Storage Ponds 2 and 3 had an increase in water levels over the last six months of 0.76 inches and 4.25 inches respectively. These are about 1/3 the normal water level increase rates. No excessive leakage rates were determined. The inspection logs can be found on the accompanying compact disc (CD) as a portable document format (pdf) file named "Salt Pond Sump Inspection 2nd Half 2017.pdf."

There were no repairs required to the leak detection system during this reporting period.

Condition 11. *– The permittee shall conduct regular maintenance of the earthen cover on the Salt Cell 1, and SPDV material pile. Inspections shall be conducted monthly and after storm events of 2 inches or greater in a 24-hour period to evaluate potential erosion and vegetation success of the cover. In the event of significant erosion or failure of vegetative success, the permittee shall provide a plan and schedule for repair within 90 days of discovery. General observations and cover repair shall be reported to NMED.*

The earthen cover of the Salt Cell 1 and the Site and Preliminary Design Validation (SPDV) material pile were inspected monthly for the reporting period July through December. The soil cover overlying the synthetic liner on both piles was noted as needing repair early in the reporting period. The Engineering Department is working on a contract to repair the liners of both Salt Cell 1 and the SPDV Pile. There were no rain events of 2" or greater in a 24 hour period during the reporting period.

REQUIREMENTS OF DP-831 MONITORING AND REPORTING SECTION

Part B. Applicable to the Facultative Sewage Lagoon System

Condition 15. *– The volume of domestic influent discharged to the Facultative lagoon System shall be measured monthly using a totalizing flow meter on the influent line to the system or the totalizing meter that measures total domestic water usage. Volumes of other authorized discharges to the Facultative Lagoon System shall be calculated by a time/volume method or volumetric measurement of the transport container(s). NMED may require comprehensive laboratory analyses of such wastewater prior to discharge when NMED determines that additional information is needed. Monthly meter readings, the*

units of measurement, monthly discharge volumes and other volumetric calculations for the previous 6-month period shall be submitted to NMED semi-annually in the monitoring reports.

Table 2 shows the volume of water discharged to the Facultative Lagoon System for this reporting period. Discharged water volume is based on total domestic water use. No miscellaneous non-hazardous water was discharged to Evaporation Lagoons B or C.

Table 2 – Discharge to Facultative Lagoon System

Month	Volume (gallons)
July	251,616
August	336,066
September	325,490
October	280,976
November	247,936
December	280,976
Total	**1,723,060**

Weekly meter readings of the domestic water meter are found on the accompanying CD as a pdf file named "Domestic Water Usage 2nd Half of 2017.pdf."

Non-hazardous condensate from compressors was discharged into the Facultative Lagoon System. The volume is so low and sporadic that it is not significant.

Condition 16. *– The permittee shall collect a wastewater sample on a semi-annual basis (once every six months) from the influent to the Facultative Lagoon System. The grab sample shall be analyzed for TKN, NO_3-N, SO_4, TDS, and Cl. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.*

Samples were collected from the Settling Lagoon 2 influent which is the influent to the Facultative Lagoon System.

Table 3 – Facultative Lagoon System Analytical Data

Analyte	Sample Date	Settling Lagoon 2 Concentration (mg/L)
TKN	10/18/17	130
NO_3-N	10/18/17	<0.11
SO_4	10/18/17	52
TDS	10/18/17	570
Cl	10/18/17	110

TKN: Total Kjeldahl nitrogen
TDS: Total dissolved solids
ND: Not detected, analyte below the method detection limit

Laboratory analytical results and QA/QC Summary Report for the Facultative Lagoon System are found as a pdf file on the accompanying CD named "Facultative Lagoon and H-19 Analytical and QA-QC.pdf."

Part C. Applicable to the Evaporation Pond H-19 and Storm Water Impoundments Not in Contact with Salt Stockpiles (Storm Water Ponds 1, 2, and 3)

Condition 17. *– The volume and origin of all wastewater discharged to the Evaporation Pond H-19 that is derived from miscellaneous non-hazardous sources shall be measured monthly and reported to NMED. Discharge volumes to the Evaporation Pond H-19 shall be calculated by a time/volume method or volumetric measurement of the transport container(s). NMED may require comprehensive laboratory analyses of such wastewater prior to discharge when NMED determines that additional information is needed. Monthly discharge volumes and other volumetric calculations for the previous 6-month period shall be submitted to NMED semi-annually in the monitoring reports.*

Table 4 shows the volume of miscellaneous non-hazardous water discharged to Evaporation Pond H-19 for this reporting period. This water is from groundwater well pumping (GW), condensate from the Exhaust Shaft ductwork (ES), and Waste Shaft sump water (WS).

Table 4 – Discharge to H-19 Evaporation Pond

Month	Volume (gallons)	Water Origin
July	5,825	WS
August	30,738	GW, ES & WS
September	1,025	ES
October	4,445	WS
November	0	
December	695	WS
Total	**42,728**	

Condition 18. *– A sample shall be collected semi-annually from the Evaporation Pond H-19 and analyzed for SO_4, Cl, and TDS. Samples shall be collected annually after a significant storm event from each of the storm water ponds, Storm Water Ponds 1, 2, and 3 and analyzed for SO_4, Cl, and TDS. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring report.*

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

Table 5 shows results for analytical parameters associated with Evaporation Pond H-19 and Storm Water Ponds 1, 2, and 3.

Table 5 – Storm Water Ponds and Evaporation Pond H-19 Analytical Data

Analyte	Sample Date	Evaporation Pond H-19	Storm Water Pond 1	Storm Water Pond 2	Storm Water Pond 3
SO_4 (mg/L)	10/25/17for SWPs and 10/18/17 for EP H-19	670	13.7	3.45	13.1
Cl (mg/L)	10/25/17for SWPs and 10/18/17 for EP H-19	510,000	174	50.0	96.8
TDS (mg/L)	10/25/17for SWPs and 10/18/17 for EP H-19	451,000	407	160	299

Laboratory analytical results and QA/QC Summary Report for Evaporative Pond H-19 are found on the accompanying CD as a pdf file named "Facultative Lagoon and H-19 Analytical and QA-QC.pdf." The Laboratory analytical results and QA/QC Summary Report for Storm Water Ponds 1, 2, and 3 are found on the accompanying CD as a pdf file named "Salt Storage Pond and Storm Water Ponds Analytical and QA-QC.pdf."

Condition 19. *– The water depth shall be measured monthly to the nearest tenth of a foot (0.1 ft) in the Storm Water ponds 1, 2, and 3. The approximate volume of storm water shall be calculated and submitted to NMED in the semi-annual monitoring reports.*

Table 6 – Storm Water Ponds Depths and Volumes

	July 07/10/17	August 08/15/17	September 09/25/17	October 10/18/17	November 11/14/17	December 12/12/17
Storm Water Pond 1						
Water Depth (ft)	0.0	1.0	1.3	1.2	1.1	0.9
Water Volume (gal)	0	139,128	180,866	166,954	153,041	125,215
Storm Water Pond 2						
Water Depth (ft)	2.9	4.0	4.7	4.7	4.6	4.3
Water Volume (gal)	996,690	1,374,745	1,615,326	1,615,326	1,580,957	1,477,851
Storm Water Pond 3						
Water Depth (ft)	1.2	2.6	3.0	3.0	3.0	2.8
Water Volume (gal)	1,730,872	3,750,223	4,327,180	4,327,180	4,327,180	4,038,701

Part D. Applicable to the Storm Water Runoff Impoundments in Contact with Salt Stockpiles (Salt Storage Ponds 1, 2, and 3) and Salt Stockpiles (Salt Cells 1, 2, and 3)

Condition 20. *– A sample shall be collected annually after a significant storm event from each of the Salt Storage Cells 1, 2, and 3 and analyzed for SO_4, Cl, and TDS. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.*

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

Table 7 – Salt Storage Ponds Analytical Data

Analyte	Salt Storage Pond 1 10/25/17	Salt Storage Pond 2 10/25/17	Salt Storage Pond 3 10/25/17
SO_4 (mg/L)	2,780	9,530	22,800
Cl (mg/L)	146,000	154,000	191,000
TDS (mg/L)	287,000	322,000	360,000

Laboratory analytical results and QA/QC Summary Report for Evaporative Pond H-19 are found on the accompanying CD as a pdf file named "Salt Storage Pond and Storm Water Ponds Analytical and QA-QC.pdf."

Condition 21. *The water depth shall be measured monthly to the nearest tenth of a foot (0.1 ft) in the Salt Storage Ponds 1, 2, and 3. The approximate volume of storm water shall be calculated and submitted to NMED in the semi-annual monitoring reports.*

Table 8 – Salt Storage Ponds Depths and Volumes

	July 07/10/17	August 08/15/17	September 09/25/17	October 10/18/17	November 11/14/17	December 12/12/17
Salt Storage Pond 1						
Water Depth (ft)	0.0	0.3	0.2	0.1	0.3	0.0
Water Volume (gal)	0	341,548	227,699	113,849	341,548	0
Salt Storage Pond 2						
Water Depth (ft)	5.7	5.7	5.8	5.7	5.6	5.6
Water Volume (gal)	2,041,655	2,041,655	2,077,474	2,041,655	2,005,837	2,005,837
Salt Storage Pond 3						
Water Depth (ft)	12.1	12,2	12.2	12.4	12.4	12.4
Water Volume (gal)	13,843,199	12,957,605	12,957,605	14,186,418	14,186,418	14,186,418

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR
DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2017 THROUGH DECEMBER 31, 2017

Ground Water Monitoring and Reports

Condition 22. *– Depth to the water table shall be measured to the nearest hundredth of a foot (0.01 ft) quarterly in the piezometers/monitoring wells:*

- *PZ-1, PZ-2, PZ-3, PZ-4, PZ5, PZ-6, PZ-7, PZ-8, PZ-9, PZ-10, PZ-11, PZ-12, PZ-13, PZ-14 and PZ-15*
- *C-2505, C-2506, C-2507, C-2811, and WQSP-6A*

One piezometer/monitoring well (PZ-6) was not accessible for the third quarter of 2017 due to construction in the area of this well. Safety concerns prevented access to this well.

For depth to the water in the piezometer and monitoring wells, see Table 9 – Monitoring Well Water Levels and Chemical Analyses.

Condition 23. *– The permittee shall perform semi-annual ground water sampling in the following piezometers/monitoring wells and analyze the samples for temperature, pH, specific conductance, SO4, TDS, and Cl:*

- *Piezometers: PZ-1, PZ-5, PZ-6, PZ-7, PZ-9, PZ-10, PZ-11, PZ-12, and PZ-13*
- *Monitoring Wells: C-2507, C-2811, and WQSP-6A*

Ground water sample collection, preservation, transport and analysis shall be performed according to the following procedure:

a) Measure the depth-to-most-shallow ground water from the top of the well casing to the nearest hundredth of a foot.
b) Purge three well volumes of water from the well prior to sample collection.
c) Obtain samples from the well for analysis.
d) Properly prepare, preserve and transport samples.
e) Analyze samples in accordance with the methods authorized in this Discharge Permit.

Depth-to-most-shallow ground water measurements, analytical results, including the laboratory QA/QC summary report, and a facility layout map showing the location and number of each well shall be submitted to NMED in the semi-annual monitoring reports.

One piezometer/monitoring well (PZ-6) was not accessible for water levels during the third quarter of 2017 due to construction in the area of this well. Safety concerns prevented access to this well.

Water levels in the shallow wells (PZ-1 through PZ-5, and PZ-7 through PZ-15, C-2811, C-2505, C-2506, and C-2507) were obtained September 18-20, 2017. The water levels in all of the shallow wells were obtained in December 13-14, 2017. Water levels are included in Table 9 Monitoring Well Water Levels and Chemical Analyses. These were taken in accordance with quarterly milestones outlined in the Ground Water Monitoring Schedule specified in the Discharge Permit renewal, DP-831, dated July 29, 2014. During the reporting period, the water

levels at the shallow subsurface water (SSW) monitoring points showed an average decrease in elevation of 0.02 feet. The drop in water elevation over this reporting period is most likely due to a decrease in precipitation during 2017 when compared to 2016, which was above average.

The SSW piezometers, required to be sampled according to Condition 23, were sampled for field and general chemistry parameters in October 2017. Five piezometers were sampled on October 9, 2017, and six on October 10, 2017. Results for the field sampling parameters and laboratory analyses are presented in Table 9.

Laboratory analytical results and QA/QC Summary Report are found on the accompanying CD as a pdf file named "Shallow Surface Water Analytical and QA-QC.pdf".

Condition 24. *– The permittee shall perform semi-annual ground water sampling from monitoring well WQSP-6A and analyzed for TKN and NO3. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.*

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

WQSP-6A was sampled on October 11, 2017. Sulfate, chloride, and total dissolved solids were detected in WQSP-6A samples at concentrations above standards of 20.6.2.3103 NMAC, Standards for Ground Water of 1,000 mg/L TDS concentration or less for Human Health and Domestic Water Supply. Although the concentrations were higher than the standards, they are less than background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285). Nitrate was also detected but did not exceed the standards. Total Kjeldahl Nitrogen was below the detection limit of 1 mg/L. The SSW identified at the WIPP facility has not impacted the Dewey Lake groundwater in WQSP-6A based on the consistency of analyzed parameters in this well.

For WQSP-6A analytical results, see Table 9 – Monitoring Well Water Levels and Chemical Analyses.

Laboratory analytical results and QA/QC Summary Report for WQSP-6A samples are found on the accompanying CD as a pdf file named "Shallow Surface Water Analytical and QA-QC.pdf".

Condition 25. *– Hydrographs shall be submitted annually for all monitoring wells and piezometers covered under Condition 22 of this Discharge Permit. At a minimum, graphs shall include the previous five years of water level data, or for recently installed wells, all data since the well was installed. Data for several wells may be included on one graph.*

The hydrographs of all monitoring wells and piezometers are included in this 2017 semi-annual report (see Attachment 1).

Condition 26. *– A potentiometric map for facility area shall be submitted annually. The map shall incorporate the most recent water level data for all monitoring wells and piezometers installed in the shallow subsurface water (SSW).*

The potentiometric surface for the SSW using December 2017 data is presented in Figure 2. The interpolated contours were generated using *SURFER*, Version 11, surface mapping software by Golden Software. Sixteen data points were used in the contour development, whereas the contours around the SPDV salt pile were estimated by hand.

Condition 27. *– A single table in a paper and electronic format (EXCEL spreadsheet) of water level measurements and water quality data with only those constituents analyzed and water levels measured during a single event shown in columns. Tabulated field measurements to include temperature, pH, and electrical conductivity corrected to 25 degrees Celsius. Monitoring sites shall be shown in rows. The second column shall contain the date of the sampling event. Values exceeding standards shall be bolded. Any constituent not analyzed for a particular site shall be shown as "NA", any site not sampled shall be shown as "NS" with an associated reason, and any site not measured for water levels shall be shown as "NM" with an associated reason.*

Table 9 – Monitoring Well Water Levels and Chemical Analyses is included in paper form in this report and in electronic Excel format on the accompanying CD. The file name on the CD is "Table 9 – Monitoring Well Water Levels and Chemical Analyses." Electrical conductivity is listed as specific conductivity in this table.

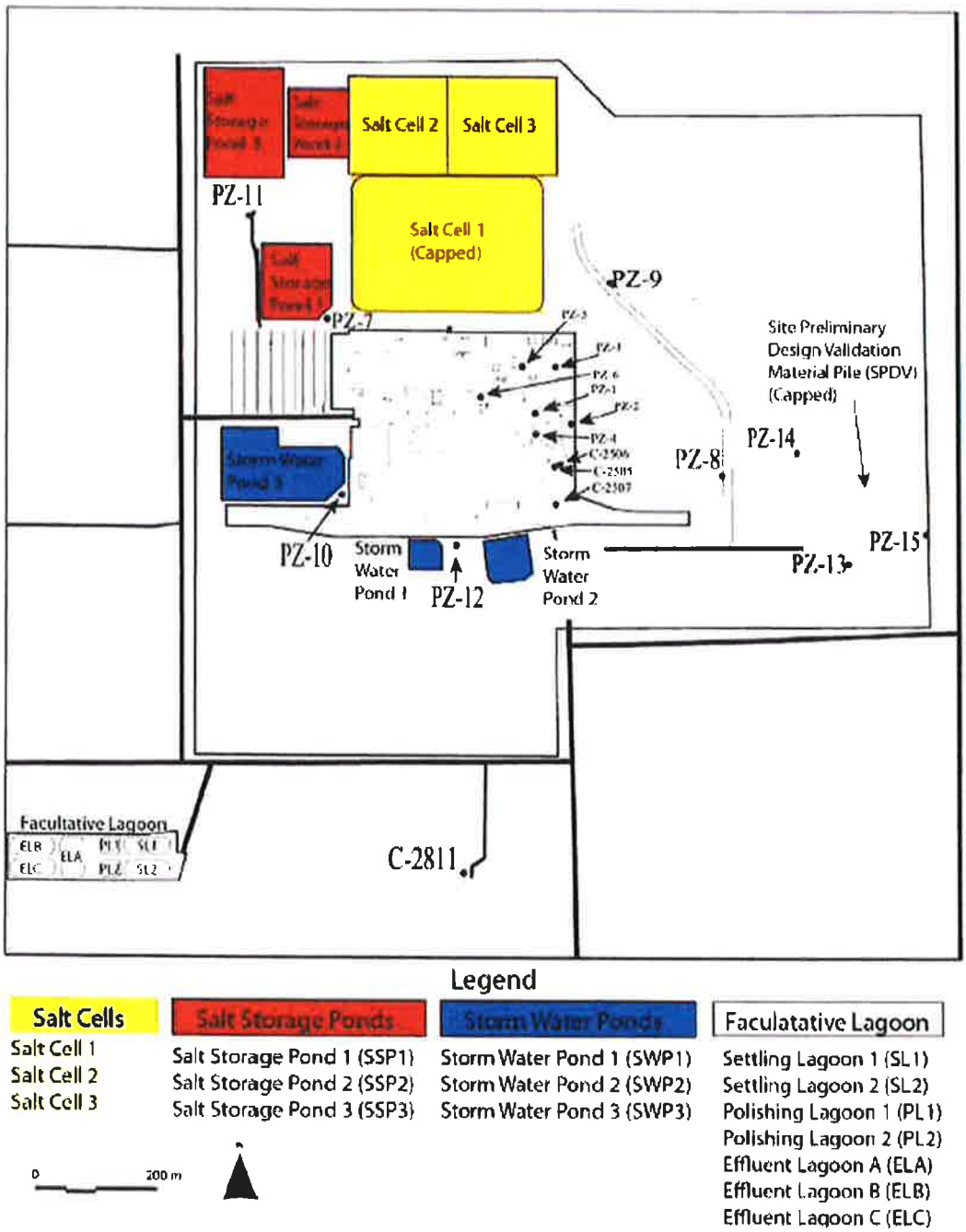
Condition 28. *– A single table that includes all available ground water data to date shall be submitted annually. For each monitoring well, the name of the well shall be entered in the far left column in a row by itself. Sampling events, beginning with the earliest event first, shall be entered in subsequent rows with the sampling date in the second column and the corresponding analytical data in columns further to the right. Each new sampling event shall be added as an additional row to the existing spreadsheet with the corresponding date of the sampling event noted in the second column next to the monitoring well name.*

The table that includes all available ground water data to date is included in this second semi-annual report for 2017 (see Table 10).

Condition 45. *– In the event the permittee implements changes to the wastewater system authorized by this Discharge Permit which result in only a minor effect on the character of the discharge, the permittee shall report such changes (including submission of record drawings, where applicable) as of January 1 and June 30 of each year to the NMED.*

There were no changes to the wastewater system authorized by this Discharge Permit during this reporting period.

Figure 1 – Site Map



WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2017 THROUGH DECEMBER 31, 2017

Table 9 – Monitoring Well Water Levels and Chemical Analyses

	Field and General Chemistry Parameters								Other	Water Level Monitoring (Ft AMSL)	
Monitoring Site	Sample Date	pH (SU)	Temp. (°C)	Specific Conductivity @25 °C (µS/cm)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)	9/18/17-9/20/17	12/13/17-12/14/17
PZ-1	10/10/2017	6.41	22.71	94,950	NA	**1,900**	**36,100**	**63,900**	NA	3372.07	3371.98
PZ-2	NS	NS	NS	NS	NS	NS	NS	NS	NS	3371.61	3371.47
PZ-3	NS	NS	NS	NS	NS	NS	NS	NS	NS	3372.09	3371.96
PZ-4	NS	NS	NS	NS	NS	NS	NS	NS	NS	3367.22	3367.24
PZ-5	10/10/2017	7.18	23.41	62,850	NA	**638**	**4,790**	**11,300**	NA	3372.66	3372.61
PZ-6	10/10/2017	6.83	22.89	94,650	NA	**1,260**	**20,800**	**37,500**	NA	NM	3370.54
PZ-7	10/9/2017	6.31	27.79	85,410	NA	**2,170**	**36,800**	**80,100**	NA	3377.91	3377.83
PZ-8	NS	NS	NS	NS	NS	NS	NS	NS	NS	3355.88	3356.22
PZ-9	10/10/2017	6.16	20.85	99,050	NA	**4,580**	**91,900**	**172,000**	NA	3362.84	3362.87
PZ-10	10/9/2017	7.43	24.99	5,005	NA	161	135	414	NA	3368.68	3368.79
PZ-11	10/9/2017	6.53	25.90	88,510	NA	**1,710**	**49,800**	**61,900**	NA	3375.06	3374.57
PZ-12	10/9/2017	7.03	24.03	40,490	NA	521	**2,840**	**6,740**	NA	3357.40	3357.47
PZ-13	10/10/2017	Bailed			NA	**2,650**	**134,000**	**251,000**	NA	3357.41	3357.73
PZ-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	3353.96	3354.24
PZ-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	3383.76	3383.73
C-2811	10/9/2017	7.22	22.30	16,106	NA	375	**1,110**	**2,640**	NA	3348.36	3347.95
C-2505	NS	NS	NS	NS	NS	NS	NS	NS	NS	3368.55	3368.44
C-2506	NS	NS	NS	NS	NS	NS	NS	NS	NS	3369.22	3369.09
C-2507	10/10/2017	7.09	19.97	41,220	NA	**627**	**2,890**	**7,270**	NA	3365.69	3365.56
WQSP-6A	10/11/2017	7.05	21.45	14,640	4.87	**1,880**	**342**	**3,390**	<1.0	3195.59	3195.76
Explanation:	NA: Not Analyzed, parameter not required, per permit conditions.										
	NS: Not Sampled, not required per permit conditions										
	NM: Not Measured. Construction in the areas of the well prevented access to the well.										
	PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty using Low-Flow pumps										
	"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply										
	AMSL: Above Mean Sea Level										

04847

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2017 THROUGH DECEMBER 31, 2017

Table 10 – All Ground Water Data

		General Chemistry Parameters				Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-1	6/21/2004	<10	1,530	36,300	79,600	0.044	<0.00500
PZ-1	11/9/2004	1.3	6,530	45,700	85,800	0.106	<0.0100
PZ-1	5/17/2005	1.47	2,640	62,300	100,500	0.06	0.077
PZ-1	10/11/2005	2.59	1,950	54,900	74,800	0.043	<0.0100
PZ-1	5/16/2006	<2.5	2,490	62,400	113,000	0.051	<0.0100
PZ-1	10/10/2006	<1.00	1,390	55,300	70,200	<0.0500	<0.0250
PZ-1	5/9/2007	2.7	2,220	63,000	107,000	<0.0500	<0.0250
PZ-1	10/9/2007	<1.00	2,820	83,200	99,500	<0.1000	<0.0250
PZ-1	6/5/2008	<2.0	2,100	57,000	98,000	0.667	0.00218
PZ-1	10/14/2008	NA	2,200	59,000	94,000	NA	NA
PZ-1	5/19/2009	NA	2,200	54,000	96,000	NA	NA
PZ-1	10/19/2009	NA	2,300	66,000	101,000	NA	NA
PZ-1	5/25/2010	NA	2,200	53,000	92,800	NA	NA
PZ-1	10/26/2010	NA	1,800	62,000	96,100	NA	NA
PZ-1	5/24/2011	NA	2,000	51,000	85,200	NA	NA
PZ-1	10/5/2011	NA	2,000	50,000	84,600	NA	NA
PZ-1	5/16/2012	NA	2,100	54,000	82,100	NA	NA
PZ-1	10/2/2012	NA	2,110	48,100	84,200	NA	NA
PZ-1	5/14/2013	NA	1,840	35,800	74,400	NA	NA
PZ-1	10/22/2013	NA	2,050	42,500	100,000	NA	NA
PZ-1	5/13/2014	NA	2,010	44,000	76,000	NA	NA
PZ-1	10/14/2014	NA	2,090	46,700	84,800	NA	NA
PZ-1	5/13/2015	NA	1,830	40,800	73,400	NA	NA
PZ-1	11/10/2015	NA	1,740	37,100	75,800	NA	NA
PZ-1	5/31/2016	NA	1,740	42,900	79,600	NA	NA
PZ-1	9/28/2016	NA	1,940	34,000	67,000	NA	NA
PZ-1	5/31/2017	NA	1,890	37,600	71,200	NA	NA
PZ-1	10/10/2017	NA	1,900	36,100	63,900	NA	NA
PZ-5	6/21/2004	20.7	1,340	28,800	55,200	0.067	<0.00500
PZ-5	11/9/2004	<2.50	1,820	47800	86,000	0.094	<0.0100
PZ-5	5/17/2005	2.96	3,260	46,000	65,400	0.093	0.067
PZ-5	10/11/2005	5.14	769	14,000	32,800	0.062	<0.0100
PZ-5	5/16/2006	2.56	1,520	18,300	32,600	0.071	<0.0100
PZ-5	10/10/2006	5.04	1,330	28,800	47,400	<0.0500	<0.0250
PZ-5	5/9/2007	4.6	1,640	17,300	32,400	<0.0500	<0.0250
PZ-5	10/9/2007	<1.00	1,880	19,400	28,700	0.071	<0.005
PZ-5	6/5/2008	5.7	1,500	19,000	33,000	0.0801	0.00317
PZ-5	10/14/2008	NA	1,400	13,000	25,000	NA	NA
PZ-5	5/19/2009	NA	1,500	13,000	24,000	NA	NA
PZ-5	10/19/2009	NA	1,600	14,000	20,200	NA	NA
PZ-5	5/25/2010	NA	1,400	13,000	21,900	NA	NA
PZ-5	10/26/2010	NA	1,400	13,000	20,800	NA	NA
PZ-5	5/24/2011	NA	1,200	10,000	18,400	NA	NA

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2017 THROUGH DECEMBER 31, 2017

	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-5	10/4/2011	NA	1,300	13,000	19,800	NA	NA
PZ-5	5/16/2012	NA	1,500	12,000	21,400	NA	NA
PZ-5	10/2/2012	NA	1,340	9,870	18,600	NA	NA
PZ-5	5/15/2013	NA	1,200	9,540	19,200	NA	NA
PZ-5	10/23/2013	NA	1,180	11,400	25,200	NA	NA
PZ-5	5/13/2014	NA	1,180	9,080	18,100	NA	NA
PZ-5	10/14/2014	NA	1,250	13,300	26,500	NA	NA
PZ-5	5/13/2015	NA	1,100	7,380	14,800	NA	NA
PZ-5	11/10/2015	NA	917	7,470	15,200	NA	NA
PZ-5	5/31/2016	NA	970	7,180	14,500	NA	NA
PZ-5	9/28/2016	NA	748	7,170	17,400	NA	NA
PZ-5	5/31/2017	NA	737	4,470	10,300	NA	NA
PZ-5	10/10/2017	NA	638	4,790	11,300	NA	NA
PZ-6	6/21/2004	21.2	2,860	70,500	134,000	0.017	<0.00500
PZ-6	11/9/2004	4.89	13,000	75,400	113,000	0.06	<0.0100
PZ-6	5/17/2005	4.25	3,610	109,000	160,500	0.05	0.054
PZ-6	10/11/2005	<20.0	2,850	83,800	106,000	0.021	<0.0100
PZ-6	5/16/2006	7.69	3,050	68,800	115,000	<0.0100	<0.0100
PZ-6	10/10/2006	252	2,790	79,800	134,000	<0.0500	<0.0250
PZ-6	5/9/2007	6.65	2,840	73,500	122,500	<0.0500	<0.0250
PZ-6	10/9/2007	<1.00	3,080	81,000	105,000	<0.1000	<0.0250
PZ-6	6/5/2008	6.1	2,100	47,000	81,000	0.0412	0.00259
PZ-6	10/14/2008	NA	2,500	58,000	87,000	NA	NA
PZ-6	5/19/2009	NA	2,700	61,000	89,000	NA	NA
PZ-6	10/19/2009	NA	2,300	50,000	83,600	NA	NA
PZ-6	5/25/2010	NA	2,300	47,000	82,100	NA	NA
PZ-6	10/26/2010	NA	1,900	47,000	72,300	NA	NA
PZ-6	5/24/2011	NA	1,700	37,000	67,700	NA	NA
PZ-6	10/5/2011	NA	1,900	41,000	69,800	NA	NA
PZ-6	5/16/2012	NA	1,800	41,000	67,200	NA	NA
PZ-6	10/2/2012	NA	2,130	52,200	78,700	NA	NA
PZ-6	5/15/2013	NA	2,060	47,900	86,900	NA	NA
PZ-6	10/22/2013	NA	2,120	46,000	90,500	NA	NA
PZ-6	5/13/2014	NA	2,040	46,600	80,800	NA	NA
PZ-6	10/14/2014	NA	2,160	49,800	80,400	NA	NA
PZ-6	5/13/2015	NA	2,180	49,200	77,000	NA	NA
PZ-6	11/10/2015	NA	1,900	37,500	69,200	NA	NA
PZ-6	5/31/2016	NA	1,680	31,000	50,500	NA	NA
PZ-6	9/28/2016	NA	1,330	21,900	43,100	NA	NA
PZ-6	5/31/2017	NA	1,230	21,000	39,300	NA	NA
PZ-6	10/10/2017	NA	**1,260**	**20,800**	**37,500**	NA	NA
PZ-7	6/21/2004	20.7	2,620	53,000	109,000	0.041	<0.00500
PZ-7	11/8/2004	2.89	7,460	43,600	80,400	0.088	<0.0100
PZ-7	5/16/2005	4.02	2,530	42,100	65,900	0.082	0.094
PZ-7	10/10/2005	6.37	2,770	61,000	88,000	0.047	<0.0100

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2017 THROUGH DECEMBER 31, 2017

	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-7	5/15/2006	<5.3	3,190	54,100	139,000	0.068	<0.0100
PZ-7	10/9/2006	<1.00	2,890	66,800	81,500	<0.00100	<0.0500
PZ-7	5/7/2007	5.15	3,190	64,800	119,000	<0.0200	0.02
PZ-7	10/8/2007	<1.00	2,660	45,600	65,000	0.064	<0.00500
PZ-7	6/4/2008	5	2,300	49,000	86,000	0.0635	0.00257
PZ-7	10/13/2008	NA	1,700	27,000	42,000	NA	NA
PZ-7	5/18/2009	NA	3,700	76,000	120,000	NA	NA
PZ-7	10/20/2009	NA	4,200	67,000	106,000	NA	NA
PZ-7	5/24/2010	NA	3,000	68,000	103,000	NA	NA
PZ-7	10/25/2010	NA	3,000	75,000	103,000	NA	NA
PZ-7	5/23/2011	NA	2,700	60,000	101,000	NA	NA
PZ-7	10/4/2011	NA	3,100	81,000	116,000	NA	NA
PZ-7	5/15/2012	NA	3,000	64,000	96,600	NA	NA
PZ-7	10/3/2012	NA	4,380	67,500	106,000	NA	NA
PZ-7	5/13/2013	NA	3,050	58,500	112,000	NA	NA
PZ-7	10/22/2013	NA	3,100	61,100	126,000	NA	NA
PZ-7	5/13/2014	NA	2,650	35,400	114,000	NA	NA
PZ-7	10/13/2014	NA	3,530	74,500	136,000	NA	NA
PZ-7	5/12/2015	NA	3,240	68,200	118,000	NA	NA
PZ-7	11/9/2015	NA	2,960	44,900	114,000	NA	NA
PZ-7	5/24/2016	NA	3,790	75,400	109,000	NA	NA
PZ-7	9/27/2016	NA	2,850	51,600	99,300	NA	NA
PZ-7	5/30/2017	NA	2,890	59,800	111,000	NA	NA
PZ-7	10/9/2017	NA	2,170	36,800	80,100	NA	NA
PZ-8	10/15/2007	0.677	500	7,440	15,000	0.039	<0.00500
PZ-8	6/6/2008	1.8	630	11,000	16,000	0.0655	<0.001
PZ-9	6/21/2004	<20.0	3,740	80,200	140,000	<0.0100	<0.00500
PZ-9	11/9/2004	1.4	14,500	92,400	144,000	0.066	<0.0100
PZ-9	5/17/2005	2.82	5,090	182,000	164,000	0.05	0.071
PZ-9	10/11/2005	<20.0	3,930	85,500	107,000	0.022	<0.0100
PZ-9	5/16/2006	3.01	4,350	84,700	153,000	0.023	<0.0100
PZ-9	10/10/2006	<20.0	3,370	102,000	135,000	<0.0500	<0.0250
PZ-9	5/9/2007	3.28	4,320	89,600	164,000	<0.0500	<0.0250
PZ-9	10/9/2007	<200	4,720	116,000	144,000	<0.0200	<0.0050
PZ-9	6/5/2008	2.2	4,400	87,000	150,000	0.0351	0.00492
PZ-9	10/14/2008	NA	4,100	96,000	140,000	NA	NA
PZ-9	5/19/2009	NA	3,600	94,000	130,000	NA	NA
PZ-9	10/19/2009	NA	4,000	77,000	139,000	NA	NA
PZ-9	5/25/2010	NA	4,400	94,000	144,000	NA	NA
PZ-9	10/26/2010	NA	4,300	95,000	149,000	NA	NA
PZ-9	5/24/2011	NA	4300	83,000	147,000	NA	NA
PZ-9	10/4/2011	NA	4600	99,000	153,000	NA	NA
PZ-9	5/16/2012	NA	4,900	98,000	152,000	NA	NA

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2017 THROUGH DECEMBER 31, 2017

	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-9	10/3/2012	NA	4,440	99,700	141,000	NA	NA
PZ-9	5/14/2013	NA	4,580	82,000	152,000	NA	NA
PZ-9	10/22/2013	NA	4,620	88,200	179,000	NA	NA
PZ-9	5/13/2014	NA	4,730	83,600	161,000	NA	NA
PZ-9	10/14/2014	NA	5,150	98,600	172,000	NA	NA
PZ-9	5/13/2015	NA	7,090	112,000	175,000	NA	NA
PZ-9	11/10/2015	NA	4,390	84,300	176,000	NA	NA
PZ-9	5/25/2016	NA	5,640	115,000	167,000	NA	NA
PZ-9	9/28/2016	NA	4,860	99,200	353,000	NA	NA
PZ-9	5/30/2017	NA	5,200	113,000	169,000	NA	NA
PZ-9	10/10/2017	NA	4,580	91,900	172,000	NA	NA
PZ-10	6/14/2004	3.81	469	368	1,714	0.02	<0.00500
PZ-10	11/8/2004	3.69	431	353	1,576	<0.0500	<0.0100
PZ-10	5/16/2005	3.63	572	416	1,756	0.044	0.037
PZ-10	10/10/2005	3.34	515	318	1,720	0.015	<0.0100
PZ-10	5/15/2006	3.42	539	460	1,830	0.014	<0.0100
PZ-10	10/9/2006	5.5	549	350	1,600	<0.00100	<0.0500
PZ-10	5/7/2007	14.8	407	274	1,504	<0.0200	0.02
PZ-10	10/8/2007	<1.00	211	186	968	0.026	<0.0050
PZ-10	6/4/2008	4.5	390	300	1,500	0.0144	0.00119
PZ-10	10/13/2008	NA	380	290	1,400	NA	NA
PZ-10	5/18/2009	NA	530	460	1,800	NA	NA
PZ-10	10/20/2009	NA	500	440	1,730	NA	NA
PZ-10	5/24/2010	NA	500	370	1,680	NA	NA
PZ-10	10/25/2010	NA	410	360	1,530	NA	NA
PZ-10	5/23/2011	NA	400	310	1,620	NA	NA
PZ-10	10/4/2011	NA	440	370	1,640	NA	NA
PZ-10	5/15/2012	NA	450	410	1,650	NA	NA
PZ-10	10/1/2012	NA	480	414	1,700	NA	NA
PZ-10	5/13/2013	NA	426	394	1,580	NA	NA
PZ-10	10/21/2013	NA	434	348	1,710	NA	NA
PZ-10	5/12/2014	NA	471	407	1,840	NA	NA
PZ-10	10/13/2014	NA	178	167	910	NA	NA
PZ-10	5/12/2015	NA	435	370	1,620	NA	NA
PZ-10	11/9/2015	NA	339	255	1,310	NA	NA
PZ-10	5/24/2016	NA	274	200	1,100	NA	NA
PZ-10	9/27/2016	NA	116	113	805	NA	NA
PZ-10	5/30/2017	NA	203	173	998	NA	NA
PZ-10	10/9/2017	NA	161	135	414	NA	NA
PZ-11	6/21/2004	20.8	2,220	58,100	123,000	<0.0100	<0.00500
PZ-11	11/8/2004	3.15	13,000	84,100	119,000	<0.0500	<0.0100
PZ-11	5/16/2005	4.63	2,890	66,000	100,000	<0.0100	<0.0100
PZ-11	10/10/2005	<20.0	2,950	84,300	129,000	0.013	<0.0100
PZ-11	5/15/2006	<5.3	3,090	71,000	133,000	<0.0100	<0.0100
PZ-11	10/9/2006	<1.00	2,550	85,800	123,000	<0.00100	<0.0500

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2017 THROUGH DECEMBER 31, 2017

	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-11	10/8/2007	<1.00	2,970	94,400	108,000	<0.0200	<0.0050
PZ-11	6/4/2008	3.9	2,100	65,000	110,000	0.0149	0.00216
PZ-11	10/13/2008	NA	3,000	79,000	110,000	NA	NA
PZ-11	5/18/2009	NA	2,500	72,000	110,000	NA	NA
PZ-11	10/20/2009	NA	3,200	64,000	112,000	NA	NA
PZ-11	5/24/2010	NA	2,500	69,000	107,000	NA	NA
PZ-11	10/25/2010	NA	2,300	77,000	100,000	NA	NA
PZ-11	5/23/2011	NA	2,000	45,000	80,500	NA	NA
PZ-11	10/3/2011	NA	2,300	65,000	92,200	NA	NA
PZ-11	5/15/2012	NA	2,400	59,000	93,200	NA	NA
PZ-11	10/3/2012	NA	2,220	53,000	95,600	NA	NA
PZ-11	5/13/2013	NA	2,270	64,800	105,000	NA	NA
PZ-11	10/21/2013	NA	2,360	59,000	123,000	NA	NA
PZ-11	5/12/2014	NA	2,260	45,000	102,000	NA	NA
PZ-11	10/13/2014	NA	2,740	68,800	123,000	NA	NA
PZ-11	5/12/2015	NA	2,590	57,000	105,000	NA	NA
PZ-11	11/9/2015	NA	2,770	59,900	96,400	NA	NA
PZ-11	5/24/2016	NA	2,640	54,900	93,200	NA	NA
PZ-11	9/27/2016	NA	2,240	43,300	82,700	NA	NA
PZ-11	5/30/2017	NA	911	18,000	40,000	NA	NA
PZ-11	10/9/2017	NA	1,710	49,800	61,900	NA	NA
PZ-12	6/14/2004	11.2	773	5,320	9,700	0.077	<0.00500
PZ-12	11/8/2004	19.8	879	7,170	9,540	0.066	<0.0100
PZ-12	5/16/2005	8.85	679	3,730	5,890	0.051	0.054
PZ-12	10/10/2005	426	805	3,790	7,740	0.02	<0.0100
PZ-12	5/15/2006	20.6	866	4,510	8,790	0.019	<0.0100
PZ-12	10/9/2006	13.2	795	5,340	9,150	<0.00100	<0.0500
PZ-12	5/7/2007	10.8	831	3,780	7,010	<0.0200	0.024
PZ-12	10/8/2007	<1.00	958	4,310	6,200	0.026	<0.0050
PZ-12	6/4/2008	11	760	3,300	6,800	0.0291	0.00132
PZ-12	10/13/2008	NA	850	3,300	7,000	NA	NA
PZ-12	5/18/2009	NA	870	4,600	8,300	NA	NA
PZ-12	10/20/2009	NA	980	6,500	10,100	NA	NA
PZ-12	5/24/2010	NA	990	5,500	10,100	NA	NA
PZ-12	10/25/2010	NA	990	5,800	10,300	NA	NA
PZ-12	5/23/2011	NA	900	5,600	10,900	NA	NA
PZ-12	10/3/2011	NA	900	6,800	13,100	NA	NA
PZ-12	5/15/2012	NA	620	6,400	9,400	NA	NA
PZ-12	10/1/2012	NA	503	5,290	9,780	NA	NA
PZ-12	5/13/2013	NA	449	3,990	7,610	NA	NA
PZ-12	10/21/2013	NA	415	3,320	8,110	NA	NA
PZ-12	5/12/2014	NA	374	2,490	5,640	NA	NA
PZ-12	10/13/2014	NA	409	2,440	6,100	NA	NA

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2017 THROUGH DECEMBER 31, 2017

	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-12	5/12/2015	NA	665	4,470	8,720	NA	NA
PZ-12	11/9/2015	NA	627	3,450	8,280	NA	NA
PZ-12	5/24/2016	NA	560	2,570	6,100	NA	NA
PZ-12	9/27/2016	NA	548	2,460	6,240	NA	NA
PZ-12	5/30/2017	NA	509	2,470	6,100	NA	NA
PZ-12	10/9/2017	NA	521	2,840	6,740	NA	NA
PZ-13	10/10/2007	12.4	2,670	150,000	245,500	<0.100	<0.00500
PZ-13	6/6/2008	<200	2,600	170,000	240,000	0.0118	0.00316
PZ-13	10/13/2008	NA	2,900	160,000	230,000	NA	NA
PZ-13	5/18/2009	NA	3,300	180,000	240,000	NA	NA
PZ-13	10/20/2009	NA	3,300	170,000	255,000	NA	NA
PZ-13	5/24/2010	NA	3,000	170,000	240,000	NA	NA
PZ-13	10/26/2010	NA	2,900	190,000	246,000	NA	NA
PZ-13	5/24/2011	NA	2,700	150,000	248,000	NA	NA
PZ-13	10/4/2011	NA	3,000	170,000	259,000	NA	NA
PZ-13	5/15/2012	NA	3,300	160,000	252,000	NA	NA
PZ-13	10/2/2012	NA	3,260	170,000	263,000	NA	NA
PZ-13	5/14/2013	NA	3,130	144,000	260,000	NA	NA
PZ-13	10/22/2013	NA	3,220	139,000	262,000	NA	NA
PZ-13	5/13/2014	NA	2,900	104,000	265,000	NA	NA
PZ-13	10/14/2014	NA	3,100	179,000	274,000	NA	NA
PZ-13	5/13/2015	NA	3,550	197,000	267,000	NA	NA
PZ-13	11/10/2015	NA	2,980	118,000	233,000	NA	NA
PZ-13	5/25/2016	NA	1,600	168,000	260,000	NA	NA
PZ-13	9/28/2016	NA	2,790	153,000	236,000	NA	NA
PZ-13	5/31/2017	NA	2,730	150,000	251,000	NA	NA
PZ-13	10/10/2017	NA	2,650	134,000	251,000	NA	NA
PZ-14	10/15/2007	1.41	2,140	71,500	106,000	<0.0100	<0.00500
PZ-14	6/6/2008	<100	3,300	130,000	180,000	0.0201	0.00168
PZ-15	10/15/2007	2.97	169	764	2,060	0.022	<0.00500
PZ-15	6/6/2008	12	160	460	1,600	0.00372	<0.001
C-2811	6/14/2004	6.06	299	769	2,022	0.047	<0.00500
C-2811	11/8/2004	7.63	305	1,030	1,996	0.054	<0.0100
C-2811	5/16/2005	6.02	524	1,930	3,740	0.058	0.053
C-2811	10/10/2005	7.48	584	2,250	4,410	0.034	<0.0100
C-2811	5/15/2006	6.94	511	1,760	3,740	0.031	<0.0100
C-2811	10/9/2006	6.05	402	1,310	2,100	<0.00100	<0.0500
C-2811	5/7/2007	5.31	516	1,760	4,205	<0.0200	0.031
C-2811	10/8/2007	<1.00	635	2,980	3,860	0.051	<0.0050
C-2811	6/4/2008	5.7	390	1,300	2,800	0.0017	0.035
C-2811	10/13/2008	NA	320	1,000	2,100	NA	NA
C-2811	5/18/2009	NA	360	1,200	2,300	NA	NA
C-2811	10/20/2009	NA	320	1,000	2,120	NA	NA
C-2811	5/24/2010	NA	340	920	2,090	NA	NA
C-2811	10/25/2010	NA	370	1,100	2,470	NA	NA

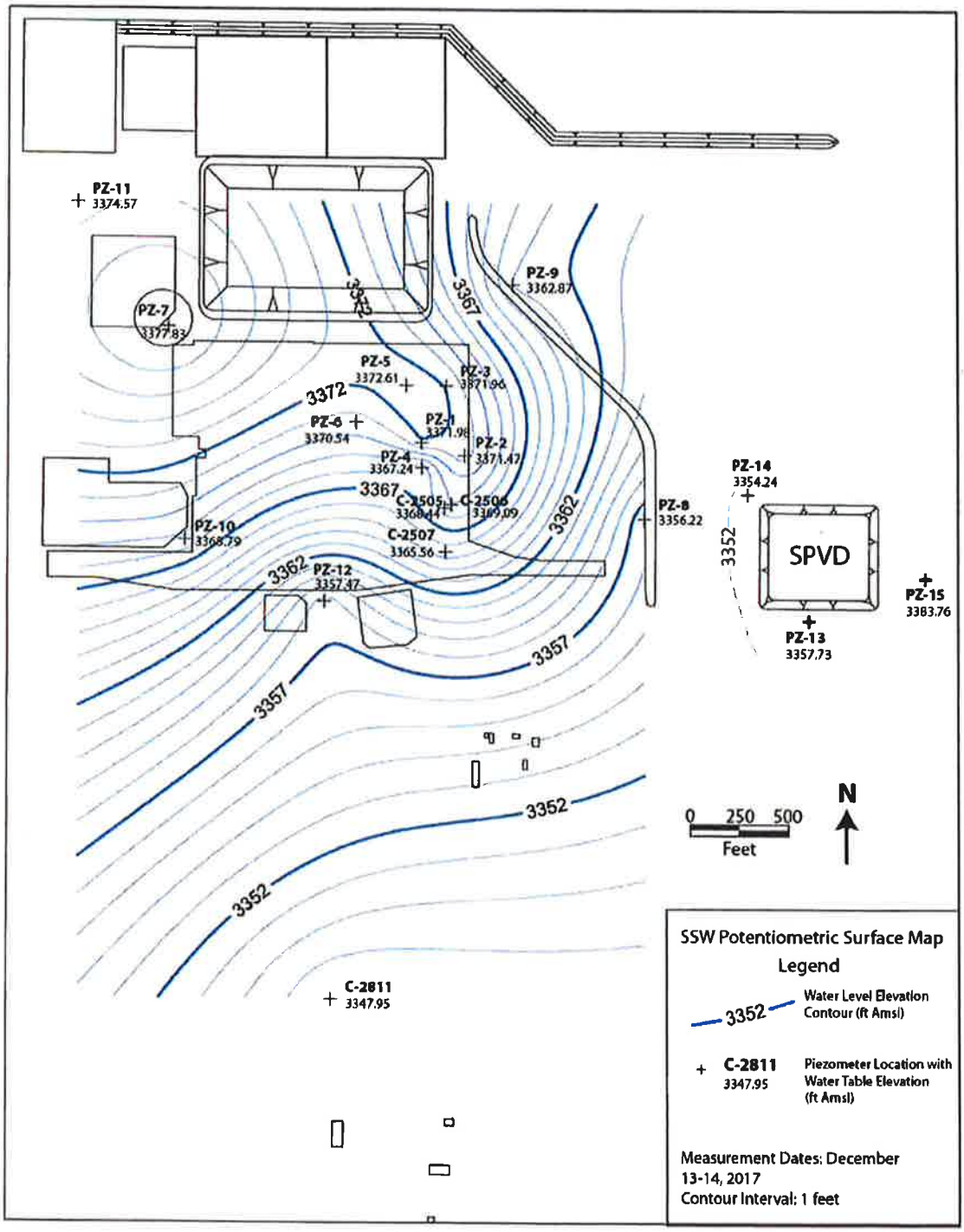
WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE
PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2017 THROUGH DECEMBER 31, 2017

	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
C-2811	5/23/2011	NA	350	960	2,370	NA	NA
C-2811	10/3/2011	NA	340	910	2,330	NA	NA
C-2811	5/14/2012	NA	320	810	1,870	NA	NA
C-2811	10/1/2012	NA	337	862	2,100	NA	NA
C-2811	5/13/2013	NA	328	872	2,090	NA	NA
C-2811	10/21/2013	NA	341	838	2,490	NA	NA
C-2811	5/13/2014	NA	297	865	2,250	NA	NA
C-2811	10/14/2014	NA	277	827	2,580	NA	NA
C-2811	5/12/2015	NA	586	1,430	3,460	NA	NA
C-2811	11/9/2015	NA	451	1260	3,300	NA	NA
C-2811	5/24/2016	NA	491	1,210	2,720	NA	NA
C-2811	9/27/2016	NA	422	1,100	2,820	NA	NA
C-2811	5/30/2017	NA	479	1,020	3,100	NA	NA
C-2811	10/9/2017	NA	375	1,110	2,640	NA	NA
C-2507	6/21/2004	7.55	717	1,300	3,830	0.029	0.028
C-2507	11/9/2004	7.58	824	1,380	3,350	0.08	0.014
C-2507	5/17/2005	7.94	860	1,370	3,340	0.078	0.063
C-2507	10/11/2005	6.13	920	1,630	3,240	0.047	<0.0100
C-2507	5/16/2006	7.37	1,040	1,930	5,300	0.051	<0.0100
C-2507	10/10/2006	2.9	943	3,640	1,740	<0.0500	<0.0250
C-2507	5/9/2007	6.62	1,110	3,060	5,485	<0.0500	<0.0250
C-2507	10/9/2007	<1.00	1,220	3,500	5,540	0.055	0.007
C-2507	6/5/2008	6.9	990	2,800	5,800	0.0637	0.00493
C-2507	10/14/2008	NA	940	2,200	5,100	NA	NA
C-2507	5/19/2009	NA	950	2,600	5,200	NA	NA
C-2507	10/19/2009	NA	930	3,400	5,710	NA	NA
C-2507	5/25/2010	NA	910	3,500	6,640	NA	NA
C-2507	10/26/2010	NA	980	3,500	7,120	NA	NA
C-2507	5/24/2011	NA	790	3,200	6,190	NA	NA
C-2507	10/5/2011	NA	810	3,400	6,660	NA	NA
C-2507	5/16/2012	NA	800	2,800	5,720	NA	NA
C-2507	10/1/2012	NA	774	2,970	6,790	NA	NA
C-2507	5/14/2013	NA	704	2,820	6,020	NA	NA
C-2507	10/21/2013	NA	692	3,270	8,350	NA	NA
C-2507	5/13/2014	NA	643	2,770	7,590	NA	NA
C-2507	10/14/2014	NA	693	3,830	9,180	NA	NA
C-2507	5/13/2015	NA	683	3,430	7,590	NA	NA
C-2507	11/10/2015	NA	605	2,800	6,850	NA	NA
C-2507	5/31/2016	NA	679	3,110	6,620	NA	NA
C-2507	9/28/2016	NA	626	2,960	7,280	NA	NA
C-2507	5/31/2017	NA	683	3,490	8,020	NA	NA
C-2507	10/10/2017	NA	627	2,890	7,270	NA	NA
WQSP-6A	7/13/1995	7.62	1,905	1,040	11,000	<0.006	<0.025
WQSP-6A	3/28/1996	3.98	1,810	507	3,920	<0.013	<0.025
WQSP-6A	7/11/1996	2.75	1,971	6,748	4,500	0.02	<0.025

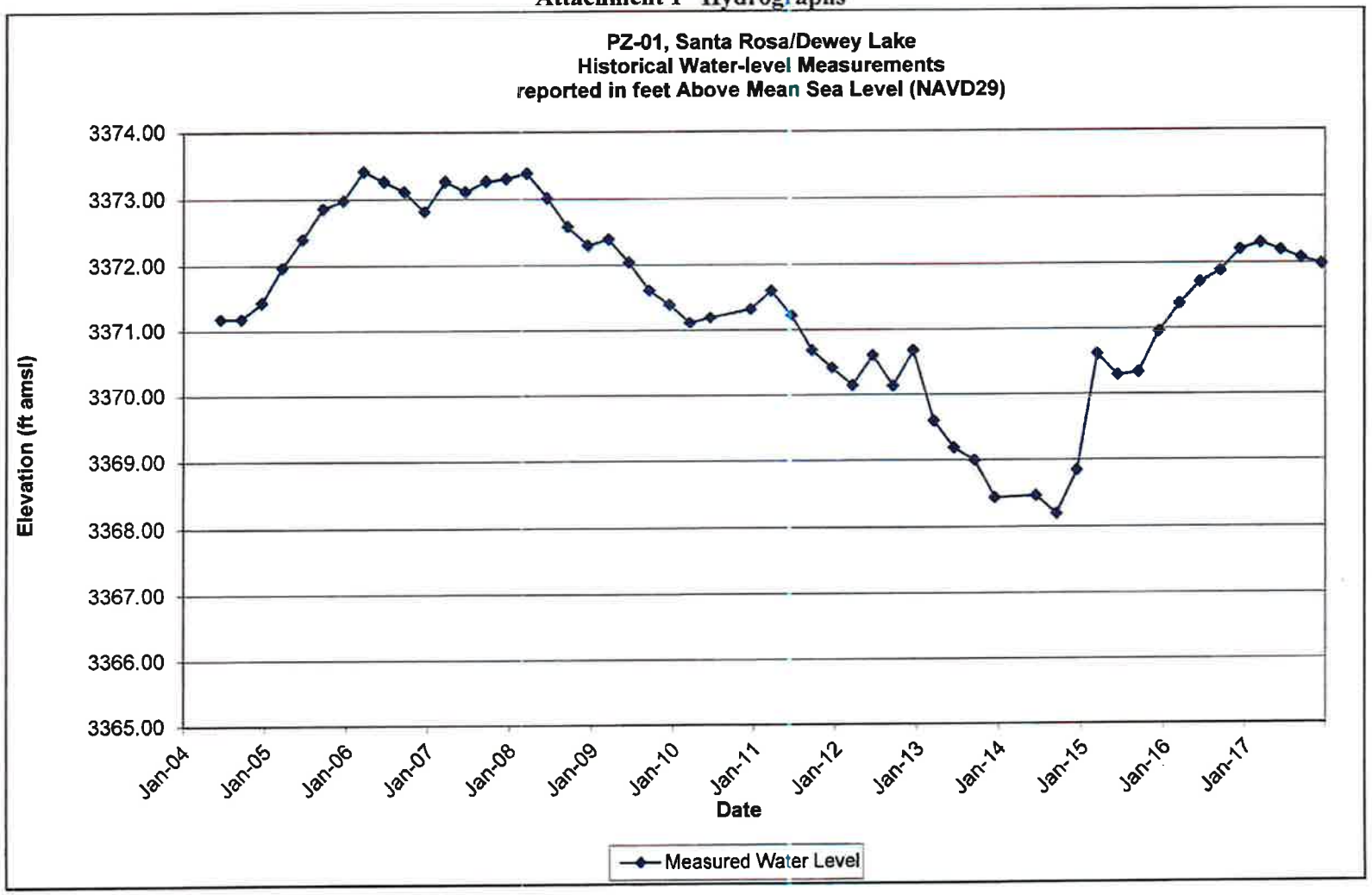
WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2017 THROUGH DECEMBER 31, 2017

	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
WQSP-6A	4/10/1997	4.64	2,240	675	3,960	0.017	<0.025
WQSP-6A	7/10/1997	4.04	2,560	660	3,840	<0.050	<0.1000
WQSP-6A	6/10/1998	6.19	1,950	644	4,120	0.016	0.0015
WQSP-6A	11/3/1998	11	2,100	770	4,100	0.22	<0.500
WQSP-6A	5/26/1999	7	1,900	540	3,800	<0.100	<0.050
WQSP-6A	11/10/1999	9.4	1,900	540	3,800	<0.050	<0.050
WQSP-6A	5/24/2000	7.5	2,100	530	3,800	0.0129	<0.020
WQSP-6A	11/30/2000	6.7	1,900	480	3,700	<0.0130	<0.025
WQSP-6A	6/6/2001	6.37	1,900	536	3,680	0.0385	<0.025
WQSP-6A	11/14/2001	3.67	1,900	414	4,600	<0.050	<0.010
WQSP-6A	5/22/2002	5.52	1,930	487	3,540	<0.050	<0.010
WQSP-6A	11/20/2002	5.61	2,090	419	3,685	<0.050	<0.010
WQSP-6A	5/21/2003	4.74	1,950	384	3,650	<0.123	<0.050
WQSP-6A	11/19/2003	<0.01	1,950	391	3,955	<0.219	<0.025
WQSP-6A	5/26/2004	9.61	1,970	416	3,646	<0.025	<0.025
WQSP-6A	11/17/2004	6.72	1,960	491	3,655	<0.025	<0.025
WQSP-6A	4/20/2005	5.98	1,920	432	3,700	0.057	<0.025
WQSP-6A	10/19/2005	<0.01	1,940	360	3,430	<0.025	<0.025
WQSP-6A	5/3/2006	2.5	2,210	450	3,200	<0.025	<0.025
WQSP-6A	9/20/2006	6	2,120	360	3,515	<0.025	<0.025
WQSP-6A	3/7/2007	5.78	2,170	484	3,355	<0.025	<0.025
WQSP-6A	9/12/2007	5.47	1,950	350	3,400	<0.025	<0.025
WQSP-6A	3/12/2008	4.67	2,090	378	3,400	<0.025	<0.025
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/l)	
WQSP-6A	9/10/2008	5.69	2,030	348	3,150	< 5	
WQSP-6A	3/4/2009	5.9	2,100	350	3,500	<1.0	
WQSP-6A	9/10/2009	6.3	2,100	350	3,640	<1.0	
WQSP-6A	3/3/2010	6.55	2,145	330	3,545	<1.0	
WQSP-6A	9/23/2010	6.34	2,090	321	3,500	<1.0	
WQSP-6A	5/26/2011	6.5	2,100	270	3,480	<1.0	
WQSP-6A	10/6/2011	5.9	2,100	280	3,450	<1.0	
WQSP-6A	5/16/2012	5.4	2,200	310	3,340	<1.0	
WQSP-6A	10/2/2012	5.1	2,110	301	3,400	<1.0	
WQSP-6A	5/14/2013	5.29	2,260	318	3,420	<1.0	
WQSP-6A	10/23/2013	5.85	1,840	284	3,540	<1.0	
WQSP-6A	5/14/2014	5.4	1,870	342	3,500	<1.0	
WQSP-6A	10/15/2014	5.38	2,000	285	3,360	<1.0	
WQSP-6A	5/14/2015	5.11	1,940	294	3,520	<1.0	
WQSP-6A	11/11/2015	5.45	1,840	296	3,290	<1.0	
WQSP-6A	5/25/2016	4.91	1,900	379	3,380	<1.0	
WQSP-6A	9/29/2016	5.61	1,860	286	3,490	<1.0	
WQSP-6A	6/1/2017	5.27	1,870	322	3,380	<1.0	
WQSP-6A	10/11/2017	4.87	1,880	342	3,390	<1.0	

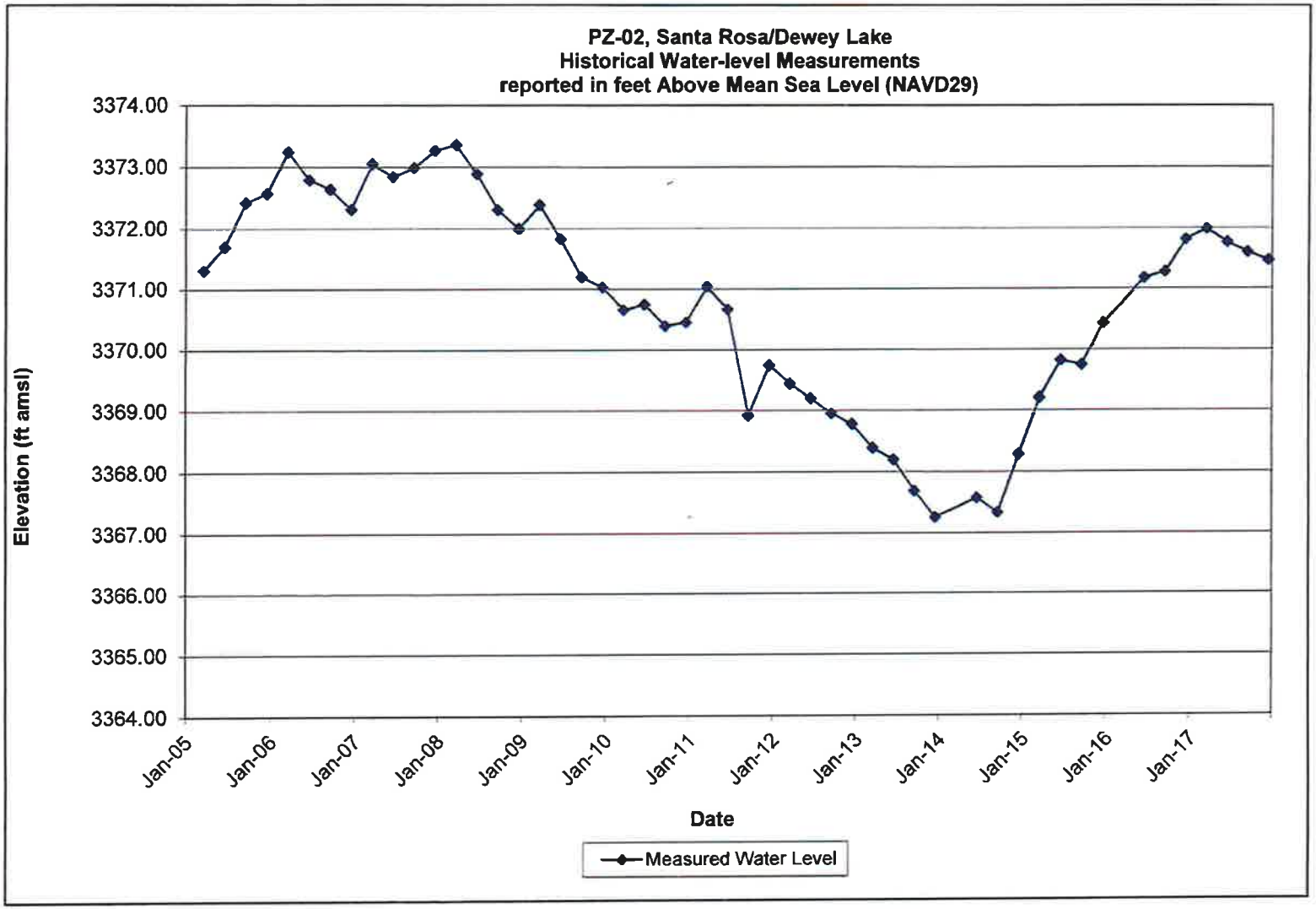
Figure 2 – 2017 Potentiometric Surface Map



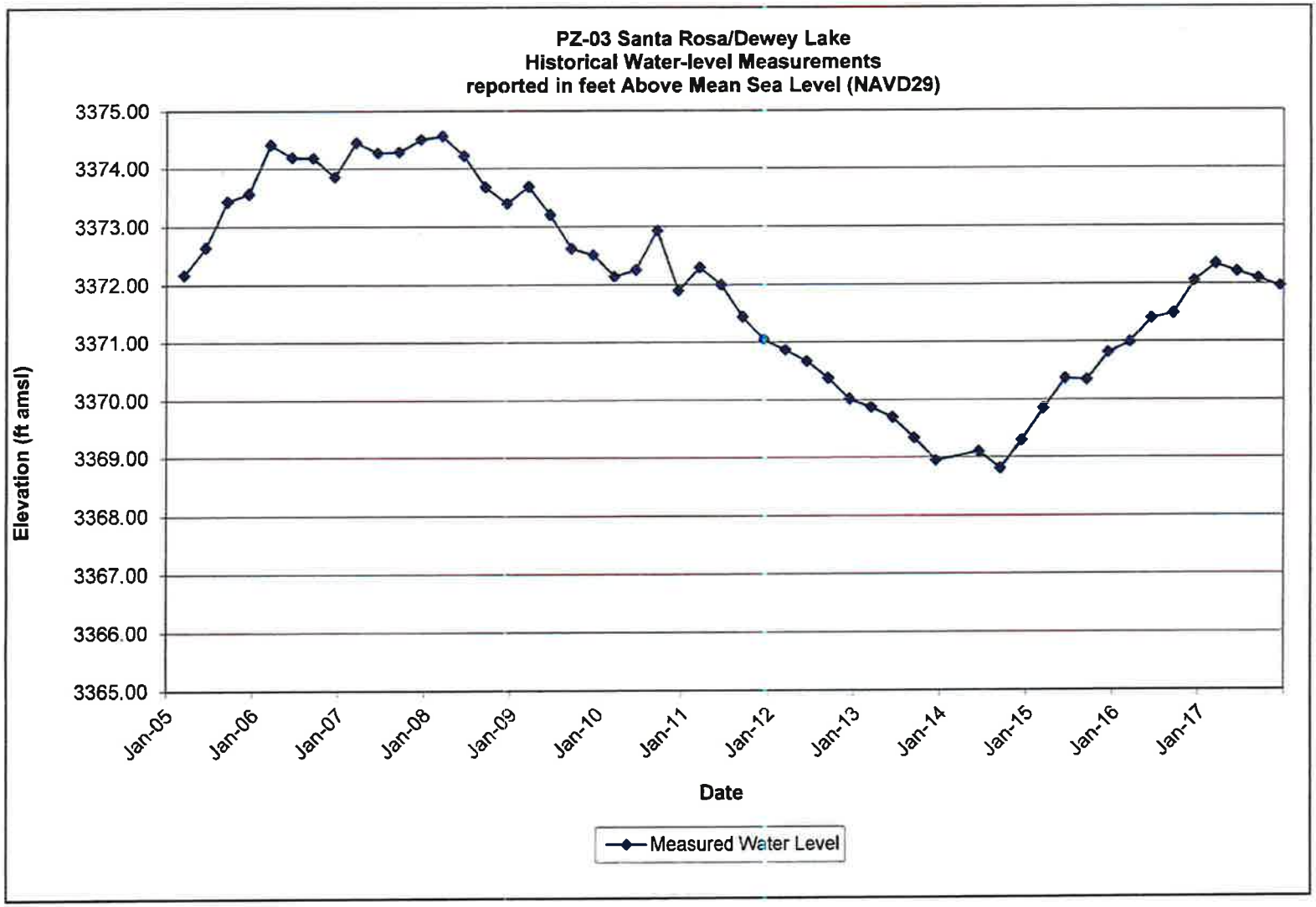
Attachment 1– Hydrographs



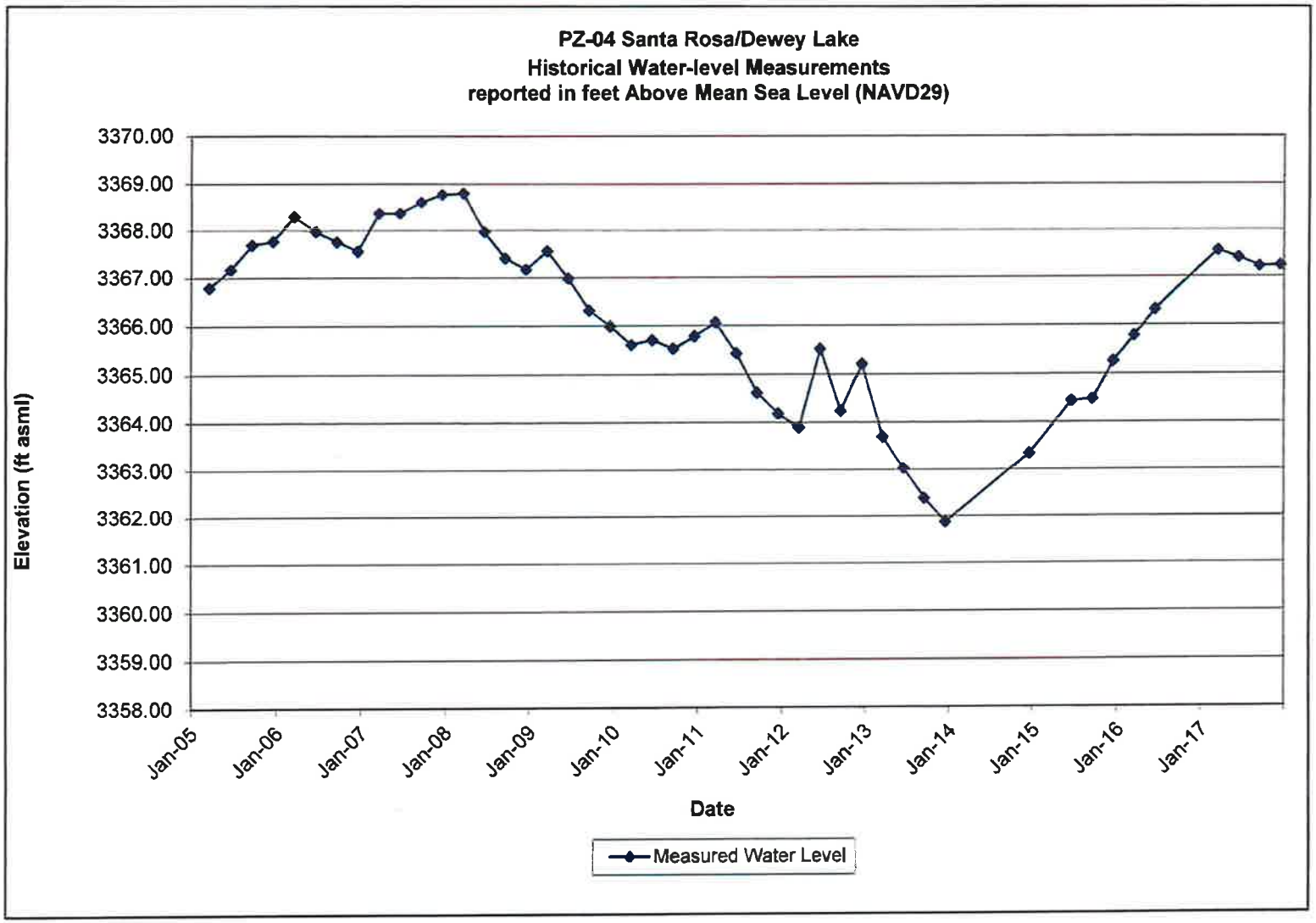
04857


PZ-02, Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3374.00
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
3365.00
3364.00
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
Measured Water Level

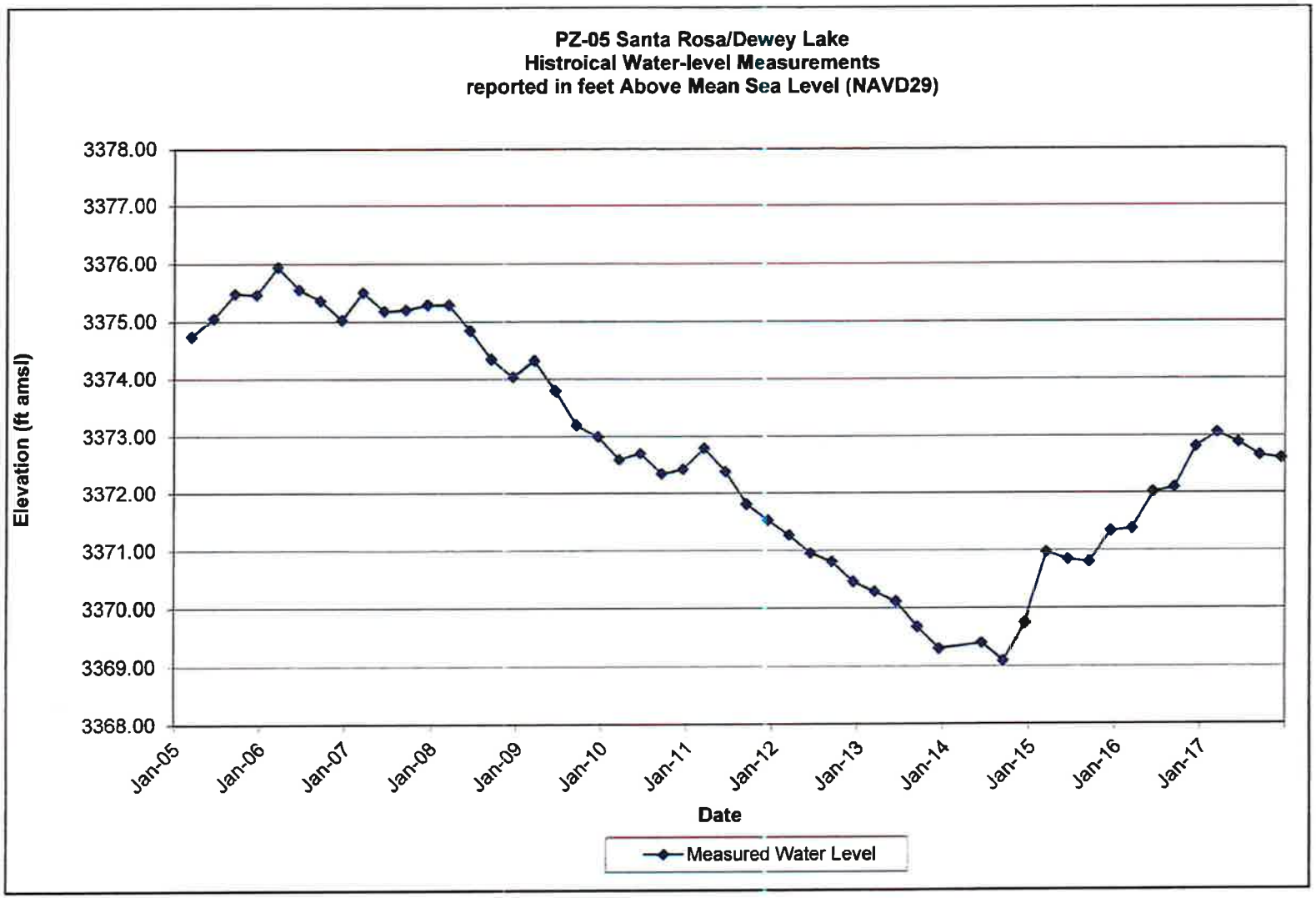
04858


PZ-03 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3375.00
3374.00
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
3365.00
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
Measured Water Level

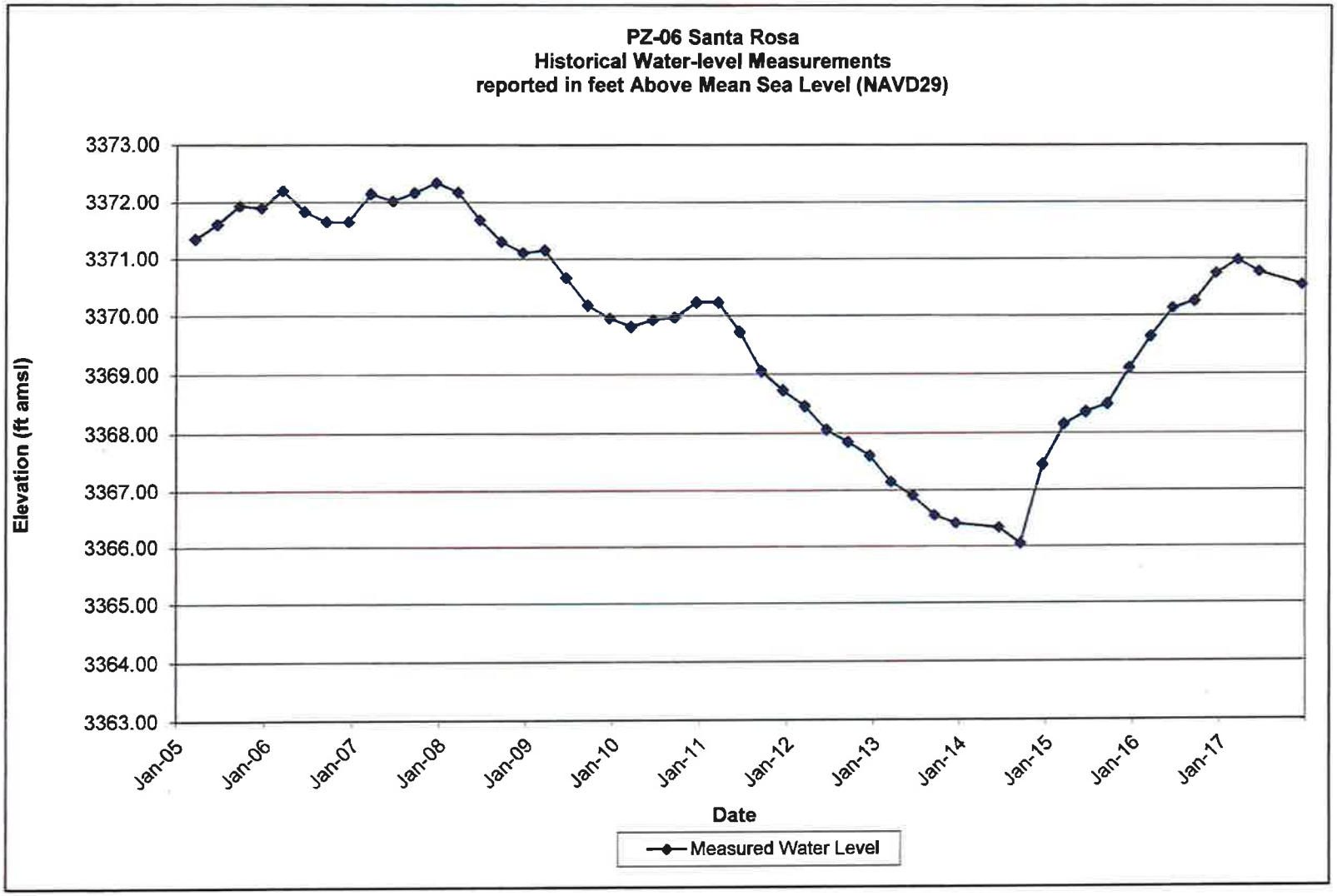
04859


PZ-04 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft asml)
3370.00
3369.00
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
3362.00
3361.00
3360.00
3359.00
3358.00
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
Measured Water Level

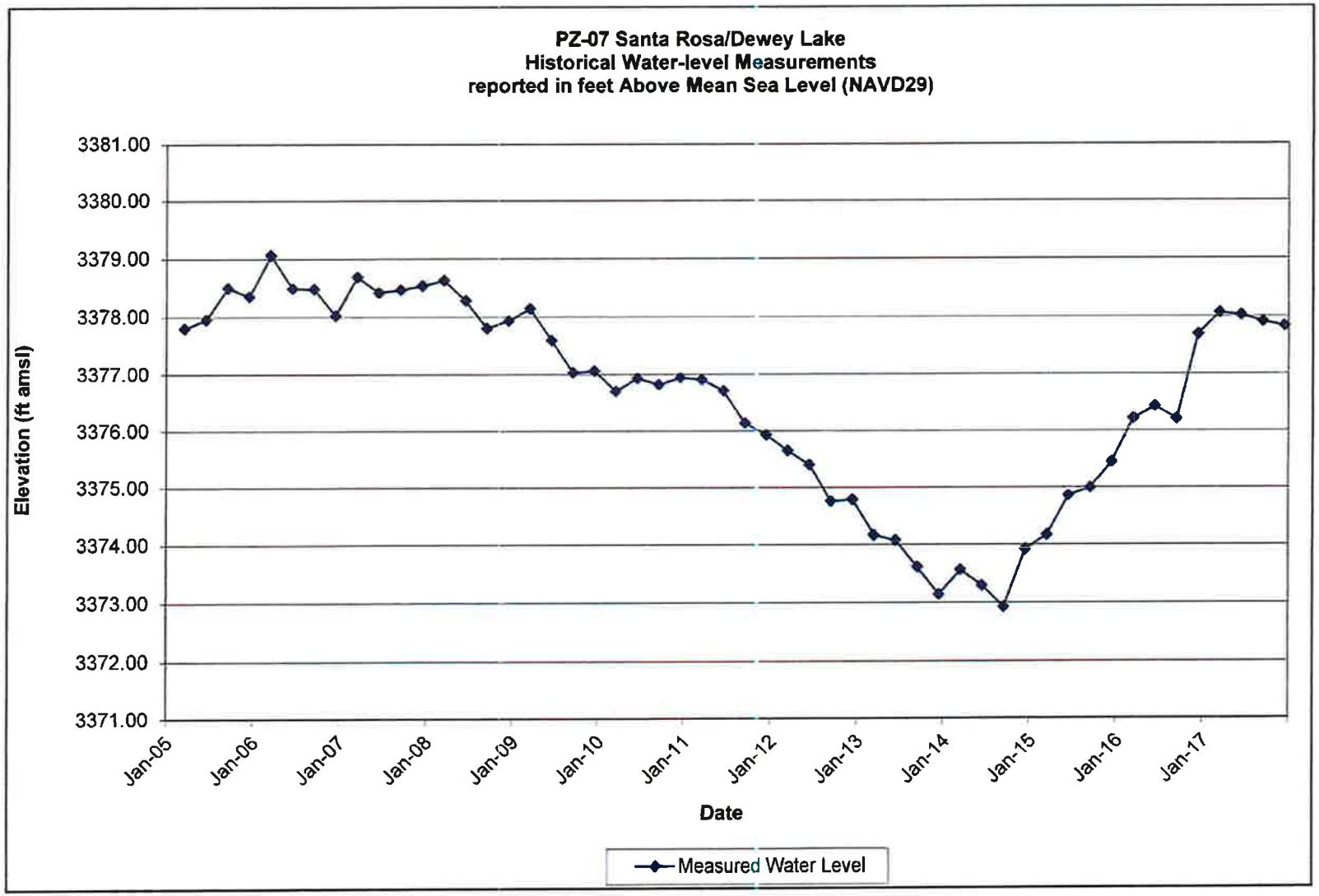
04860


PZ-05 Santa Rosa/Dewey Lake
Histroical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3378.00
3377.00
3376.00
3375.00
3374.00
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
Measured Water Level

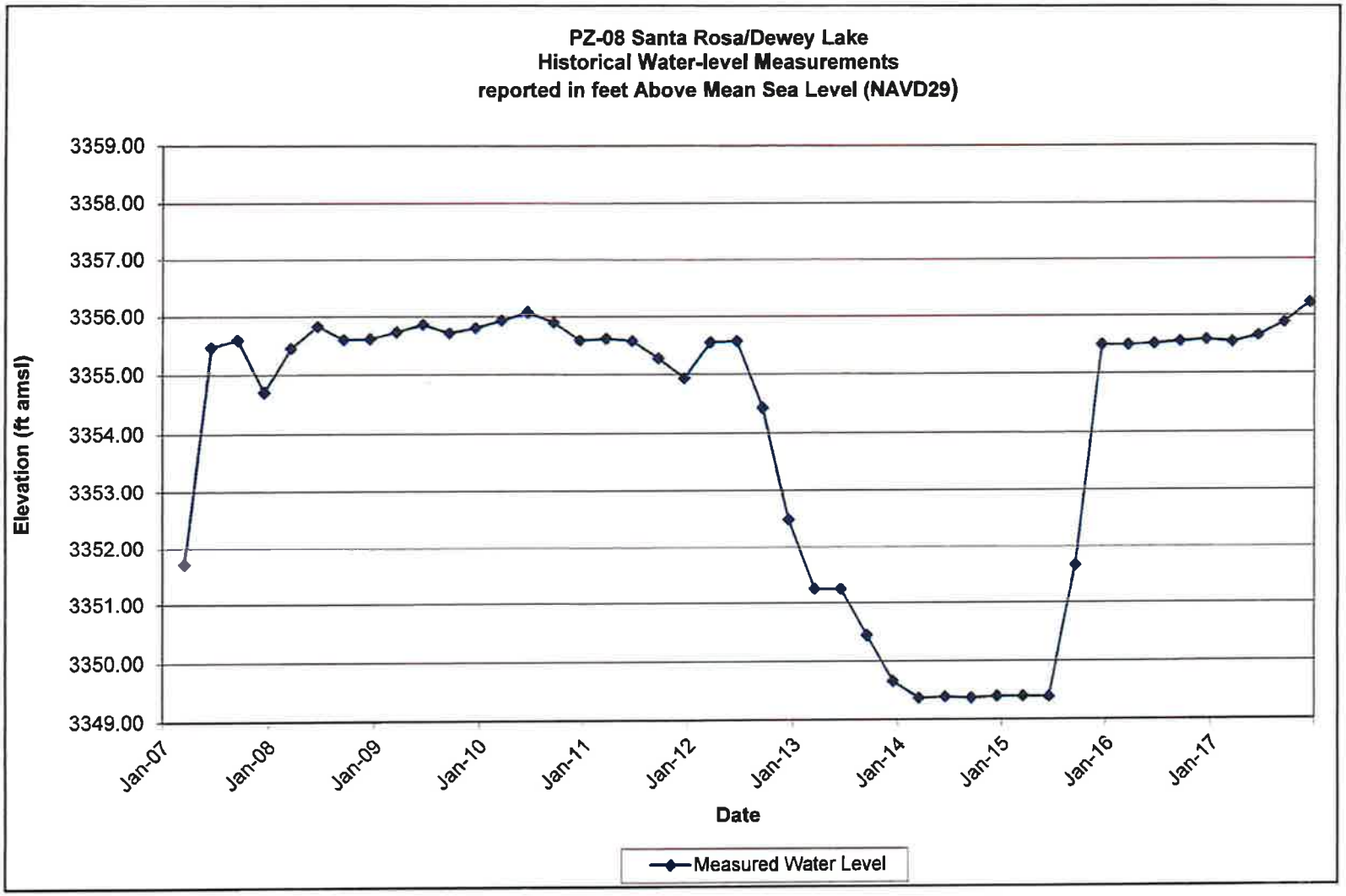
04861


PZ-06 Santa Rosa
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
Measured Water Level

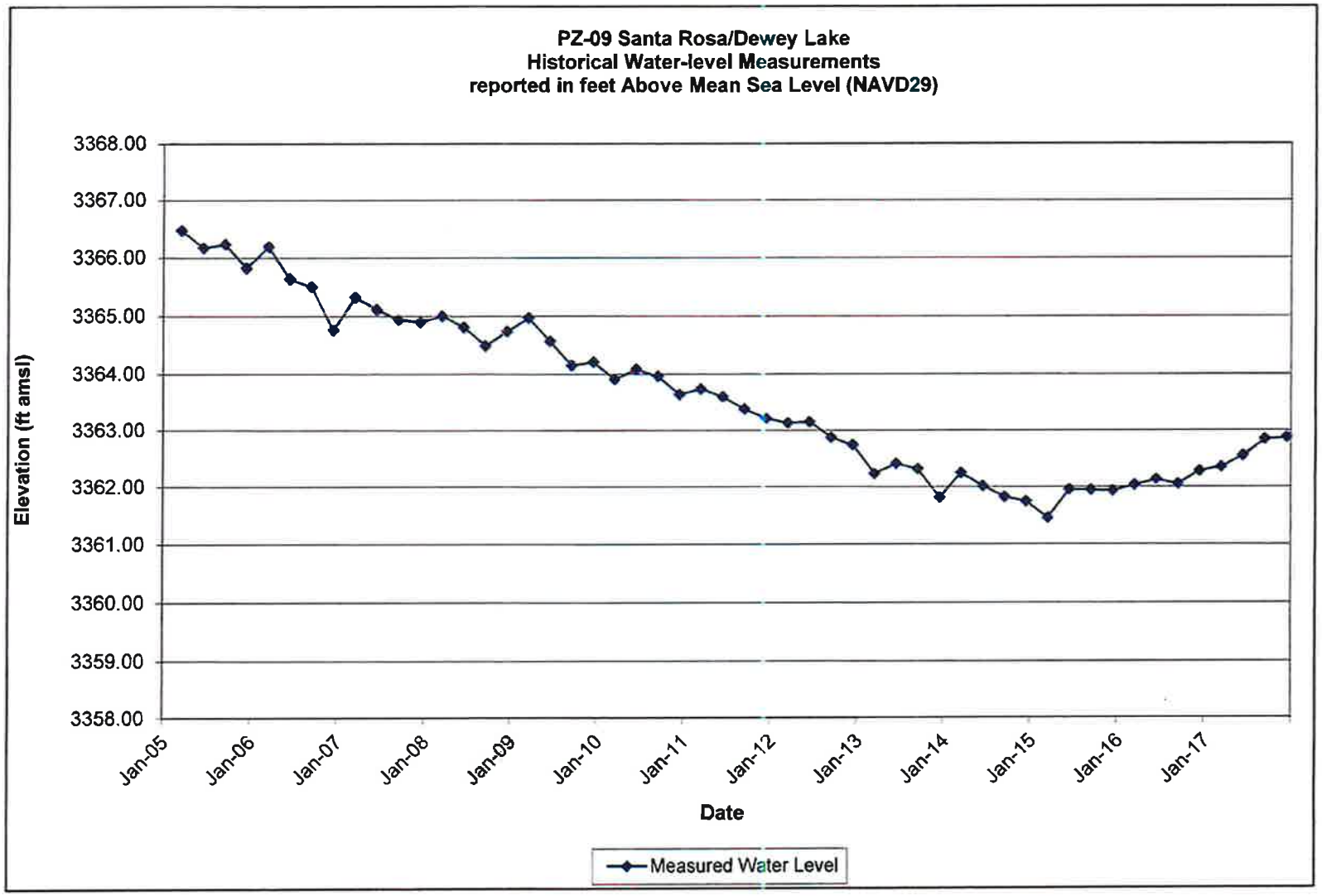
04862


PZ-07 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3381.00
3380.00
3379.00
3378.00
3377.00
3376.00
3375.00
3374.00
3373.00
3372.00
3371.00
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
Measured Water Level

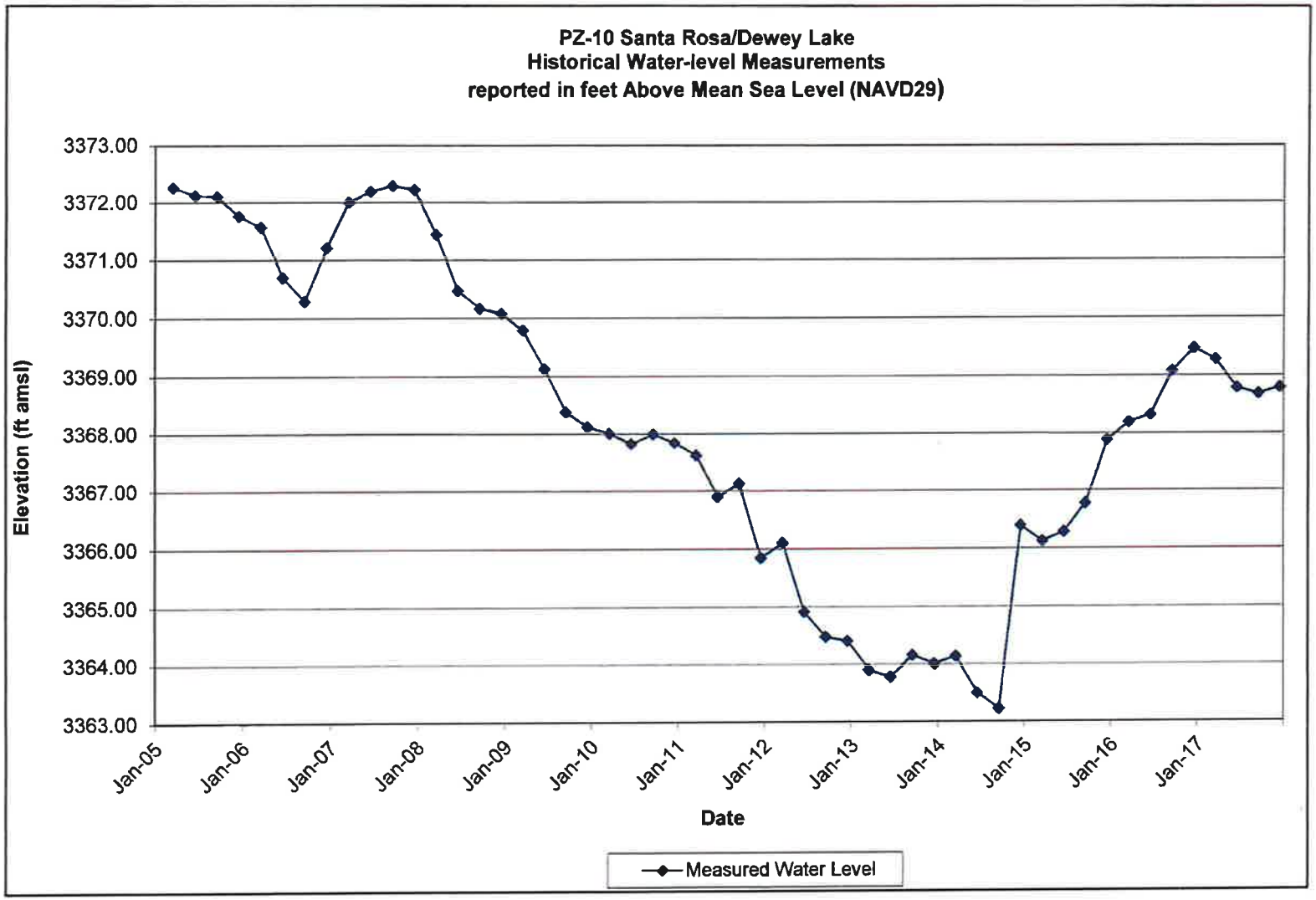
04863


PZ-08 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3359.00
3358.00
3357.00
3356.00
3355.00
3354.00
3353.00
3352.00
3351.00
3350.00
3349.00
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
Measured Water Level

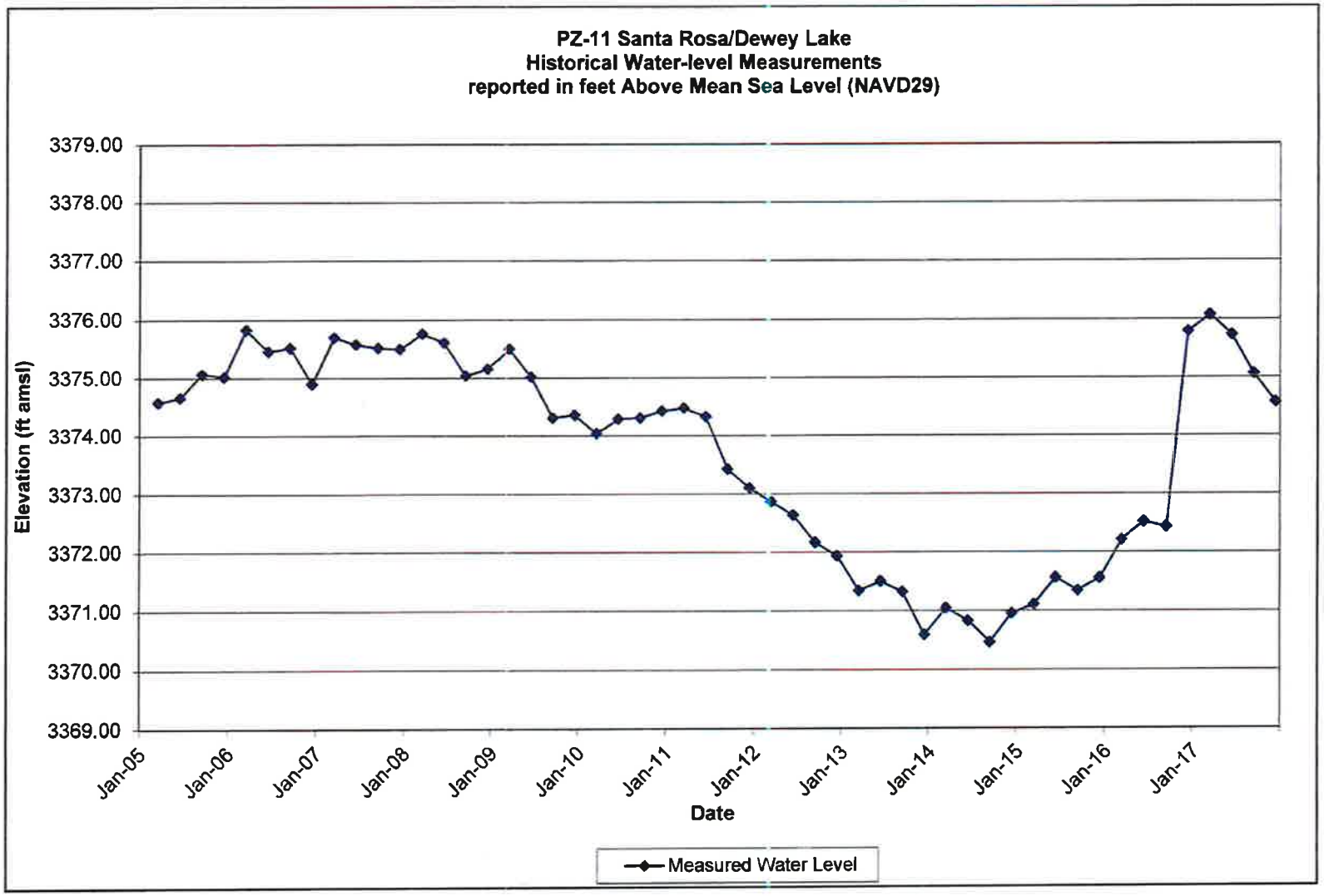
04864


PZ-09 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
3362.00
3361.00
3360.00
3359.00
3358.00
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
Measured Water Level

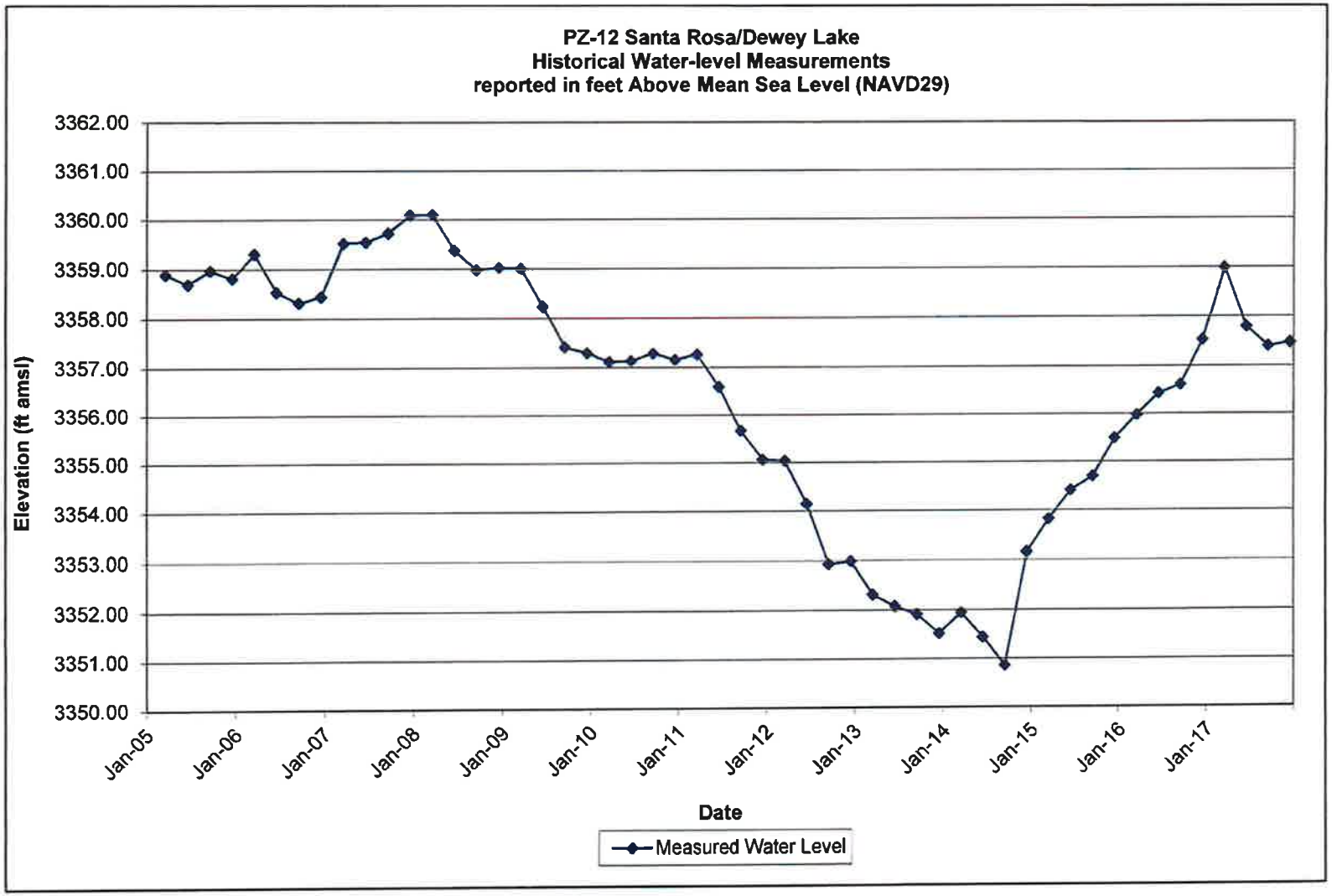
04865


PZ-10 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
Measured Water Level

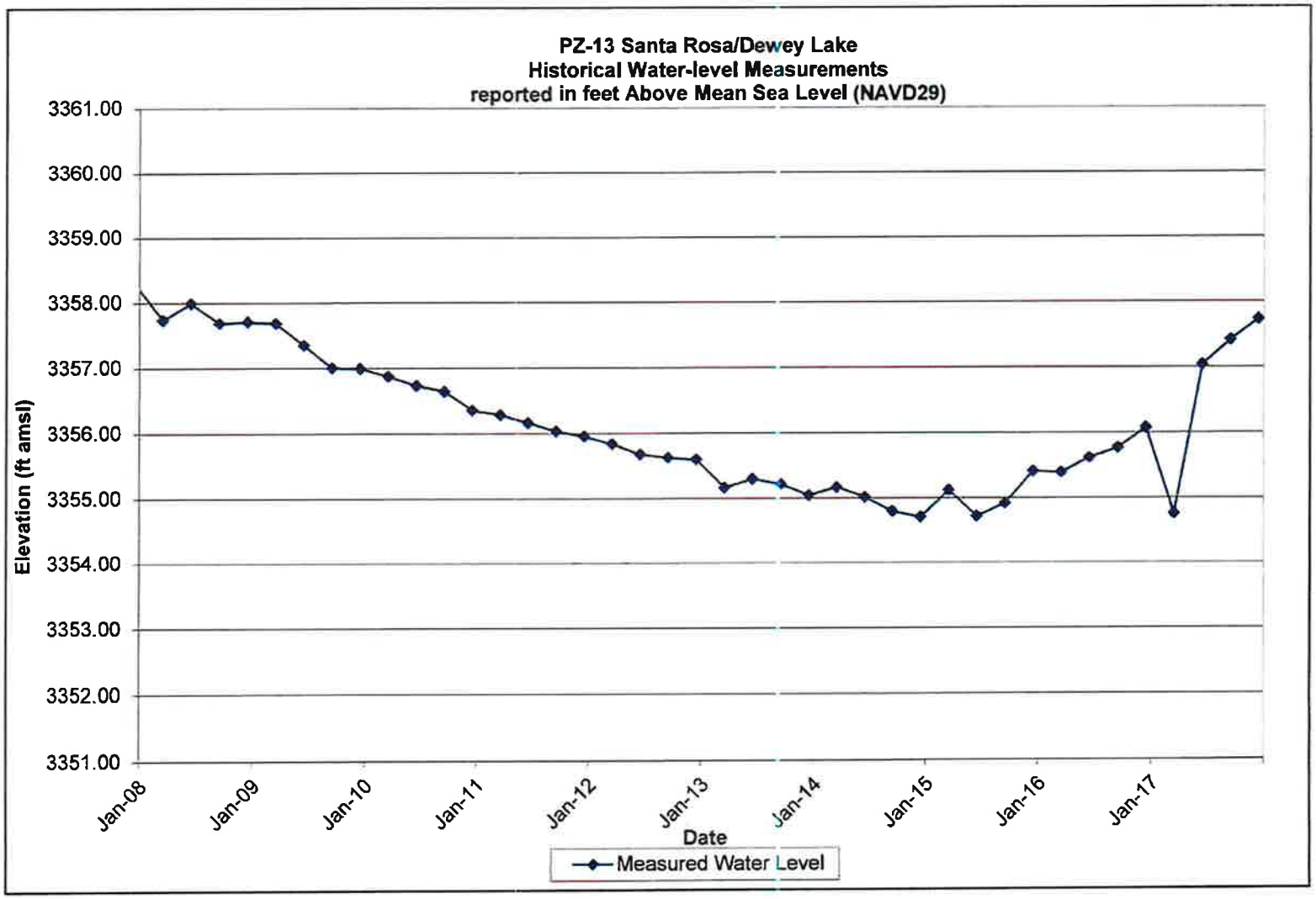
04866


PZ-11 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3379.00
3378.00
3377.00
3376.00
3375.00
3374.00
3373.00
3372.00
3371.00
3370.00
3369.00
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
Measured Water Level

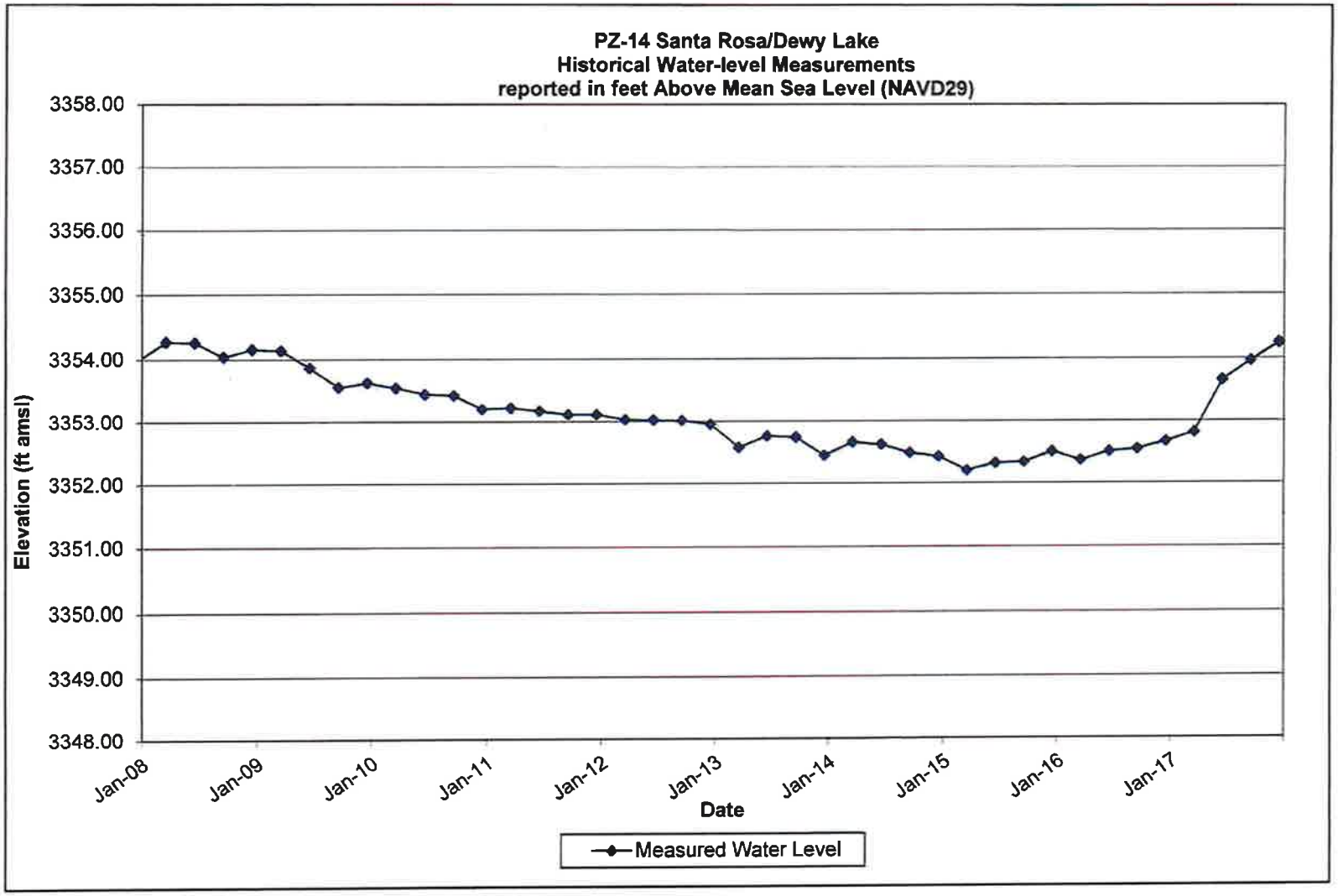
04867


PZ-12 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3362.00
3361.00
3360.00
3359.00
3358.00
3357.00
3356.00
3355.00
3354.00
3353.00
3352.00
3351.00
3350.00
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
Measured Water Level

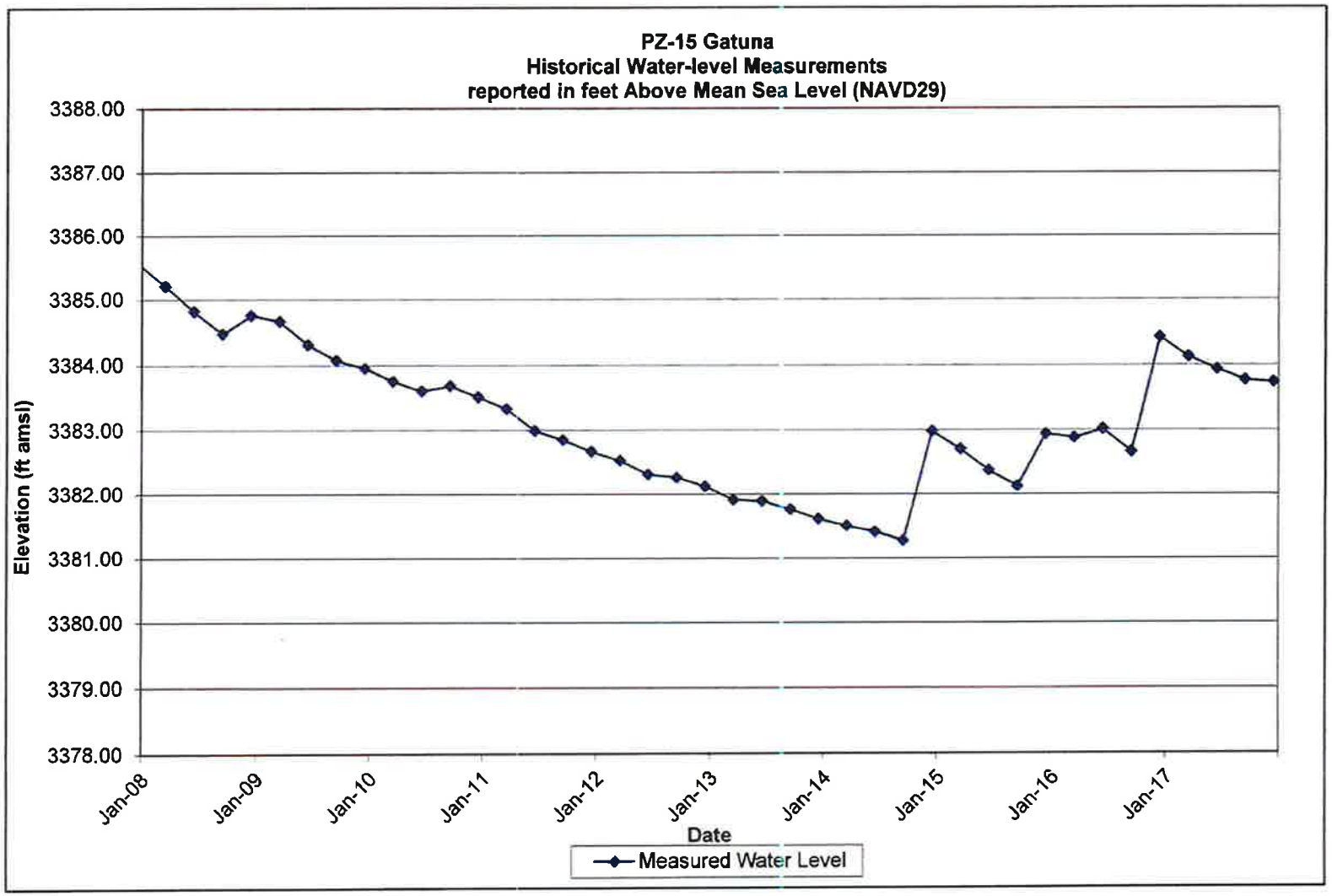
04868


PZ-13 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3361.00
3360.00
3359.00
3358.00
3357.00
3356.00
3355.00
3354.00
3353.00
3352.00
3351.00
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
Measured Water Level

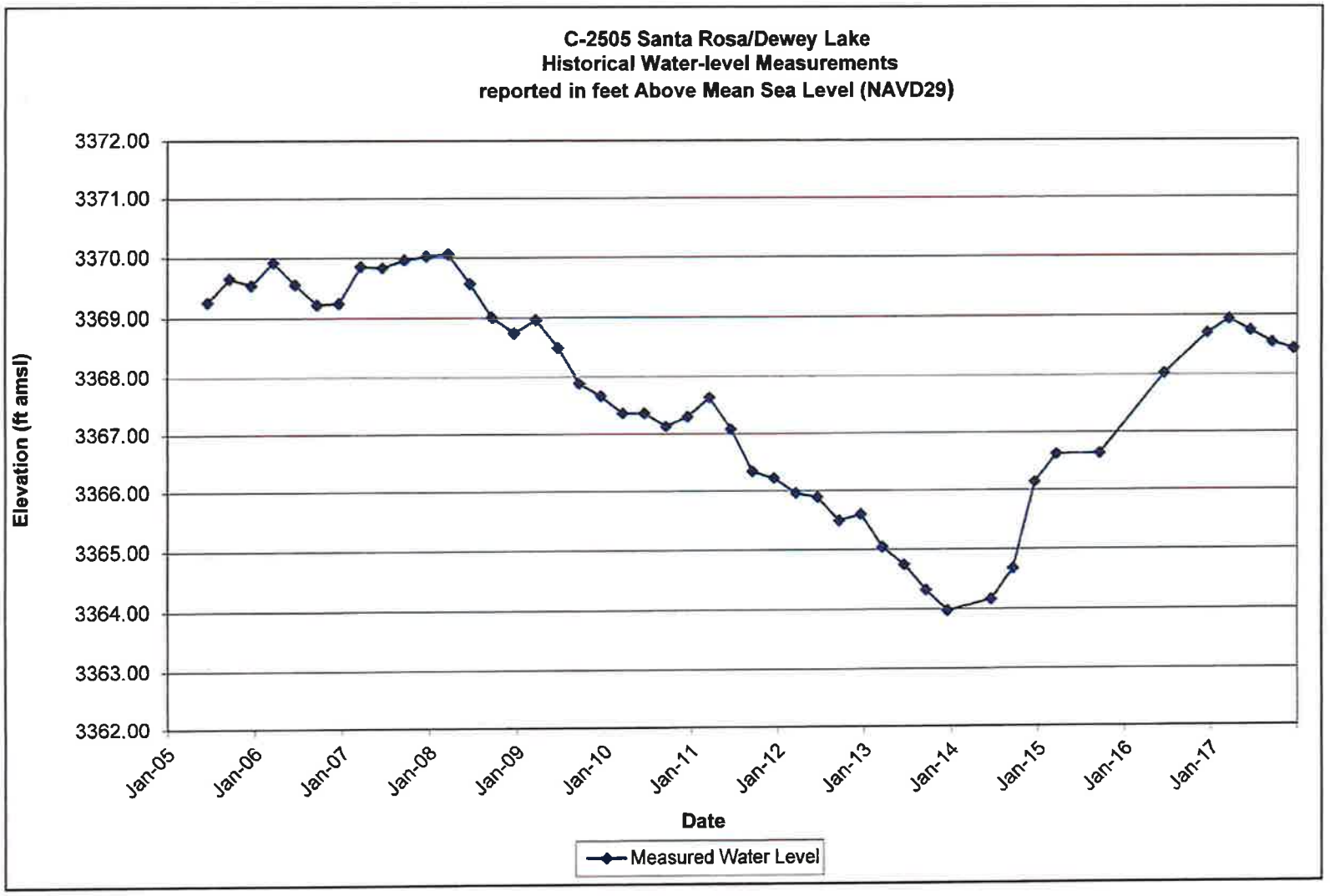
04869


PZ-14 Santa Rosa/Dewy Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3358.00
3357.00
3356.00
3355.00
3354.00
3353.00
3352.00
3351.00
3350.00
3349.00
3348.00
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
Measured Water Level

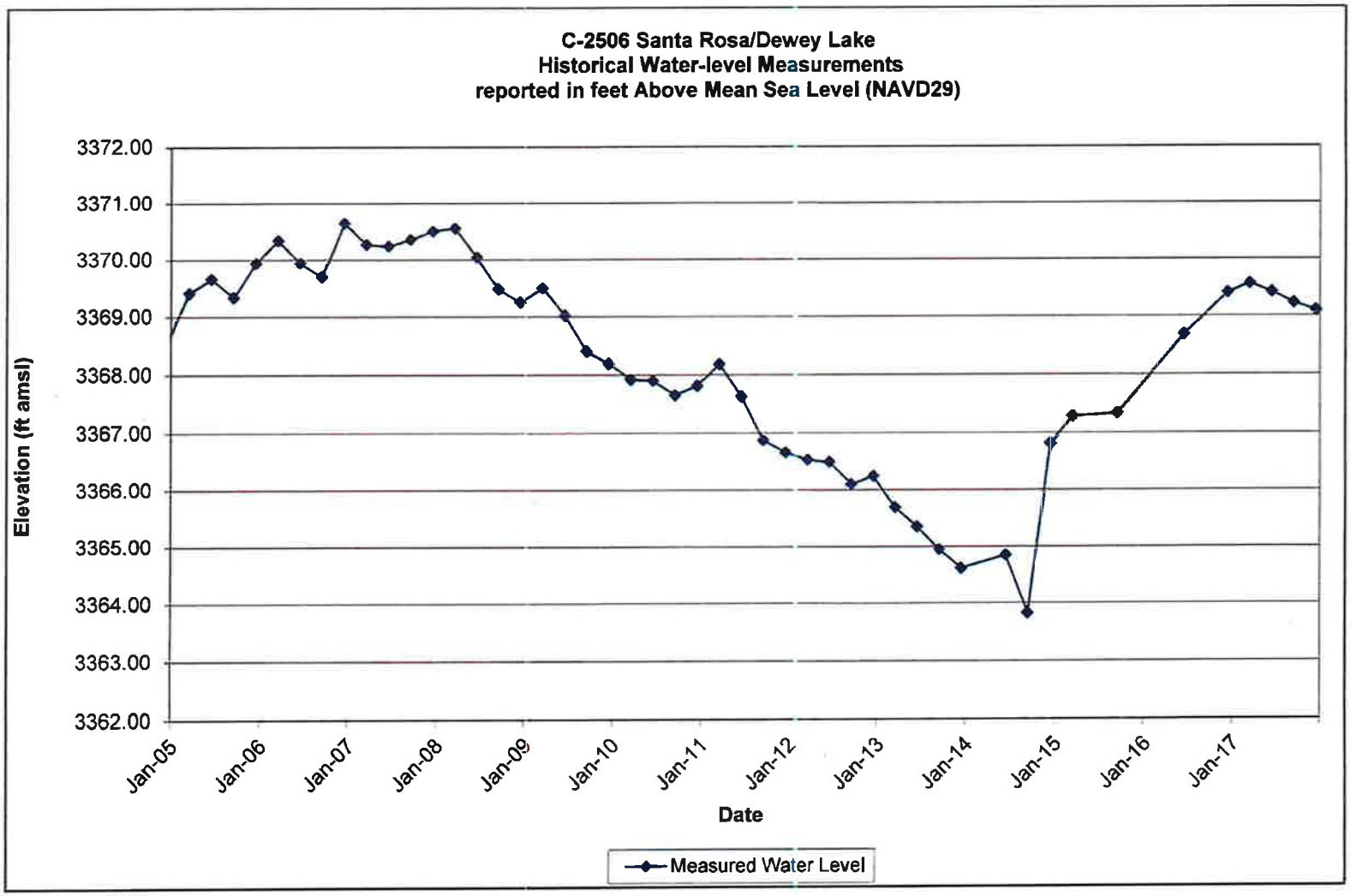
04870


PZ-15 Gatuna
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3388.00
3387.00
3386.00
3385.00
3384.00
3383.00
3382.00
3381.00
3380.00
3379.00
3378.00
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
Measured Water Level

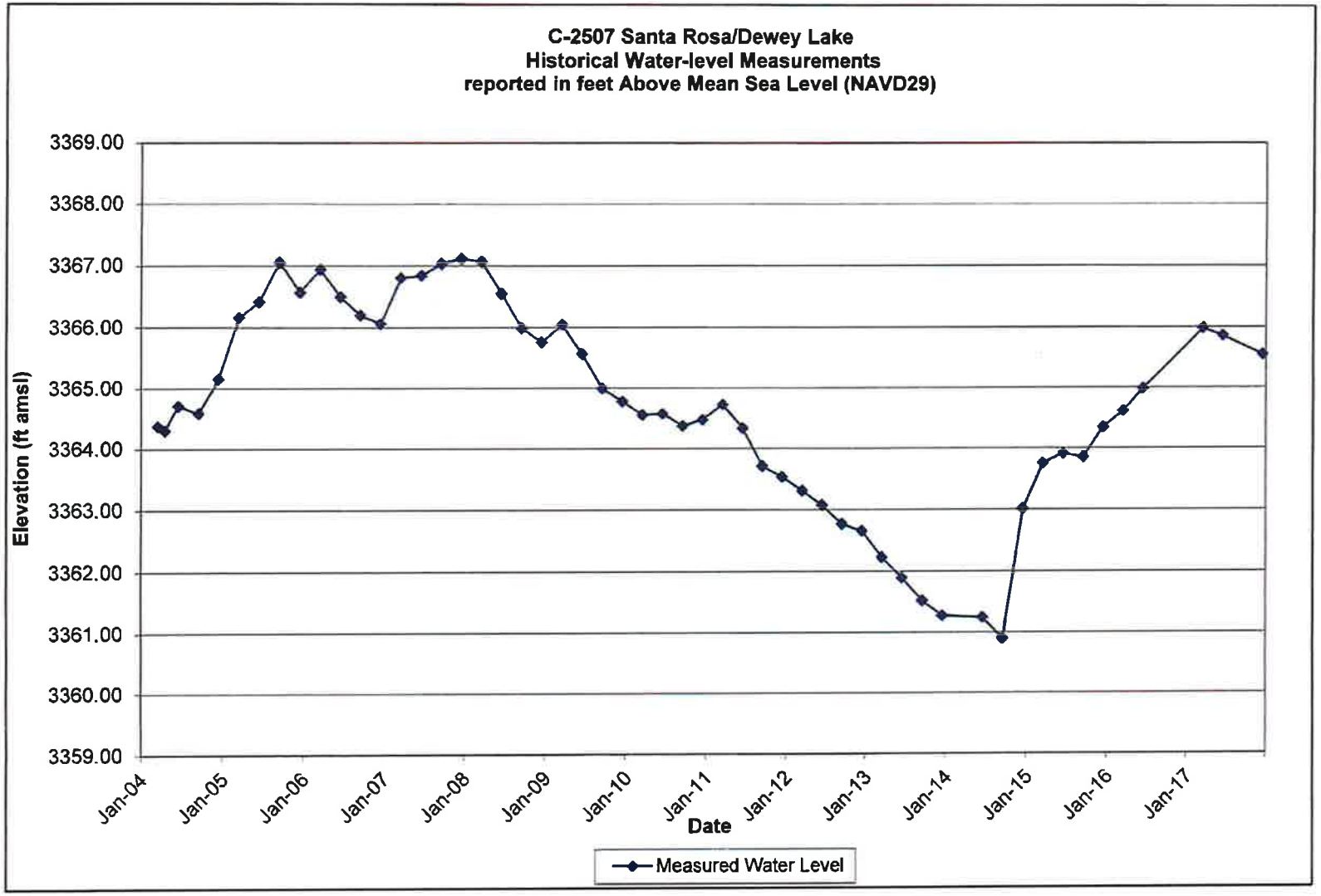
04871


C-2505 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3372.00
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
3362.00
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
Measured Water Level

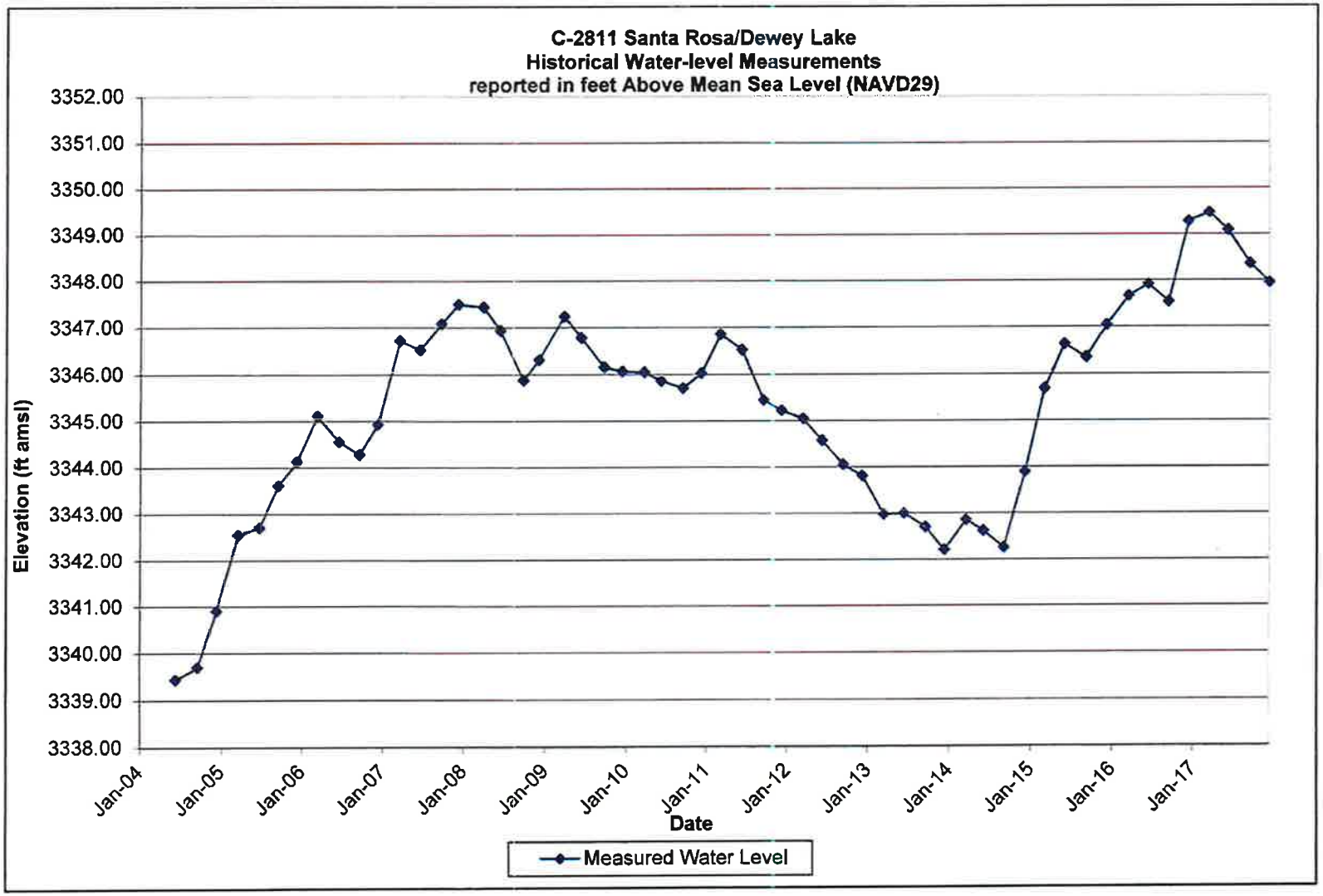
04872


C-2506 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3372.00
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
3362.00
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
Measured Water Level

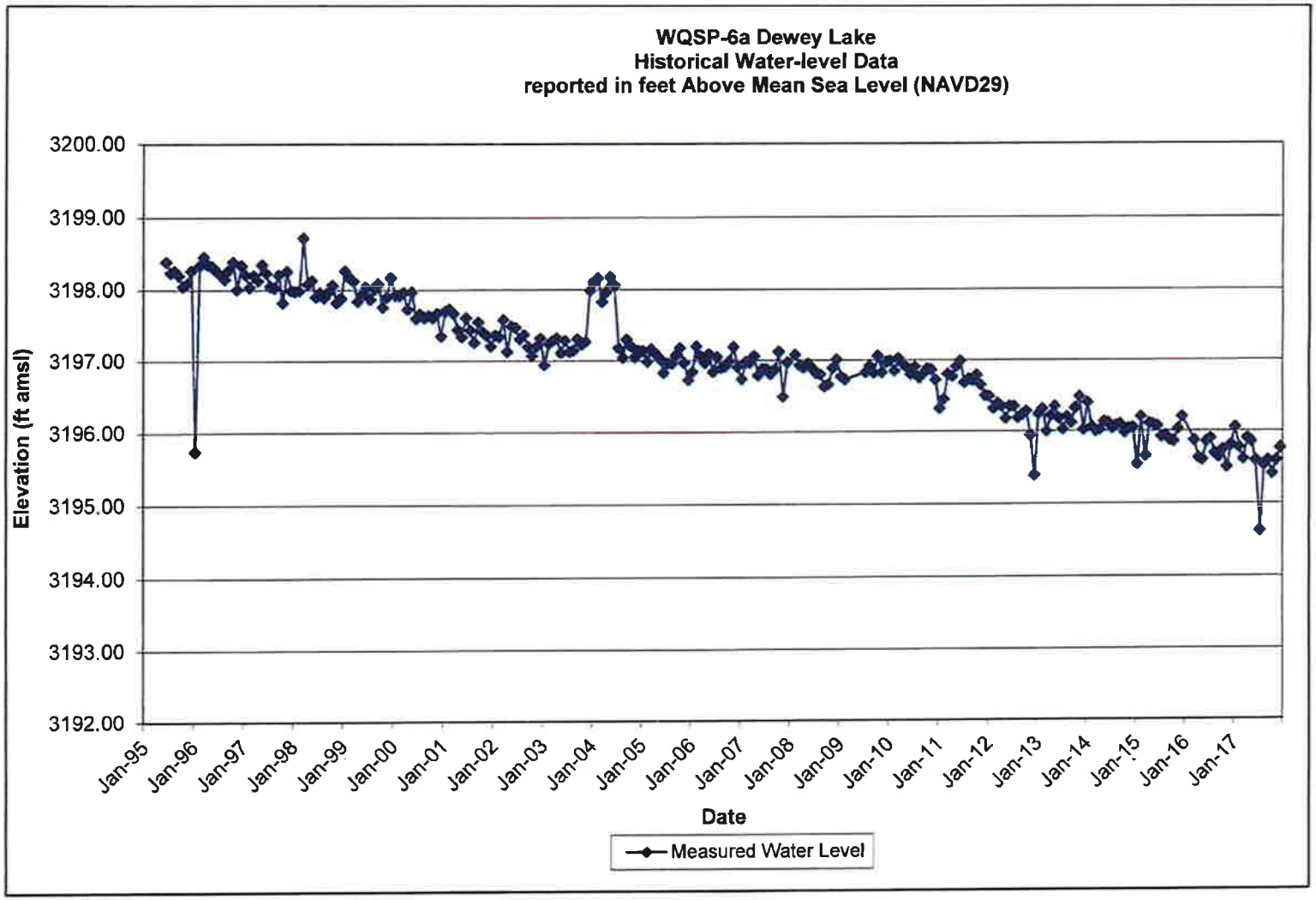
04873


C-2507 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3369.00
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
3362.00
3361.00
3360.00
3359.00
Jan-04
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
Measured Water Level

04874


C-2811 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3352.00
3351.00
3350.00
3349.00
3348.00
3347.00
3346.00
3345.00
3344.00
3343.00
3342.00
3341.00
3340.00
3339.00
3338.00
Jan-04
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
Measured Water Level

04875


WQSP-6a Dewey Lake
Historical Water-level Data
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3200.00
3199.00
3198.00
3197.00
3196.00
3195.00
3194.00
3193.00
3192.00
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
Measured Water Level

04876

Discharge to Facultative Lagoon System
July Through December 2017

Date	Gallons Domestic	Gallons for the Month	Avg. Gal per day	Comments
7/3 - 7/9	56,860			
7/10 - 7/16	54,185			
7/17 - 7/23	66,144			
7/24 - 7/30	74,427	251,616	8,117	
7/31 - 8/6	70,827			
8/7 - 8/13	84,455			
8/14 - 8/20	79,000			
8/21 - 8/27	82,478			
8/28 - 9/3	19,306	336,066	12,002	
9/4 - 9/10	67,017			
9/11 - 9/17	70,668			
9/18 - 9/24	117,561			
9/24 - 10/1*	70,244	325,490	9,300	Water meter not working. AR written
10/2 - 10/8*	70,244			
10/9 - 10/15*	70,244			
10/16 - 10/22*	70,244			
10/23 - 10/29*	70,244	280,976	10,035	
10/30 - 11/5	21,977			
11/6 - 11/12	13,884			
11/13 - 11/19	71,587			
11/20 - 11/26*	70,244			Water meter not working. AR written
11/27 - 12/3*	70,244	247,936	8,855	
12/4 - 12/10*	70,244			
12/11 - 12/17*	70,244			
12/18 - 12/24*	70,244			
12/25 - 12/31*	70,244	280,976	8,028	
	Total Flow	1,723,060		

*Gallons Domestic water estimated by using the average of July through Sept. known flows. The domestice water flow meter was malfunctioning.

ISSUED

COPY

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 2-3-17 **End Date:** 2-9-17

Location:	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
456, PUMPHOUSE BUILDING	REVIEWER															
	FOT	C/O														

ITEM	MIN	NORM	MAX	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	SEC	SEC													
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	✓	↓													
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5															
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	69	69	69	69	69	68	69	68	69	69	69	69	69	69	69
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		67194		66316												
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		62059		56960												
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	0 ②		0 ②		②		6 ②		62 ②		21 ②		22 ②		94 ②
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	0 ②		0 ②		②		600		6200		2100		2200		8400
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	1.17		1.23		1.15		1.15		1.09		1.0		1.01		.86

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: 1.) chlorinator TK 1 Tagged
2.) AR 629890 out of spec
3.) out of spec Fsm Notified

APPROVED FOR USE/DATE: Scott Sutton 3/14/18

04878

ISSUED

~~Facility Operations Bldg 458 / 456 Round Sheet~~

COPY

Start Date: 7-10-17 End Date: 7-16-17

Location: 458, GUARD & SECURITY BUILDING 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER		PD													
		FOT	C/O													R.T	LD
ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	Sec	Sec												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	↓	↓												
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	↓	↓												
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		✓		✓		✓		✓		✓
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	69	67	69	69	69	69	69	69	69	69	69	69	69	69
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)		RESET MONDAY [A]		66316		71173											
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		56860		54185											
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	84		29		43		251		84		282		710		338	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	8400		2900		4300		25100		8400		28200		71000		33800	
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.86		1.2		1.1		.99		1.07		.88		.95		.87	

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: 1) Chlorinator Tank 1 Tagged
2) AR 162989D out of spec
3) Out of spec FSM notified

APPROVED FOR USE/DATE: [signature] 5/24/16

04879

ISSUED

COPY

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 7-17-17 End Date: 7-23-17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2		2		2		2
				REVIEWER		AE		AE		AE		AE							
				FOT	C/O					LD			RS	LD					
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	sec	sec													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	↓	↓													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5															
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①		①		①		①		①		①		①		①
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	69	69	69	68	68	69	69	68	69	69	69	67	67	68	67
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		71173		454 67287												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		54185		4540 66444												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	338 ②	454 ②		9412 ②		1072 ②		524 ②		717 ②		40 ②		478 ②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	33,800 ②	45400 ②		94200 ②		107200 ②		52400 ②		71700 ②		4,000 ②		47,800 ②	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.87	.76		.78		1.01		.75		.96		.70		.85	

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Chlorinator TANK #1 TAGged
② out of spec / FSM notified AR # 1629890

APPROVED FOR USE/DATE: 5/14/18

ISSUED

COPY

~~Facility Operations Bldg 458 / 456 Round Sheet~~

Start Date: 7-24-17 End Date: 7-30-17

Location: 458, GUARD & SECURITY BUILDING 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1		1		1	2	1	2	1	2	1	2
		REVIEWER															
		FOT	C/O			R.T.			LD	R.T.							
ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	SEC	SEC												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	↓	↓												
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	↓	↓												
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		✓		✓		✓		✓		✓
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		①		①		①		①		①			①		①
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	67	61	67	65	67	68	68	61	66	67	68	67	67	68
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)		RESET MONDAY [A]		67287		82180.00											
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		66144		74426.91											
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	478 ②		1475 ②		1 ①		3 ②		73 ②		294 ②		637 ②		618 ②
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	47,800		147500		100 ①		300 ②		7300 ②		29400 ②		63700 ②		61800 ②
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.85		.79		.98		.95		.81		.78		.90		.72

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: 1) chlorinator tank #2 tagged
2) out of spec AR # 16229890

APPROVED FOR USE/DATE: 3/19/10

04881

ISSUED

COPY

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 7-31-17 **End Date:** 8-6-17

Location:		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
456, PUMPHOUSE BUILDING		REVIEWER															
		FOT	C/O														
ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	SEC	SEC												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	↓	↓												
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5														
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		✓		✓		✓		✓		✓
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		①		①		①		0		①		①		①	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	68	67	67	67	68	68	68	68	67	68	67	68	68	68
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)		RESET MONDAY [A]		83180		69919.75											
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		74426.91		20827.33											
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	618 ⑤		623 ⑤		129		147		55		116		165	281 ⑤
[NMED, DP-831] **Max 23,000 gal** (Reading × 100)			23,000	61800 ⑤		523000 ⑤		12900		14700		5500		11600		16500	28100 ⑤
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.72		.91		1.06		1.0		.74		.95		.93	.72

NOTES:
- **[A] - RESET meter after taking the reading on Monday second shift.**
- **[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].**
- **[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.**
- **[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.**
- **[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.**
- **[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.**
- **[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.**

COMMENTS: 1.) Chlorinator tank #2 Tagged
2.) OOSpec AR # 1629890

APPROVED FOR USE/DATE: 3/14/16

04882

ISSUED

COPY

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 8/7/17 End Date: 8/13/17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O														
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	SEC	SEC													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	↓	↓													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5															
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①		①		①		①		①		①		①		①
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	68	67	68	68	67	65	67	68	68	66	67	68	68	68	68
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		69819.76		88066.12												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		70827.33		84455.10												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	281 ②		578 ②		550 ②		329 ②		448 ②		1160 ②		303 ②		97 ②
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	28100 ②		57800 ②		55000 ②		32900 ②		44800		116000 ②		30300 ②		9700 ②
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.72		1.09		1.0		.96		.89		.80		.86		.68 ③

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: 1.) Chlorinator tank #2 Tagged
2.) OOSpec AR # 1629890
③ OUT OF SPEC, ADDING CHLORINE - FSM NOTIFIED

APPROVED FOR USE/DATE: [signature] 5/14/17

ISSUED

COPY

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 8/14/17 End Date: 8/20/17

Location: 458, GUARD & SECURITY BUILDING 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER		AE		AE		AE									
		FOT	C/O	KM	LD	AM	R.T.	KM		AM	R.T.	AM		LD			93
ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	SEC	SEC												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5														
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5														
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		✓		✓		✓		✓		
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		①		①		①		①		①		①			①
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	68	67	68	66	68	65	67	68	68	67	67	68	68	68
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)		RESET MONDAY [A]		88066.17		80125.56											
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		84455.10		78997.89											
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	97 ②		557 ②		811 ②		542 ②		41317 ②		1558 ②		41 ②	40 ②
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	97100 ②		55700 ②		81100 ②		54200 ②		413900 ②		155800 ②		4100 ②	4000
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.68 ③	1.15		1.11		1.06		.89		.84		.84		.74

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① CHLORINATOR TANK #2 TAGGED
② O.O. SPEC, AR# 1629890
③ OUT OF SPEC, ADDING CHLORINE - FSM NOTIFIED CLEARED 8-14-17

APPROVED FOR USE/DATE: [signature] 5/24/18

04884

ISSUED

COPY

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 8/21/2017 **End Date:** 8/27/2017

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		J								J		PIP		PIP	
				FOT	C/O	R.T.						C.T.					97		
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	SEC	SEC													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	↓	↓													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5															
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY				[D]		✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①		①		①		①		①		①		①		①
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	68	67	67	67	68	64	68	67	68	68	68	68	68	68	68
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		80125.56		R361.71												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		78999.87		82477.53												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	40 ②		520 ②		627 ②		1856 ②		2457 ②		591 ②		2.00 ②		1789 ②
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	4000		5200		62700		185600		2457000		59100		99700		1784900
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.74		.74		.95		.86		.76		1.1		1.10		1.14

NOTES:
- [A] - RESET meter after taking the reading on Monday second shift.
- [B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
- [C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
- [D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
- [E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
- [F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
- [G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
① CLORINATOR TANK #2 TAGGED
② O.O.S., AR# 1629890

APPROVED FOR USE/DATE: [signature] 8/27/17

ISSUED

~~Facility Operations Bldg 458 / 456 Round Sheet~~

COPY

Start Date: 8/28/17 End Date: 9/3/17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O														
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	sec	sec													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	↓	↓													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5		✓		✓		✓		✓		✓		✓		✓	
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]																			
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①		①		①		①		①		①		①		①
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	68	66	68	68	68	68	68	67	67	67	68	68	68	69	68
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		192197		219326												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		82470.52		19906.20												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	12891 ②	19811 ②		12891 ②		12015 ②		10611 ②		10661 ②		12031 ②		7730 ②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	178900 ③	198100 ③		12900 ③		20500 ③		10610 ③		10660 ③		12030 ③		77000 ③	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	1.14	.73		1.17		.99		.95		.89 .85 DO 9-1-17		.89		.83	

9-1-17

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Clorinator Tank #2 Tagged OOS AR# 162980

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

04886

ISSUED

COPY

~~Facility Operations Bldg 458 / 456 Round Sheet~~

Start Date: 9-4-17 End Date: 9-10-17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		MP	[illegible]	MP	[illegible]	MP	[illegible]	MP	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
				FOT	C/O	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ITEM	MIN	NORM	MAX																
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5		sec	sec													
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5		↓	↓													
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5																
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS [F]		SAT [G]			①		①		①						①		①		①
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70		68	68	68	68	68	48	69	68	68	66	68	69	68	69	68
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS (gal)		RESET MONDAY [A]			21932.68	911385													
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]			19306.20	67017													
456-FM-043-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING	N/A	[B]	230		73 ②	2890 ③		2963 ③		17555 ③		13070 ③		3902 ③		1013 ③		14328 ③	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000		73000 ②	289000 ③		296300 ③		175500 ③		130700 ③		390200 ③		101300 ③		143200 ③	
HACH TEST KIT					7300 ② ③														
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2		.93	.72 ④		.96		.96		.78		1.04		1.2		1.2	

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Clorinator Tank #2 Tagged
② OOS AR # 1629890
③ Cell cleaned in error
④ Added chlorine

APPROVED FOR USE/DATE: [illegible] 5/14/18

04887

ISSUED

COPY

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 9-11-17 End Date: 9-17-17

Location: 458, GUARD & SECURITY BUILDING / 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER		AC		CB		CB		CB							
		FOT	C/O	CB		AM		AM		AM							

ITEM	MIN	NORM	MAX	SUN	MON 1	MON 2	TUES 1	TUES 2	WED 1	WED 2	THURS 1	THURS 2	FRI 1	FRI 2	SAT 1	SAT 2	SUN 1	SUN 2
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	SEC ↓	SEC ↓													
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5															
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5															
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		①		①		①		①		①		①		①		①
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	68	67	68	69	68	68	68	68	69	68	68	68	68	68	68
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		91385		75462												
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		67017		70468												
456-FM-045-001 SEWAGE FLOW METER																		
(5) SEWAGE FLOW READING	N/A	[B]	230	1432 ③ 1890	9-20-17 EC	550	3172 ②		5267 ② 5200	9/19/17	①		2 ②		14 ②		7 ②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	25,9000 ②	9-10-17 EC	R99600	317200 ③		525500 ①		523380 ②		200 ②		1400 ②		100 ②	
HACH TEST KIT				143200														
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.71 ④ 1.2	9-10-17 EC	.98	.98		.79		1.02		.99		.92		.90	

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - (5) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM (NMED, DP-831).
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① CLORINATOR TANK #2 TAGGED
② OOS AR # 162 9890
③ RED CIRCLED IN ERROR
④ ADDED CHLORINE

APPROVED FOR USE/DATE: [signature] 5/19/17

04888

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 091817 End Date: 092417

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER		MC													
		FOT	C/O	KM			LD	KM			LD						
ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	SEC													
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5														
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5														
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]				✓		/		✓		/		✓		/		✓	
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		①		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	68	68	68	68	68	68	65	69	69	68	68	68	68	68
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)		RESET MONDAY [A]		75462		117588.46											
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		70448		0 ⑥											
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	7 ②	7 ②	0 ②		0 ②		0 ②		0 ②		0 ②		0 ②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	700	700	0		0		0		0		0		0	
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.90	.77	.76		.74		1.10		1.12		1.04		.95	

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM (NMED, DP-831).
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: 1) clorinator tank #2 tagged ③ No calibration stickers in place, A.R.# 1743413. ④ No calibration sticker in place, A.R.# 1743414
2) OOS AR# 1629890
⑤ No calibration sticker in place, A.R.# 1743415 ⑥ No Reading on Domestic Flow Guage AR# 1743423 ⑥ Notes: 3, 4, 5 are no longer required to be calibrated per FWS - Larry Diaz - I&C

APPROVED FOR USE/DATE:

ISSUED

~~Facility Operations Bldg 458 / 456 Round Sheet~~

COPY

Start Date: 9-25-17 End Date: 10-1-17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		BT PB	CB	BT PB		BT				CB	mc	AC	mc	AC	mc
				FOT	C/O		AM	LD			n			97	RM	AM		AM	ET
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	.02	.04													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]																
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	68	68	66	68	68	67	68	64	69	69	69	69	69	68	68
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		117586.46		142279.68												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		0		0												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	7		572		327		64		115						
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	760		592		700		6400		11500						
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.77		.90		.73		.107		.96		.91		.91		.87

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: 1.) Chlorinator Tank #2 Tagged 2.) OOS AR# 1629890 3.) No Cal Stickers in place AR#1743413 4.) No Cal Stickers in place AR#1743414
5.) No Cal Stickers in place AR#1743415 6.) No Reading on Domestic Flow Gauge AR#1743423 7.) Notes 3, 4, +5 No longer required to be Calibrated 9-26-17

APPROVED FOR USE/DATE:

ISSUED

COPY

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 10-2-17 End Date: 10-8-17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		PJP	mc	PJP	AC		AC			St MC		St mc		WC	
				FOT	C/O	~		~		~	QT	~		R.T.	LD	R.T.			
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	.04	.05													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①		①		①		①		①		①		①		①
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	68	68	68	68	68	68	69	69	69	68	69	67	69	69	69
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		14277.68		100983.29												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		0 ②		0 ②												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	③		③		③		③		③		③		③		③
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓		↓		↓		↓		↓		↓		↓		↓
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.87		.80		.94		.87		④		④		④		④

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Chlor Inactive tank # 2 Tagged
② No reading on domestic flow gauge. AR# 1743423
③ OOS AR # 1629890
④ Timely order states this will be done on day shift.

APPROVED FOR USE/DATE:

ISSUED

COPY

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 10-9-17 End Date: 10-15-17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		AC	DT			AC	N	AC			PJP				PJP
				FOT	C/O					AM	RT.	AM							
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	.05	.05													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①		①		①		①		①		①		①		①
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	69	69	69	67	69	68	69	68	67	67	69	68	69	69	69
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		100283.39		95136.73												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		0 ②		0 ②												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	③		③		③		③		③		③		③		③
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	④		④		④		④		④		④		④		④

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 – IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① CHLORINATOR TANK #2 TAGGED
② NO READING ON DOMESTIC FLOW GAUGE, AR# 1743423
③ O.O.S. AR# 1629890
④ TIMELY ORDER STATES THIS WILL BE DONE ON DAYSHIFT.

APPROVED FOR USE/DATE:

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 10-16-17 End Date: 10-22-17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		MC	PJD	JN	JR	JN	BH	NB	BH	PJD	CB	PJD	CB	PJD	CB
				FOT	C/O	KM	93	KM				MC	LD	93	AM	93	AM	93	AM
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	(5)													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0														
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	-.05	↓													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		(1)		(1)		(1)		(1)		(1)		(1)		(1)		(1)
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		95131.72		1676945												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		0 (2)		(2)												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	(3)		(3)		(3)		(3)		(3)		(3)		(3)		(3)
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓		↓		↓		↓		↓		↓		↓		↓
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	(4)		(4)		(4)		(4)		(4)		(4)		(4)		(4)

NOTES:
- [A] - RESET meter after taking the reading on Monday second shift.
- [B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
- [C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
- [D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
- [E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
- [F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
- [G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
(1) Chlorinator tank #2 tagged
(2) NO reading on domestic flow guage, AR # 1743423
(3) 0.0.S AR# 1629890
(4) Timely Order States this will be done on dayshift
(5) These gauges not in the calibration system any longer, no need to take readings.

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

COPY

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 102317 End Date: 102917

Location:		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
456, PUMPHOUSE BUILDING		REVIEWER															
		FOT	C/O														R.T.
ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	0	0												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	0	0												
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	.06	.05												
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		✓		✓		✓		✓		✓
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		①		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	69	69	69	69	69	68	69	69	69	67	69	68	69	69	69
456-FIY-010-001 WATER FLOW METER				167592.59													
RAW WATER GALLONS (gal)		RESET MONDAY [A]		CB 10-31-17		268317											
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		0 ②		0 ②											
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	③		③		③		③		③		③		③	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	✓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	④		④		④		④		④		④		④	

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① chlorinator tank #2 tagged
② No reading on domestic flow gauge AR# 1743423
③ OOS AR# 1629890
④ Day shift only per the timely order

APPROVED FOR USE/DATE: [signature] 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 10-30-17 End Date: 11-5-17

Location: 458, GUARD & SECURITY BUILDING 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O														
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	.05	.05													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①		①		①		①		①		①		①		①
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	69	68	69	67	69	69	68	68	68	68	69	69	68	69	69
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		268317		627846												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		②		21977												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	③		③		③		③		③		③		③		③
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓		↓		↓		↓		↓		↓		↓		↓
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	④		④		④		④		④		④		④		④

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
① Chlorinator tank # 2 topped
② No reading on domestic flow gauge AR# 1743423
③ OOS AR# 1629890
④ Day shift only per the timely order

APPROVED FOR USE/DATE: 3/14/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 11-6-17 End Date: 11-12-17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING		DAY		SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT		2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER			AC		CB		CB		KC		DF		BF			
		FOT		C/O	AM		AM		EC/KD		EC/DF	R.T.	CD					
ITEM	MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	.05	.05													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		✓		/		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		①		✓		✓		✓①		✓①		-①		✓①		✓①
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	69	68	68	68	68	67	68	68	69	68	68	68	69	68	69
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		62713.46		93664.22												
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		21977		13884.08												
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	②		③		11/7/17 ③ ②		11-5-17 ③ ②		②		② ③		② ③		② ③
[NMED, DP-831] **Max 23,000 gal** (Reading × 100)			23,000	↓		↓		↓		↓		↓		↓ ↓		↓ ↓		↓ ↓
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	③		③		③		③		③		③		③		③

NOTES: **[A]** - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① chlorinator tank #2 tagged
② OOS AR#1629890
③ DAY SHIFT only per timely order

APPROVED FOR USE/DATE: 3/14/18

04896

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 11-13-17 End Date: 11-19-17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		MM		MM		MM		MM							
				FOT	C/O			R.T.											
ITEM	MIN	NORM	MAX																
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5		0	0													
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5		0	0													
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5		.05	.05													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS [F]		SAT [G]			①			①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70		69	69		69	68	69	67	69	69	68	69	69	69	69	69
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS (gal)		RESET MONDAY [A]			93664.22			86963.70											
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]			13984.03			71587.33											
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING	N/A	[B]	230		② ③			② ③		② ③		② ③		② ③		② ③		② ③	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000		↓ ↓			↓ ↓		↓ ↓		↓ ↓		↓ ↓		↓ ↓		↓ ↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2		③			③		③		③		③		③		③	

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Chlorinator tank #2 tagged
② OOS HL#162498990
③ Dayshift only for timely order

APPROVED FOR USE/DATE: [signature] 3/14/18

04897

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 11-20-17 End Date: 11-26-17

Location: 458, GUARD & SECURITY BUILDING / 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER															
		FOT	C/O	EC/LD	AM	LD		EC		EC		AM			R.T.	AM	
ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	0	0												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	0	0												
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	.05	.05												
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		✓		✓		✓		✓		✓
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		①		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	69	69	69	66	68	69	69	69	68	69	69	69	69	69
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)		RESET MONDAY [A]		869630		③											
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		71587.23		②											
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	② ③		② ③		① ③		② ③		(2) (3)		② ③		② ③		④ ③
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	↓ ↓		↓ ↓		↓ ↓		↓ ↓		↓ ↓		↓ ↓		↓ ↓	
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	③		③		③		③		③		③		③	

NOTES:
- [A] - **RESET** meter after taking the reading on Monday second shift.
- [B] - ($) **REQUIRED** for compliance with NMED discharge permit DP-831 -- **IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].**
- [C] - **ADJUST** chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
- [D] - **IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.**
- [E] - **RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.**
- [F] - **CHECK that the audible alarm sounds and the alarm lights illuminate.**
- [G] - **IF normal condition exists, ENTER a check mark; otherwise note existing condition.**

COMMENTS:
1.) Chlorinator Tank #2 Tagged
2.) OOS AR# 1629890
3.) Dayshift Only per Timely Order

APPROVED FOR USE/DATE: 3/14/18

04898

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 11-27-17 End Date: 12-3-17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O														
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07) (in wg)			[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)			[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09) (in wg)			[E]	0.5	.05	.05													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①		①		①		①		①		①		①		①
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	69	69	69	68	69	69	69	69	68	66	69	69	69	69	69
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		③		③												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		③		③												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	③		②③		②③		②③		②③		②③		②③		②③
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	③		③		③		③		③		③		③		③

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① CL-2 tank #2 - Tag ② A.R.# 1629890 - o.o.s. "still" ③ Dayshift only per timely order
WAR # 1736274

APPROVED FOR USE/DATE: [signature] 3/14/16

04899

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 12-4-17 End Date: 12-10-17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER		AK	3A	CB		AK		CB							
		FOT	C/O	AM	EC	AM	LT	AM		AM							
ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	0	0												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	0	0												
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	.05	.05												
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		✓		✓		✓		✓		✓
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		①		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	69	68	68	68	69	68	69	67	69	68	✓① 69	69	✓① 69	69
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)		RESET MONDAY [A]		②		①											
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		②		①											
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	②③		②③		②③		②③		②③		②③		②③	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	↓↓		↓↓		↓↓		↓↓		↓↓		↓↓		↓↓	
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	②		②		②		②		②		②		②	

NOTES:
- [A] - RESET meter after taking the reading on Monday second shift.
- [B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
- [C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
- [D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
- [E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
- [F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
- [G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
① Chlorine TANK #2 TAGged. AR# 1736274
② DAYSHIFT ONLY per timely order
③ OOS AR# 1629890

APPROVED FOR USE/DATE: 3/14/18

04900

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 12/1/17 End Date: 12/7/17

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		mc		mc		mc		mc							
				FOT	C/O	R.T.				R.T.									
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	.05	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		(4)		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓(1)		✓(1)		✓(1)		(1)		(1)		(1)		(1)		(1)
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	69	67	67	68	69	68	69	69	69	69	69	69	69	69	68
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		(2)		(2) ↓												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		(2)		↓												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	(2)(3)		(2)(3)		(2)(3)		(2)(3)		(2)(3)		(2)(3)		(2)(3)		(2)(3)
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓ ↓		↓ ↓		↓ ↓		↓ ↓		↓ ↓		↓ ↓		↓ ↓		↓ ↓
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	(2)		(2)		(2)		(2)		(2)		(2)		(2)		(2)

NOTES:
- [A] - RESET meter after taking the reading on Monday second shift.
- [B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
- [C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
- [D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
- [E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
- [F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
- [G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
(1) CHLORINE TANK #2 TAGGED AR # 1736274
(2) DAYSHIFT ONLY PER TIMELY ORDER
(3) N.O.S. AR# 1629890
(4) NO ACCESS DUE TO OUTAGE

APPROVED FOR USE/DATE: 3/14/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 12-18-17 End Date: 12-24-17

Location: 458, GUARD & SECURITY BUILDING 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER		AC	AC	RG	PJP	RG	PJP	RG	PJP	CB	NJ	CB	NJ	CB	NJ
		FOT	C/O	AM	AM					EL		AM	EL	AM		AM	
ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	0	0												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	0	0												
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	0	0												
458, ALTERNATE CMR -- VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		✓		/		✓		✓		✓
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		①		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	68	68	68	67	69	68	69	67	69	69	69	68	69	69
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)		RESET MONDAY [A]		② ↓		② ↓											
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		↓		↓											
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	② ③ ↓ ↓		② ③ ↓ ↓		② ③ ↓ ↓		② ③ ↓ ↓		② ③ ↓ ↓		② ③ ↓ ↓		② ③ ↓ ↓	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000														
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	②		②		②		②		②		②		②	

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Chlorine tank #2 Tagged AR# 1736274
② Dayshift only per timely order
③ OOS AR# 1629890

APPROVED FOR USE/DATE: 3/14/16

04902

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 12/25/17 End Date: 12/31/17

Location: 458, GUARD & SECURITY BUILDING 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		PIP				PIP									
				FOT	C/O	97		93	AM		AM	93				RT			LC
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	0	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①		①		①		①		①		①		①		①
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	69	69	69	69	68	69	68	67	69	69	69	69	69	69	69
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		②		②												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		↓		↓												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	② ③		② ③		③ ③		③ ③		② ②		② ③		② ③		② ③
[NMED, DP-831] **Max 23,000 gal** (Reading × 100)				23,000	↓ ↓		↓ ↓		↓ ↓		↓ ↓		↓ ↓		↓ ↓		↓		↓
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	②		②		②		②		②		②		②		②

NOTES:
- [A] - RESET meter after taking the reading on Monday second shift.
- [B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
- [C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
- [D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
- [E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
- [F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
- [G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: 1. CHLORINE TANK #2 TAGGED. AR:1736274
2. DAYSHIFT ONLY PER TIMELY ORDER
3. OOS AR:1629890

APPROVED FOR USE/DATE: Scott Sitter 3/14/16

04903

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 06, 2017

Greg Jungclaus
Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8966
FAX

RE: ENVIRONMENTAL OrderNo.: 1710A49

Dear Greg Jungclaus:

Hall Environmental Analysis Laboratory received 8 sample(s) on 10/19/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1710A49**
Date: **11/6/2017**

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL

All analytes reported are associated with passing CCVs.

METHOD: 300.0

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: none
Analysis: 300.0

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Calibration: All acceptance criteria were met.
2. Blanks: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Spikes: All acceptance criteria were met.
5. Samples: All acceptance criteria were met.

METHOD: SM2540C

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: SM2540C
Analysis: SM2540C

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Blanks: All acceptance criteria were met.
2. Spikes: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Samples: All acceptance criteria were met.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1710A49**
Date: **11/6/2017**

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL

METHOD: SM4500 NorgC

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: SM4500 NorgC
Analysis: SM4500 NorgC

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Blanks: All acceptance criteria were met.
2. Spikes: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Samples: All acceptance criteria were met.

Analytical Report
Lab Order: **1710A49**
Date Reported: **11/6/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL
Lab ID: 1710A49-001A

Client Sample ID: EC-SL2-20171018-1.4
Collection Date: 10/18/2017 9:10:00 AM
Matrix: Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Nitrogen, Nitrate (As N)	ND	0.11	0.50		mg/L	5	10/19/2017 5:51:59 PM	R46536

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL
Lab ID: 1710A49-002A

Client Sample ID: EC-SL2-20171018-2.4
Collection Date: 10/18/2017 9:04:00 AM
Matrix: Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
SM 4500 NORG C: TKN							Analyst: **smb**	
Nitrogen, Kjeldahl, Total	130	4.4	10	D	mg/L	1	10/30/2017 11:04:00 AM	34679

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL
Lab ID: 1710A49-003A

Client Sample ID: EC-SL2-20171018-3.4
Collection Date: 10/18/2017 8:58:00 AM
Matrix: Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	110	2.5	5.0		mg/L	10	10/27/2017 2:39:57 AM	R46677
Sulfate	52	0.96	5.0		mg/L	10	10/27/2017 2:39:57 AM	R46677
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	570	118	200	*D	mg/L	1	10/25/2017 3:50:00 PM	34603

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL
Lab ID: 1710A49-004A

Client Sample ID: EC-SL2-20171018-4.4
Collection Date: 10/18/2017 8:58:00 AM
Matrix: Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	110	2.5	5.0		mg/L	10	10/27/2017 3:29:35 AM	A46677
Sulfate	52	0.96	5.0		mg/L	10	10/27/2017 3:29:35 AM	A46677
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	520	118	200	*D	mg/L	1	10/25/2017 3:50:00 PM	34603

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL
Lab ID: 1710A49-005A

Client Sample ID: EC-ELB-20171018-1.1
Collection Date: 10/18/2017 8:40:00 AM
Matrix: Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	270000	5000	10000		mg/L	2E+0	10/27/2017 4:06:48 AM	A46677
Sulfate	130000	480	2500		mg/L	5000	10/27/2017 3:54:23 AM	A46677
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	427000	1180	2000	*D	mg/L	1	10/25/2017 3:50:00 PM	34603

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL
Lab ID: 1710A49-006A

Client Sample ID: EC-ELC-20171018-1.1
Collection Date: 10/18/2017 8:34:00 AM
Matrix: Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	250000	12000	25000		mg/L	5E+0	10/27/2017 4:31:38 AM	A46677
Sulfate	92000	480	2500		mg/L	5000	10/27/2017 4:19:13 AM	A46677
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	407000	1180	2000	*D	mg/L	1	10/25/2017 3:50:00 PM	34603

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL
Lab ID: 1710A49-007A

Client Sample ID: EC-H19-20171018-1.1
Collection Date: 10/18/2017 7:58:00 AM
Matrix: Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	510000	12000	25000		mg/L	5E+0	11/1/2017 6:25:02 PM	R46831
Sulfate	670	48	250		mg/L	500	10/30/2017 7:14:52 PM	R46740
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	451000	1180	2000	*D	mg/L	1	10/25/2017 3:50:00 PM	34603

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL
Lab ID: 1710A49-008A

Client Sample ID: EC-BLK-20171018-1.1
Collection Date: 10/18/2017 9:15:00 AM
Matrix: Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	ND	0.25	0.50		mg/L	1	10/30/2017 8:04:29 PM	R46740
Sulfate	ND	0.096	0.50		mg/L	1	10/30/2017 8:04:29 PM	R46740
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	ND	11.8	20.0		mg/L	1	10/25/2017 3:50:00 PM	34603

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710A49**

06-Nov-17

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R46536**	RunNo: **46536**							
Prep Date:	Analysis Date: **10/19/2017**	SeqNo: **1482134**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	7.8	0.10	7.200	0	108	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R46536**	RunNo: **46536**							
Prep Date:	Analysis Date: **10/19/2017**	SeqNo: **1482136**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R46536**	RunNo: **46536**							
Prep Date:	Analysis Date: **10/19/2017**	SeqNo: **1482137**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.9	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R46536**	RunNo: **46536**							
Prep Date:	Analysis Date: **10/19/2017**	SeqNo: **1482146**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	95.7	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R46536**	RunNo: **46536**							
Prep Date:	Analysis Date: **10/19/2017**	SeqNo: **1482157**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	4.8	0.10	4.800	0	101	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R46536**	RunNo: **46536**							
Prep Date:	Analysis Date: **10/19/2017**	SeqNo: **1482169**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	95.8	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- PQL Practical Quanitative Limit
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710A49**

06-Nov-17

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R46536**	RunNo: **46536**
Prep Date:	Analysis Date: **10/19/2017**	SeqNo: **1482180** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	101	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R46536**	RunNo: **46536**
Prep Date:	Analysis Date: **10/19/2017**	SeqNo: **1482192** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	95.9	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R46536**	RunNo: **46536**
Prep Date:	Analysis Date: **10/20/2017**	SeqNo: **1482203** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	4.8	0.10	4.800	0	101	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R46677**	RunNo: **46677**
Prep Date:	Analysis Date: **10/26/2017**	SeqNo: **1487992** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	101	90	110			
Sulfate	31	0.50	30.00	0	103	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R46677**	RunNo: **46677**
Prep Date:	Analysis Date: **10/26/2017**	SeqNo: **1487994** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R46677**	RunNo: **46677**
Prep Date:	Analysis Date: **10/26/2017**	SeqNo: **1487995** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.8	90	110			
Sulfate	9.8	0.50	10.00	0	98.0	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710A49**

06-Nov-17

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R46677**	RunNo: **46677**
Prep Date:	Analysis Date: **10/26/2017**	SeqNo: **1488004** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.8	90	110			
Sulfate	12	0.50	12.50	0	95.4	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R46677**	RunNo: **46677**
Prep Date:	Analysis Date: **10/26/2017**	SeqNo: **1488028** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	93.0	90	110			
Sulfate	12	0.50	12.50	0	95.2	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R46677**	RunNo: **46677**
Prep Date:	Analysis Date: **10/26/2017**	SeqNo: **1488040** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.0	90	110			
Sulfate	20	0.50	20.00	0	98.6	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R46677**	RunNo: **46677**
Prep Date:	Analysis Date: **10/26/2017**	SeqNo: **1488052** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.1	90	110			
Sulfate	12	0.50	12.50	0	94.3	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R46677**	RunNo: **46677**
Prep Date:	Analysis Date: **10/26/2017**	SeqNo: **1488064** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.8	90	110			
Sulfate	20	0.50	20.00	0	98.6	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R46677**	RunNo: **46677**
Prep Date:	Analysis Date: **10/27/2017**	SeqNo: **1488076** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710A49**

06-Nov-17

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL

Sample ID **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46677** RunNo: **46677**
Prep Date: Analysis Date: **10/27/2017** SeqNo: **1488076** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.1	90	110			
Sulfate	12	0.50	12.50	0	94.2	90	110			

Sample ID **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **A46677** RunNo: **46677**
Prep Date: Analysis Date: **10/27/2017** SeqNo: **1488080** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **A46677** RunNo: **46677**
Prep Date: Analysis Date: **10/27/2017** SeqNo: **1488081** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.0	0.50	5.000	0	100	90	110			
Sulfate	10	0.50	10.00	0	103	90	110			

Sample ID **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46677** RunNo: **46677**
Prep Date: Analysis Date: **10/27/2017** SeqNo: **1488088** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.5	90	110			
Sulfate	20	0.50	20.00	0	98.3	90	110			

Sample ID **A6** SampType: **ccv_6** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46740** RunNo: **46740**
Prep Date: Analysis Date: **10/30/2017** SeqNo: **1490175** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	101	90	110			
Sulfate	31	0.50	30.00	0	102	90	110			

Sample ID **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46740** RunNo: **46740**
Prep Date: Analysis Date: **10/30/2017** SeqNo: **1490187** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710A49**

06-Nov-17

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL

Sample ID **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46740** RunNo: **46740**
Prep Date: Analysis Date: **10/30/2017** SeqNo: **1490187** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.2	90	110			
Sulfate	20	0.50	20.00	0	98.9	90	110			

Sample ID **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46740** RunNo: **46740**
Prep Date: Analysis Date: **10/30/2017** SeqNo: **1490198** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.4	90	110			
Sulfate	12	0.50	12.50	0	94.6	90	110			

Sample ID **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46740** RunNo: **46740**
Prep Date: Analysis Date: **10/30/2017** SeqNo: **1490210** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.1	90	110			
Sulfate	20	0.50	20.00	0	98.9	90	110			

Sample ID **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R46740** RunNo: **46740**
Prep Date: Analysis Date: **10/30/2017** SeqNo: **1490216** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R46740** RunNo: **46740**
Prep Date: Analysis Date: **10/30/2017** SeqNo: **1490217** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	95.3	90	110			
Sulfate	9.8	0.50	10.00	0	97.9	90	110			

Sample ID **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46740** RunNo: **46740**
Prep Date: Analysis Date: **10/30/2017** SeqNo: **1490222** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- PQL Practical Quanitative Limit
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710A49**

06-Nov-17

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R46740**	RunNo: **46740**
Prep Date:	Analysis Date: **10/30/2017**	SeqNo: **1490222** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.6	90	110			
Sulfate	12	0.50	12.50	0	94.3	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R46740**	RunNo: **46740**
Prep Date:	Analysis Date: **10/30/2017**	SeqNo: **1490234** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.4	90	110			
Sulfate	20	0.50	20.00	0	99.3	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R46740**	RunNo: **46740**
Prep Date:	Analysis Date: **10/31/2017**	SeqNo: **1490246** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.1	90	110			
Sulfate	12	0.50	12.50	0	94.8	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R46740**	RunNo: **46740**
Prep Date:	Analysis Date: **10/31/2017**	SeqNo: **1490257** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.3	90	110			
Sulfate	20	0.50	20.00	0	99.2	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R46740**	RunNo: **46740**
Prep Date:	Analysis Date: **10/31/2017**	SeqNo: **1490269** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.6	90	110			
Sulfate	12	0.50	12.50	0	95.3	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R46740**	RunNo: **46740**
Prep Date:	Analysis Date: **10/31/2017**	SeqNo: **1490274** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710A49**

06-Nov-17

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL

Sample ID **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46740** RunNo: **46740**
Prep Date: Analysis Date: **10/31/2017** SeqNo: **1490274** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.3	90	110			
Sulfate	20	0.50	20.00	0	99.6	90	110			

Sample ID **A6** SampType: **ccv_6** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46831** RunNo: **46831**
Prep Date: Analysis Date: **11/1/2017** SeqNo: **1493288** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	101	90	110			

Sample ID **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R46831** RunNo: **46831**
Prep Date: Analysis Date: **11/1/2017** SeqNo: **1493290** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R46831** RunNo: **46831**
Prep Date: Analysis Date: **11/1/2017** SeqNo: **1493291** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.5	90	110			

Sample ID **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46831** RunNo: **46831**
Prep Date: Analysis Date: **11/1/2017** SeqNo: **1493300** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.8	90	110			

Sample ID **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46831** RunNo: **46831**
Prep Date: Analysis Date: **11/1/2017** SeqNo: **1493312** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.0	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710A49**

06-Nov-17

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R46831**	RunNo: **46831**
Prep Date:	Analysis Date: **11/1/2017**	SeqNo: **1493324** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.8	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R46831**	RunNo: **46831**
Prep Date:	Analysis Date: **11/1/2017**	SeqNo: **1493336** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.4	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R46831**	RunNo: **46831**
Prep Date:	Analysis Date: **11/1/2017**	SeqNo: **1493348** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.4	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R46831**	RunNo: **46831**
Prep Date:	Analysis Date: **11/1/2017**	SeqNo: **1493354** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.4	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710A49**

06-Nov-17

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL

Sample ID **MB-34603**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **34603**	RunNo: **46640**
Prep Date: **10/24/2017**	Analysis Date: **10/25/2017**	SeqNo: **1485634** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-34603**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **34603**	RunNo: **46640**
Prep Date: **10/24/2017**	Analysis Date: **10/25/2017**	SeqNo: **1485635** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	992	20.0	1000	0	99.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710A49**

06-Nov-17

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL

Sample ID **MB-34679**	SampType: **MBLK**	TestCode: **SM 4500 Norg C: TKN**
Client ID: **PBW**	Batch ID: **34679**	RunNo: **46741**
Prep Date: **10/27/2017**	Analysis Date: **10/30/2017**	SeqNo: **1489552** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	1.0								

Sample ID **LCS-34679**	SampType: **LCS**	TestCode: **SM 4500 Norg C: TKN**
Client ID: **LCSW**	Batch ID: **34679**	RunNo: **46741**
Prep Date: **10/27/2017**	Analysis Date: **10/30/2017**	SeqNo: **1489553** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10	1.0	10.00	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: WIPP | Work Order Number: 1710A49 | RcptNo: 1

Received By: Richie Eriacho 10/19/2017 8:45:00 AM

Completed By: Anne Thorne 10/19/2017 10:05:53 AM

Reviewed By: 10/19/17

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☑	No ☐	Not Present ☐
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	FedEx		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 1

(<2 or >12 unless noted)

Adjusted? NO

Checked by: DDS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.4	Good	Yes			

CHAIN-OF-CUSTODY RECORD

C of C Control № 1019

RFA Control № 1019

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

SAMPLING PROGRAM ENVIRONMENTAL

LAB DESTINATION Hall Environmental Lab (HEAL)

SAMPLE TEAM MEMBERS Jerome Hernandez, Stacey Britain

CARRIER/WAYBILL NO. Fed-Ex

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)
EC-SL2-20171018-1.4	Settling Lagoon 2	10-18-17 0910	Sewage	1 Liter	1710A49-001
2.4		0904		500mL	-002
3.4		0858			-003
4.4		0858			-004
EC-ELB-20171018-1.1	Evaporation Lagoon B	0840			-005
ELC	C	0834			-006
H19	H-19	0758			-007
BLK	Blank	0915	Blank		-008

Special Instructions: Do Nitrate (1 Liter settling Lagoon 2; 1.4) within 48 hours of time collected (10-18-17 @ 0910)

Possible Sample Hazards: ☐ Radiological ☐ Bio-Hazard N/A

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Jerome Hernandez NWP 1200 10-18-17
   Received By: [signature] 10/19/17 0845 @ 1.4°C
2. Relinquished By: _____
   Received By: _____
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: _____

04926

WP 02-EM3001- Environmental Monitoring | WHITE - Original to accompany samples | YELLOW - Field copy | PINK - Other

NICHOLS PRINTING IN

REQUEST FOR ANALYSIS

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED 10-18-17 RFA Control № 1019

LAB DESTINATION Hall Environmental

LABORATORY CONTACT Andy Freeman

SEND LAB REPORT TO NWP C of C Control № 1019

P.O. Box 2078 m/s 452-09

Carlsbad, New Mexico 88221

DATE REPORT REQUIRED Per S.O.W

PROJECT CONTACT c/o Greg Jungclaus

PROJECT CONTACT PHONE NO. (575) 234-8615

SAMPLING PROGRAM ENVIRONMENTAL

PURCHASE ORDER NO. 502542-4

1710A49

Sample Number	Sample Type	Sample Quantity	Preservative	Req't. Testing Program	Special Instructions
EC-SL2-20171018 - 1.4	Sewage	1 liter	≤4°C	Nitrate	maximum hold time
2.4		500 mL	H_2SO_4 to pH≤2, ≤4°C	TKN	N/A -00
3.4			≤4°C	Sulfate, Chloride, TDS	-20
4.4					-20
EC-ELB-20171018 - 1.1					-20
ELC					206
H19					-20
BIK	Blank				-20

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL X RUSH _____ (Subject in rush surcharge

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NONHAZARD X RADIOLOGICAL _____ FLAMMABLE _____ SKIN IRRITANT _____ HIGHLY TOXIC _____ BIOLOGICAL _____ OTHER _____ (Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT _____ DISPOSAL BY LAB X

FOR LAB USE ONLY

RECEIVED BY [signature] DATE/TIME 10/19/17 0845

04927

WP 02-EM3001- Environmental Monitoring | WHITE - Original to accompany samples | YELLOW - Field copy | PINK - Othe

Salt Pond Sump Water Level Measurement Field Data Sheet

From July to December Year 2017

Pond Name	Date	Time	Water Depth (ft)	Initials	Comments
Salt Storage Pond 2 Sump	7/17/17	1215	32.90	RJ	
Salt Storage Pond 3 Sump	7/17/17	1222	41.55	RJ	
Salt Storage Pond 2 Sump	8/9/17	1029	32.16	RJ	
Salt Storage Pond 3 Sump	8/9/17	1032	41.44	RJ	
Salt Storage Pond 2 Sump	9/18/17	1439	31.65	RJ	
Salt Storage Pond 3 Sump	9/18/17	1444	41.43	RJ	
Salt Storage Pond 2 Sump	10/5/17	0849	32.14	RJ	
Salt Storage Pond 3 Sump	10/5/17	0851	40.70	RJ	
Salt Storage Pond 2 Sump	11/16/17	1423	32.14	RJ	
Salt Storage Pond 3 Sump	11/16/17	1430	38.18	RJ	
Salt Storage Pond 2 Sump	12/14/17	1519	32.47	RJ	
Salt Storage Pond 3 Sump	12/14/17	1525	37.20	RJ	

Performer: Print Name: Richard Jimenez Signature:

Performer: Print Name: Signature:

Performer: Print Name: Signature:

04928

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 06, 2017

Greg Jungclaus
Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8966
FAX

RE: ENVIRONMENTAL OrderNo.: 1710F39

Dear Greg Jungclaus:

Hall Environmental Analysis Laboratory received 8 sample(s) on 10/26/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1710F39**
Date: **11/6/2017**

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL

All analytes reported are associated with passing CCVs.

METHOD: 300.0

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: none
Analysis: 300.0

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Calibration: All acceptance criteria were met.
2. Blanks: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Spikes: All acceptance criteria were met.
5. Samples: All acceptance criteria were met.

METHOD: SM2540C

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: SM2540C
Analysis: SM2540C

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Blanks: All acceptance criteria were met.
2. Spikes: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Samples: All acceptance criteria were met.

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL
Lab ID: 1710F39-001A

Client Sample ID: WR-SSP1-20171025-1.1
Collection Date: 10/25/2017 10:59:00 AM
Matrix: Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	146000	5000	10000		mg/L	2E+0	11/1/2017 1:02:21 PM	R46831
Sulfate	2780	9.60	50.0		mg/L	100	11/1/2017 12:49:56 PM	R46831
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	287000	1180	2000	*D	mg/L	1	11/2/2017 8:12:00 PM	34743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL
Lab ID: 1710F39-002A

Client Sample ID: WR-SSP2-20171025-1.1
Collection Date: 10/25/2017 11:16:00 AM
Matrix: Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	154000	5000	10000		mg/L	2E+0	11/1/2017 1:27:10 PM	R46831
Sulfate	9530	96.0	500		mg/L	1000	11/1/2017 1:14:45 PM	R46831
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	322000	1180	2000	*D	mg/L	1	11/2/2017 8:12:00 PM	34743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order: **1710F39**
Date Reported: **11/6/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL
Lab ID: 1710F39-003A

Client Sample ID: WR-SSP3-20171025-1.1
Collection Date: 10/25/2017 11:19:00 AM
Matrix: Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	191000	2500	5000		mg/L	1E+0	11/1/2017 1:51:59 PM	R46831
Sulfate	22800	480	2500		mg/L	5000	11/1/2017 1:39:34 PM	R46831
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	360000	1180	2000	*D	mg/L	1	11/2/2017 8:12:00 PM	34743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL
Lab ID: 1710F39-004A

Client Sample ID: WR-SWP1-20171025-1.1
Collection Date: 10/25/2017 10:39:00 AM
Matrix: Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	174	2.50	5.00		mg/L	10	11/1/2017 2:04:23 PM	R46831
Sulfate	13.7	0.960	5.00		mg/L	10	11/1/2017 2:04:23 PM	R46831
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	407	11.8	20.0		mg/L	1	11/2/2017 8:12:00 PM	34743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL
Lab ID: 1710F39-005A

Client Sample ID: WR-SWP2-20171025-1.2
Collection Date: 10/25/2017 10:26:00 AM
Matrix: Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	50.0	2.50	5.00		mg/L	10	11/1/2017 2:54:01 PM	R46831
Sulfate	3.45	0.960	5.00	J	mg/L	10	11/1/2017 2:54:01 PM	R46831
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	160	11.8	20.0		mg/L	1	11/2/2017 8:12:00 PM	34743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL
Lab ID: 1710F39-006A

Client Sample ID: WR-SWP2-20171025-2.2
Collection Date: 10/25/2017 10:26:00 AM
Matrix: Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	51.2	2.50	5.00		mg/L	10	11/1/2017 3:18:51 PM	R46831
Sulfate	3.42	0.960	5.00	J	mg/L	10	11/1/2017 3:18:51 PM	R46831
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	161	11.8	20.0		mg/L	1	11/2/2017 8:12:00 PM	34743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL
Lab ID: 1710F39-007A

Client Sample ID: WR-SWP3-20171025-1.1
Collection Date: 10/25/2017 10:47:00 AM
Matrix: Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	96.8	2.50	5.00		mg/L	10	11/1/2017 3:43:40 PM	R46831
Sulfate	13.1	0.960	5.00		mg/L	10	11/1/2017 3:43:40 PM	R46831
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	299	11.8	20.0		mg/L	1	11/2/2017 8:12:00 PM	34743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL
Lab ID: 1710F39-008A

Client Sample ID: WR-Blk-20171025-1.1
Collection Date: 10/25/2017 11:23:00 AM
Matrix: Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	ND	0.250	0.500		mg/L	1	11/1/2017 4:08:30 PM	R46831
Sulfate	0.244	0.0960	0.500	J	mg/L	1	11/1/2017 4:08:30 PM	R46831
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	ND	11.8	20.0		mg/L	1	11/2/2017 8:12:00 PM	34743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710F39**

06-Nov-17

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R46831**	RunNo: **46831**							
Prep Date:	Analysis Date: **11/1/2017**	SeqNo: **1493288**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	101	90	110			
Sulfate	30	0.50	30.00	0	102	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R46831**	RunNo: **46831**							
Prep Date:	Analysis Date: **11/1/2017**	SeqNo: **1493290**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R46831**	RunNo: **46831**							
Prep Date:	Analysis Date: **11/1/2017**	SeqNo: **1493291**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.5	90	110			
Sulfate	9.3	0.50	10.00	0	92.9	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R46831**	RunNo: **46831**							
Prep Date:	Analysis Date: **11/1/2017**	SeqNo: **1493300**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.8	90	110			
Sulfate	20	0.50	20.00	0	98.0	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R46831**	RunNo: **46831**							
Prep Date:	Analysis Date: **11/1/2017**	SeqNo: **1493312**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.0	90	110			
Sulfate	12	0.50	12.50	0	93.5	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R46831**	RunNo: **46831**							
Prep Date:	Analysis Date: **11/1/2017**	SeqNo: **1493324**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710F39**

06-Nov-17

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL

Sample ID **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R46831** RunNo: **46831**

Prep Date: Analysis Date: **11/1/2017** SeqNo: **1493324** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.8	90	110			
Sulfate	20	0.50	20.00	0	98.1	90	110			

Sample ID **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R46831** RunNo: **46831**

Prep Date: Analysis Date: **11/1/2017** SeqNo: **1493336** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.4	90	110			
Sulfate	12	0.50	12.50	0	93.7	90	110			

Sample ID **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R46831** RunNo: **46831**

Prep Date: Analysis Date: **11/1/2017** SeqNo: **1493348** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.4	90	110			
Sulfate	20	0.50	20.00	0	98.3	90	110			

Sample ID **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R46831** RunNo: **46831**

Prep Date: Analysis Date: **11/1/2017** SeqNo: **1493354** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.4	90	110			
Sulfate	12	0.50	12.50	0	93.5	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710F39**

06-Nov-17

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL

Sample ID **MB-34743** SampType: **MBLK** TestCode: **SM2540C MOD: Total Dissolved Solids**

Client ID: **PBW** Batch ID: **34743** RunNo: **46848**

Prep Date: **11/1/2017** Analysis Date: **11/2/2017** SeqNo: **1493844** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-34743** SampType: **LCS** TestCode: **SM2540C MOD: Total Dissolved Solids**

Client ID: **LCSW** Batch ID: **34743** RunNo: **46848**

Prep Date: **11/1/2017** Analysis Date: **11/2/2017** SeqNo: **1493845** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Sample ID **1710F39-004AMS** SampType: **MS** TestCode: **SM2540C MOD: Total Dissolved Solids**

Client ID: **WR-SWP1-20171025** Batch ID: **34743** RunNo: **46848**

Prep Date: **11/1/2017** Analysis Date: **11/2/2017** SeqNo: **1493857** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1420	20.0	1000	407.0	102	80	120			

Sample ID **1710F39-004AMSD** SampType: **MSD** TestCode: **SM2540C MOD: Total Dissolved Solids**

Client ID: **WR-SWP1-20171025** Batch ID: **34743** RunNo: **46848**

Prep Date: **11/1/2017** Analysis Date: **11/2/2017** SeqNo: **1493858** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1450	20.0	1000	407.0	104	80	120	1.67	5	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: WIPP | Work Order Number: 1710F39 | RcptNo: 1

Received By: Richie Erlacho 10/26/2017 9:05:00 AM

Completed By: Anne Thorne 10/30/2017 12:18:04 PM

Reviewed By: ENM 10/30/17

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☑	No ☐	Not Present ☐
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	FedEx		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.3	Good	Yes			

CHAIN-OF-CUSTODY RECORD

C of C Control № 1020

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

RFA Control № 1020

SAMPLING PROGRAM ENVIRONMENTAL

LAB DESTINATION Hall Environment (HEAL)

SAMPLE TEAM MEMBERS Jerome Hernandez, Stacey Britain

CARRIER/WAYBILL NO. Fed Ex #850395108535

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receip (Name and Date)
WR-SSP1-2017 1025 - 1.1	Salt storage Pond 1	10-25-17 1059	Water Run-off	500 mL	1710 F39 TC
SSP2	2	1116			TC:
SSP3	3	1119			TC:
SWP1	Storm Water Pond 1	1039			TC:
SWP2	1.2 2	1026			TC:
SWP2	2.2 2	1026			TC:
SWP3	1.1 3	1047			TC:
Blk	1 Blank	1123	Blank		TC:

Special Instructions: Use Storm Water Pond 1 for MS/MSD QC Sample

Possible Sample Hazards: ☐ Radiological ☐ Bio-Hazard N/A

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Jerome Hernandez LWP 10-25-17 1300
   Received By: 10/26/17 0905 @ 4.1+0.2=4.3°C
2. Relinquished By: _____
   Received By: _____
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: _____

04943

WP 02-EM3001- Environmental Monitoring | WHITE - Original to accompany samples | YELLOW - Field copy | PINK - Other

NICHOLS PRINTING

REQUEST FOR ANALYSIS

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED 10-25-17 RFA Control Nº 1020

LAB DESTINATION Hall ENV

LABORATORY CONTACT Andy Freeman

SEND LAB REPORT TO NWP C of C Control Nº 1020

P.O. Box 2078 m/s 452-09

Carlsbad, New Mexico 88221

SAMPLING PROGRAM ENVIRONMENTAL

DATE REPORT REQUIRED Per S.O.W

PROJECT CONTACT C/o Greg Jungclaus

PURCHASE ORDER NO. 502542-4

PROJECT CONTACT PHONE NO (575) 234-8615

17 OF 39

Sample Number		Sample Type	Sample Quantity	Preservative	Req't. Testing Program	Special Instructions
WR-SSP1-20171025-1.1		Water Run-off	500 mL	≤4°C	Sulfate, Chloride, TDS	7 day hold time -001
SSP2						-002
SSP3						-003
SWP1						MS/MSD QC sample 17
SWP2	1.2					7 day hold time -006
SWP2	2.2					-007
SWP3	1.1					-008
Blk		Blank				

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL X RUSH _____ (Subject in rush surcharge)

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NONHAZARD X RADIOLOGICAL _____ FLAMMABLE _____ SKIN IRRITANT _____ HIGHLY TOXIC _____ BIOLOGICAL _____ OTHER _____ (Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT _____ DISPOSAL BY LAB X

FOR LAB USE ONLY

RECEIVED BY _____ DATE/TIME 10/26/17 0905

04944

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

October 30, 2017

Brett Seal
Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8966
FAX

RE: SSW Sampling R28 OrderNo.: 1710667

Dear Brett Seal:

Hall Environmental Analysis Laboratory received 16 sample(s) on 10/12/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Workorder Sample Summary

WO#: **1710667**
30-Oct-17

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R28

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1710667-001	SSWC 28 11 R28N1		10/9/2017 8:50:00 AM	10/12/2017 8:00:00 AM	Aqueous
1710667-002	SSW PZ12 R28N1		10/9/2017 10:53:00 AM	10/12/2017 8:00:00 AM	Aqueous
1710667-003	SSW PZ10 R28N1		10/9/2017 12:02:00 PM	10/12/2017 8:00:00 AM	Aqueous
1710667-004	SSW PZ7 R28N1		10/9/2017 1:20:00 PM	10/12/2017 8:00:00 AM	Aqueous
1710667-005	SSW PZ9 R28N1		10/10/2017 8:41:00 AM	10/12/2017 8:00:00 AM	Aqueous
1710667-006	SSW PZ13 R28N1		10/10/2017 9:11:00 AM	10/12/2017 8:00:00 AM	Aqueous
1710667-007	SSW PZ11 R28N1		10/9/2017 2:48:00 PM	10/12/2017 8:00:00 AM	Aqueous
1710667-008	SSW PZ11 R28N1EB		10/9/2017 3:07:00 PM	10/12/2017 8:00:00 AM	Aqueous
1710667-009	SSW C2507 R28N1		10/10/2017 10:50:00 AM	10/12/2017 8:00:00 AM	Aqueous
1710667-010	SSW PZ1 R28N1		10/10/2017 12:20:00 PM	10/12/2017 8:00:00 AM	Aqueous
1710667-011	SSW PZ5 R28N1		10/10/2017 3:12:00 PM	10/12/2017 8:00:00 AM	Aqueous
1710667-012	SSW PZ5 R28N1D		10/10/2017 3:13:00 PM	10/12/2017 8:00:00 AM	Aqueous
1710667-013	SSW PZ5 R28N1EB		10/10/2017 3:31:00 PM	10/12/2017 8:00:00 AM	Aqueous
1710667-014	SSW PZ6 R28N1		10/10/2017 1:39:00 PM	10/12/2017 8:00:00 AM	Aqueous
1710667-015	SSW WQSP6A R28N1		10/11/2017 9:57:00 AM	10/12/2017 8:00:00 AM	Aqueous
1710667-016	SSW WQSP6A R28N2		10/11/2017 9:59:00 AM	10/12/2017 8:00:00 AM	Aqueous

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1710667**
Date: **10/30/2017**

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R28

All analytes reported are associated with passing CCVs.

METHOD: 300.0

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: none
Analysis: 300.0

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Calibration: All acceptance criteria were met.
2. Blanks: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Spikes: All acceptance criteria were met.
5. Samples: All acceptance criteria were met.

METHOD: SM2540C

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: SM2540C
Analysis: SM2540C

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Blanks: All acceptance criteria were met.
2. Spikes: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Samples: All acceptance criteria were met.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1710667**
Date: **10/30/2017**

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R28

METHOD: SM4500 NorgC

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: SM4500 NorgC
Analysis: SM4500 NorgC

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Blanks: All acceptance criteria were met.
2. Spikes: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Samples: All acceptance criteria were met.

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R28
Lab ID: 1710667-001 **Matrix:** AQUEOUS

Client Sample ID: SSWC 28 11 R28N1
Collection Date: 10/9/2017 8:50:00 AM
Received Date: 10/12/2017 8:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	1110	50.0	100		mg/L	200	10/16/2017 3:34:50 PM	R46400
Sulfate	375	0.960	5.00		mg/L	10	10/16/2017 3:22:25 PM	R46400
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	2640	11.8	20.0	*	mg/L	1	10/16/2017 3:58:00 PM	34408

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R28
Lab ID: 1710667-002 **Matrix:** AQUEOUS

Client Sample ID: SSW PZ12 R28N1
Collection Date: 10/9/2017 10:53:00 AM
Received Date: 10/12/2017 8:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	2840	125	250		mg/L	500	10/16/2017 3:59:40 PM	R46400
Sulfate	521	4.80	25.0		mg/L	50	10/16/2017 3:47:15 PM	R46400
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	6740	59.1	100	*D	mg/L	1	10/16/2017 3:58:00 PM	34408

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R28
Lab ID: 1710667-003 **Matrix:** AQUEOUS

Client Sample ID: SSW PZ10 R28N1
Collection Date: 10/9/2017 12:02:00 PM
Received Date: 10/12/2017 8:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	135	2.50	5.00		mg/L	10	10/16/2017 4:12:05 PM	R46400
Sulfate	161	0.960	5.00		mg/L	10	10/16/2017 4:12:05 PM	R46400
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	414	11.8	20.0		mg/L	1	10/16/2017 3:58:00 PM	34408

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R28
Lab ID: 1710667-004 **Matrix:** AQUEOUS

Client Sample ID: SSW PZ7 R28N1
Collection Date: 10/9/2017 1:20:00 PM
Received Date: 10/12/2017 8:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	36800	2500	5000		mg/L	1E+0	10/16/2017 5:14:08 PM	R46400
Sulfate	2170	96.0	500		mg/L	1000	10/16/2017 5:01:44 PM	R46400
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	80100	1180	2000	*D	mg/L	1	10/16/2017 3:58:00 PM	34408

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R28
Lab ID: 1710667-005 **Matrix:** AQUEOUS

Client Sample ID: SSW PZ9 R28N1
Collection Date: 10/10/2017 8:41:00 AM
Received Date: 10/12/2017 8:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	91900	2500	5000		mg/L	1E+0	10/16/2017 5:38:58 PM	R46400
Sulfate	4580	96.0	500		mg/L	1000	10/16/2017 5:26:33 PM	R46400
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	172000	1180	2000	*D	mg/L	1	10/16/2017 3:58:00 PM	34408

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R28
Lab ID: 1710667-006 **Matrix:** AQUEOUS

Client Sample ID: SSW PZ13 R28N1
Collection Date: 10/10/2017 9:11:00 AM
Received Date: 10/12/2017 8:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	134000	2500	5000		mg/L	1E+0	10/16/2017 6:03:47 PM	R46400
Sulfate	2650	96.0	500		mg/L	1000	10/16/2017 5:51:22 PM	R46400
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	251000	1180	2000	*D	mg/L	1	10/16/2017 3:58:00 PM	34408

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R28
Lab ID: 1710667-007 **Matrix:** AQUEOUS

Client Sample ID: SSW PZ11 R28N1
Collection Date: 10/9/2017 2:48:00 PM
Received Date: 10/12/2017 8:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	49800	2500	5000		mg/L	1E+0	10/16/2017 6:28:36 PM	R46400
Sulfate	1710	96.0	500		mg/L	1000	10/16/2017 6:16:12 PM	R46400
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	61900	1180	2000	*D	mg/L	1	10/16/2017 3:58:00 PM	34408

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R28
Lab ID: 1710667-008 **Matrix:** AQUEOUS

Client Sample ID: SSW PZ11 R28N1EB
Collection Date: 10/9/2017 3:07:00 PM
Received Date: 10/12/2017 8:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	0.793	0.250	0.500		mg/L	1	10/16/2017 6:41:01 PM	R46400
Sulfate	0.362	0.0960	0.500	J	mg/L	1	10/16/2017 6:41:01 PM	R46400
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	ND	11.8	20.0		mg/L	1	10/16/2017 3:58:00 PM	34408

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R28
Lab ID: 1710667-009 **Matrix:** AQUEOUS

Client Sample ID: SSW C2507 R28N1
Collection Date: 10/10/2017 10:50:00 AM
Received Date: 10/12/2017 8:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	2890	250	500		mg/L	1000	10/16/2017 7:43:04 PM	R46400
Sulfate	627	9.60	50.0		mg/L	100	10/16/2017 7:30:40 PM	R46400
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	7270	118	200	*D	mg/L	1	10/16/2017 3:58:00 PM	34408

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R28
Lab ID: 1710667-010 **Matrix:** AQUEOUS

Client Sample ID: SSW PZ1 R28N1
Collection Date: 10/10/2017 12:20:00 PM
Received Date: 10/12/2017 8:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	36100	500	1000		mg/L	2000	10/16/2017 8:07:54 PM	R46400
Sulfate	1900	9.60	50.0		mg/L	100	10/16/2017 7:55:29 PM	R46400
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	63900	1180	2000	*D	mg/L	1	10/16/2017 3:58:00 PM	34408

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R28
Lab ID: 1710667-011 **Matrix:** AQUEOUS

Client Sample ID: SSW PZ5 R28N1
Collection Date: 10/10/2017 3:12:00 PM
Received Date: 10/12/2017 8:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	4790	250	500		mg/L	1000	10/16/2017 8:32:43 PM	R46400
Sulfate	638	9.60	50.0		mg/L	100	10/16/2017 8:20:19 PM	R46400
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	11300	118	200	*D	mg/L	1	10/16/2017 3:58:00 PM	34408

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R28
Lab ID: 1710667-012 **Matrix:** AQUEOUS

Client Sample ID: SSW PZ5 R28N1D
Collection Date: 10/10/2017 3:13:00 PM
Received Date: 10/12/2017 8:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	5130	250	500		mg/L	1000	10/16/2017 9:22:21 PM	A46400
Sulfate	665	9.60	50.0		mg/L	100	10/16/2017 9:09:56 PM	A46400
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	11300	118	200	*D	mg/L	1	10/16/2017 3:58:00 PM	34408

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R28
Lab ID: 1710667-013 **Matrix:** AQUEOUS

Client Sample ID: SSW PZ5 R28N1EB
Collection Date: 10/10/2017 3:31:00 PM
Received Date: 10/12/2017 8:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	2.26	0.250	0.500		mg/L	1	10/16/2017 9:59:36 PM	A46400
Sulfate	1.45	0.0960	0.500		mg/L	1	10/16/2017 9:59:36 PM	A46400
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	ND	11.8	20.0		mg/L	1	10/16/2017 3:58:00 PM	34408

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R28
Lab ID: 1710667-014 **Matrix:** AQUEOUS

Client Sample ID: SSW PZ6 R28N1
Collection Date: 10/10/2017 1:39:00 PM
Received Date: 10/12/2017 8:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	20800	500	1000		mg/L	2000	10/16/2017 10:36:50 PM	A46400
Sulfate	1260	9.60	50.0		mg/L	100	10/16/2017 10:24:25 PM	A46400
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	37500	1180	2000	*D	mg/L	1	10/16/2017 3:58:00 PM	34408

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R28
Lab ID: 1710667-015 **Matrix:** AQUEOUS

Client Sample ID: SSW WQSP6A R28N1
Collection Date: 10/11/2017 9:57:00 AM
Received Date: 10/12/2017 8:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	342	5.00	10.0		mg/L	20	10/12/2017 12:40:50 PM	R46325
Nitrogen, Nitrate (As N)	5.23	0.0215	0.100		mg/L	1	10/12/2017 12:28:26 PM	R46325
Sulfate	1880	4.80	25.0		mg/L	50	10/17/2017 9:36:21 PM	R46427
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	3390	11.8	20.0	*	mg/L	1	10/16/2017 3:58:00 PM	34408

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R28
Lab ID: 1710667-016 **Matrix:** AQUEOUS

Client Sample ID: SSW WQSP6A R28N2
Collection Date: 10/11/2017 9:59:00 AM
Received Date: 10/12/2017 8:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Nitrate+Nitrite as N	4.87	0.130	1.00		mg/L	5	10/17/2017 9:48:45 PM	R46427
SM 4500 NORG C: TKN							Analyst: **smb**	
Nitrogen, Kjeldahl, Total	ND	0.44	1.0		mg/L	1	10/24/2017 11:59:00 AM	34563

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

DATES REPORT

WO#: **1710667**

30-Oct-17

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R28

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1710667-001A	SSWC 28 11 R28N1	10/9/2017 8:50:00 AM	Aqueous	EPA Method 300.0: Anions			10/16/2017 3:34:50 PM
				EPA Method 300.0: Anions			10/16/2017 3:22:25 PM
				SM2540C MOD: Total Dissolved Soli		10/13/2017 1:32:59 PM	10/16/2017 3:58:00 PM
1710667-002A	SSW PZ12 R28N1	10/9/2017 10:53:00 AM		EPA Method 300.0: Anions			10/16/2017 3:47:15 PM
				EPA Method 300.0: Anions			10/16/2017 3:59:40 PM
				SM2540C MOD: Total Dissolved Soli		10/13/2017 1:32:59 PM	10/16/2017 3:58:00 PM
1710667-003A	SSW PZ10 R28N1	10/9/2017 12:02:00 PM		EPA Method 300.0: Anions			10/16/2017 4:12:05 PM
				EPA Method 300.0: Anions			10/16/2017 4:24:29 PM
				SM2540C MOD: Total Dissolved Soli		10/13/2017 1:32:59 PM	10/16/2017 3:58:00 PM
1710667-004A	SSW PZ7 R28N1	10/9/2017 1:20:00 PM		EPA Method 300.0: Anions			10/16/2017 5:01:44 PM
				EPA Method 300.0: Anions			10/16/2017 5:14:08 PM
				SM2540C MOD: Total Dissolved Soli		10/13/2017 1:32:59 PM	10/16/2017 3:58:00 PM
1710667-005A	SSW PZ9 R28N1	10/10/2017 8:41:00 AM		EPA Method 300.0: Anions			10/16/2017 5:26:33 PM
				EPA Method 300.0: Anions			10/16/2017 5:38:58 PM
				SM2540C MOD: Total Dissolved Soli		10/13/2017 1:32:59 PM	10/16/2017 3:58:00 PM
1710667-006A	SSW PZ13 R28N1	10/10/2017 9:11:00 AM		EPA Method 300.0: Anions			10/16/2017 5:51:22 PM
				EPA Method 300.0: Anions			10/16/2017 6:03:47 PM
				SM2540C MOD: Total Dissolved Soli		10/13/2017 1:32:59 PM	10/16/2017 3:58:00 PM
1710667-007A	SSW PZ11 R28N1	10/9/2017 2:48:00 PM		EPA Method 300.0: Anions			10/16/2017 6:16:12 PM
				EPA Method 300.0: Anions			10/16/2017 6:28:36 PM
				SM2540C MOD: Total Dissolved Soli		10/13/2017 1:32:59 PM	10/16/2017 3:58:00 PM
1710667-008A	SSW PZ11 R28N1EB	10/9/2017 3:07:00 PM		EPA Method 300.0: Anions			10/16/2017 6:41:01 PM
				EPA Method 300.0: Anions			10/16/2017 6:53:25 PM

04965

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

DATES REPORT

WO#: **1710667**

30-Oct-17

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R28

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1710667-008A	SSW PZ11 R28N1EB	10/9/2017 3:07:00 PM	Aqueous	SM2540C MOD: Total Dissolved Soli		10/13/2017 1:32:59 PM	10/16/2017 3:58:00 PM
1710667-009A	SSW C2507 R28N1	10/10/2017 10:50:00 AM		EPA Method 300.0: Anions			10/16/2017 7:43:04 PM
				EPA Method 300.0: Anions			10/16/2017 7:30:40 PM
				SM2540C MOD: Total Dissolved Soli		10/13/2017 1:32:59 PM	10/16/2017 3:58:00 PM
1710667-010A	SSW PZ1 R28N1	10/10/2017 12:20:00 PM		EPA Method 300.0: Anions			10/16/2017 7:55:29 PM
				EPA Method 300.0: Anions			10/16/2017 8:07:54 PM
				SM2540C MOD: Total Dissolved Soli		10/13/2017 1:32:59 PM	10/16/2017 3:58:00 PM
1710667-011A	SSW PZ5 R28N1	10/10/2017 3:12:00 PM		EPA Method 300.0: Anions			10/16/2017 8:20:19 PM
				EPA Method 300.0: Anions			10/16/2017 8:32:43 PM
				SM2540C MOD: Total Dissolved Soli		10/13/2017 1:32:59 PM	10/16/2017 3:58:00 PM
1710667-012A	SSW PZ5 R28N1D	10/10/2017 3:13:00 PM		EPA Method 300.0: Anions			10/16/2017 9:09:56 PM
				EPA Method 300.0: Anions			10/16/2017 9:22:21 PM
				SM2540C MOD: Total Dissolved Soli		10/13/2017 1:32:59 PM	10/16/2017 3:58:00 PM
1710667-013A	SSW PZ5 R28N1EB	10/10/2017 3:31:00 PM		EPA Method 300.0: Anions			10/16/2017 9:59:36 PM
				EPA Method 300.0: Anions			10/16/2017 10:12:00 PM
				SM2540C MOD: Total Dissolved Soli		10/13/2017 1:32:59 PM	10/16/2017 3:58:00 PM
1710667-014A	SSW PZ6 R28N1	10/10/2017 1:39:00 PM		EPA Method 300.0: Anions			10/16/2017 10:24:25 PM
				EPA Method 300.0: Anions			10/16/2017 10:36:50 PM
				SM2540C MOD: Total Dissolved Soli		10/13/2017 1:32:59 PM	10/16/2017 3:58:00 PM
1710667-015A	SSW WQSP6A R28N1	10/11/2017 9:57:00 AM		EPA Method 300.0: Anions			10/12/2017 12:28:26 PM
				EPA Method 300.0: Anions			10/12/2017 12:40:50 PM
				EPA Method 300.0: Anions			10/17/2017 9:36:21 PM
				SM2540C MOD: Total Dissolved Soli		10/13/2017 1:32:59 PM	10/16/2017 3:58:00 PM

04966

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

DATES REPORT

WO#: **1710667**

30-Oct-17

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R28

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1710667-016A	SSW WQSP6A R28N2	10/11/2017 9:59:00 AM	Aqueous	EPA Method 300.0: Anions			10/17/2017 9:48:45 PM
				SM 4500 Norg C: TKN		10/23/2017 9:34:33 AM	10/24/2017 11:59:00 AM

04967

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710667**

30-Oct-17

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R28

Sample ID **A6** SampType: **ccv_6** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46325** RunNo: **46325**
Prep Date: Analysis Date: **10/12/2017** SeqNo: **1475608** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	103	90	110			
Nitrogen, Nitrate (As N)	7.8	0.10	7.200	0	108	90	110			

Sample ID **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R46325** RunNo: **46325**
Prep Date: Analysis Date: **10/12/2017** SeqNo: **1475610** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R46325** RunNo: **46325**
Prep Date: Analysis Date: **10/12/2017** SeqNo: **1475611** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.9	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	103	90	110			

Sample ID **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46325** RunNo: **46325**
Prep Date: Analysis Date: **10/12/2017** SeqNo: **1475620** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.4	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	101	90	110			

Sample ID **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46325** RunNo: **46325**
Prep Date: Analysis Date: **10/12/2017** SeqNo: **1475632** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.5	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	95.8	90	110			

Sample ID **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46325** RunNo: **46325**
Prep Date: Analysis Date: **10/12/2017** SeqNo: **1475644** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- PQL Practical Quanitative Limit
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710667**

30-Oct-17

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R28

Sample ID **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46325** RunNo: **46325**
Prep Date: Analysis Date: **10/12/2017** SeqNo: **1475644** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.7	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	101	90	110			

Sample ID **1710667-015AMS** SampType: **ms** TestCode: **EPA Method 300.0: Anions**
Client ID: **SSW WQSP6A R28** Batch ID: **R46325** RunNo: **46325**
Prep Date: Analysis Date: **10/12/2017** SeqNo: **1475653** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	7.95	0.100	2.500	5.229	109	85.6	113			

Sample ID **1710667-015AMSD** SampType: **msd** TestCode: **EPA Method 300.0: Anions**
Client ID: **SSW WQSP6A R28** Batch ID: **R46325** RunNo: **46325**
Prep Date: Analysis Date: **10/12/2017** SeqNo: **1475654** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	8.08	0.100	2.500	5.229	114	85.6	113	1.57	20	S

Sample ID **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46325** RunNo: **46325**
Prep Date: Analysis Date: **10/12/2017** SeqNo: **1475655** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.8	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	96.0	90	110			

Sample ID **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46325** RunNo: **46325**
Prep Date: Analysis Date: **10/12/2017** SeqNo: **1475667** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	101	90	110			

Sample ID **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46325** RunNo: **46325**
Prep Date: Analysis Date: **10/12/2017** SeqNo: **1475679** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	95.0	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710667**

30-Oct-17

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R28

Sample ID **A6** SampType: **ccv_6** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46325** RunNo: **46325**
Prep Date: Analysis Date: **10/13/2017** SeqNo: **1475691** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	7.8	0.10	7.200	0	108	90	110			

Sample ID **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46325** RunNo: **46325**
Prep Date: Analysis Date: **10/13/2017** SeqNo: **1475697** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	101	90	110			

Sample ID **A6** SampType: **ccv_6** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46400** RunNo: **46400**
Prep Date: Analysis Date: **10/16/2017** SeqNo: **1478298** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	102	90	110			
Sulfate	31	0.50	30.00	0	104	90	110			

Sample ID **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R46400** RunNo: **46400**
Prep Date: Analysis Date: **10/16/2017** SeqNo: **1478300** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	0.13	0.50								J

Sample ID **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R46400** RunNo: **46400**
Prep Date: Analysis Date: **10/16/2017** SeqNo: **1478301** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.6	90	110			
Sulfate	9.6	0.50	10.00	0	95.9	90	110			

Sample ID **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46400** RunNo: **46400**
Prep Date: Analysis Date: **10/16/2017** SeqNo: **1478310** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.9	90	110			
Sulfate	20	0.50	20.00	0	99.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710667**

30-Oct-17

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R28

Sample ID **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46400** RunNo: **46400**
Prep Date: Analysis Date: **10/16/2017** SeqNo: **1478322** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.1	90	110			
Sulfate	12	0.50	12.50	0	96.6	90	110			

Sample ID **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46400** RunNo: **46400**
Prep Date: Analysis Date: **10/16/2017** SeqNo: **1478334** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.9	0.50	8.000	0	98.5	90	110			
Sulfate	20	0.50	20.00	0	101	90	110			

Sample ID **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46400** RunNo: **46400**
Prep Date: Analysis Date: **10/16/2017** SeqNo: **1478346** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.5	90	110			
Sulfate	12	0.50	12.50	0	96.8	90	110			

Sample ID **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **A46400** RunNo: **46400**
Prep Date: Analysis Date: **10/16/2017** SeqNo: **1478354** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **A46400** RunNo: **46400**
Prep Date: Analysis Date: **10/16/2017** SeqNo: **1478355** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.8	90	110			
Sulfate	10	0.50	10.00	0	99.8	90	110			

Sample ID **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46400** RunNo: **46400**
Prep Date: Analysis Date: **10/16/2017** SeqNo: **1478358** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- PQL Practical Quanitative Limit
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710667**

30-Oct-17

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R28

Sample ID **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46400** RunNo: **46400**
Prep Date: Analysis Date: **10/16/2017** SeqNo: **1478358** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.9	0.50	8.000	0	98.3	90	110			
Sulfate	20	0.50	20.00	0	100	90	110			

Sample ID **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46400** RunNo: **46400**
Prep Date: Analysis Date: **10/17/2017** SeqNo: **1478370** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.9	90	110			
Sulfate	12	0.50	12.50	0	96.3	90	110			

Sample ID **A6** SampType: **ccv_6** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46400** RunNo: **46400**
Prep Date: Analysis Date: **10/17/2017** SeqNo: **1478381** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	13	0.50	12.00	0	105	90	110			
Sulfate	32	0.50	30.00	0	106	90	110			

Sample ID **A6** SampType: **ccv_6** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46427** RunNo: **46427**
Prep Date: Analysis Date: **10/17/2017** SeqNo: **1479082** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	31	0.50	30.00	0	104	90	110			
Nitrate+Nitrite as N	13	0.20	12.00	0	107	90	110			

Sample ID **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46427** RunNo: **46427**
Prep Date: Analysis Date: **10/17/2017** SeqNo: **1479094** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	12	0.50	12.50	0	95.0	90	110			
Nitrate+Nitrite as N	4.9	0.20	5.000	0	97.0	90	110			

Sample ID **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R46427** RunNo: **46427**
Prep Date: Analysis Date: **10/17/2017** SeqNo: **1479106** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710667**

30-Oct-17

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R28

Sample ID **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R46427** RunNo: **46427**

Prep Date: Analysis Date: **10/17/2017** SeqNo: **1479106** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	20	0.50	20.00	0	98.9	90	110			
Nitrate+Nitrite as N	8.1	0.20	8.000	0	101	90	110			

Sample ID **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**

Client ID: **PBW** Batch ID: **R46427** RunNo: **46427**

Prep Date: Analysis Date: **10/17/2017** SeqNo: **1479109** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	0.13	0.50								J
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**

Client ID: **LCSW** Batch ID: **R46427** RunNo: **46427**

Prep Date: Analysis Date: **10/17/2017** SeqNo: **1479110** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.8	0.50	10.00	0	97.9	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	100	90	110			

Sample ID **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R46427** RunNo: **46427**

Prep Date: Analysis Date: **10/17/2017** SeqNo: **1479118** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	12	0.50	12.50	0	94.9	90	110			
Nitrate+Nitrite as N	4.8	0.20	5.000	0	96.9	90	110			

Sample ID **A6** SampType: **ccv_6** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R46427** RunNo: **46427**

Prep Date: Analysis Date: **10/17/2017** SeqNo: **1479130** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	31	0.50	30.00	0	105	90	110			
Nitrate+Nitrite as N	13	0.20	12.00	0	107	90	110			

Sample ID **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R46427** RunNo: **46427**

Prep Date: Analysis Date: **10/17/2017** SeqNo: **1479142** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710667**

30-Oct-17

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R28

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R46427**	RunNo: **46427**
Prep Date:	Analysis Date: **10/17/2017**	SeqNo: **1479142** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	12	0.50	12.50	0	94.8	90	110			
Nitrate+Nitrite as N	4.8	0.20	5.000	0	96.8	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R46427**	RunNo: **46427**
Prep Date:	Analysis Date: **10/18/2017**	SeqNo: **1479149** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	20	0.50	20.00	0	99.1	90	110			
Nitrate+Nitrite as N	8.1	0.20	8.000	0	101	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710667**

30-Oct-17

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R28

Sample ID **MB-34408** SampType: **MBLK** TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW** Batch ID: **34408** RunNo: **46384**
Prep Date: **10/13/2017** Analysis Date: **10/16/2017** SeqNo: **1477713** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-34408** SampType: **LCS** TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW** Batch ID: **34408** RunNo: **46384**
Prep Date: **10/13/2017** Analysis Date: **10/16/2017** SeqNo: **1477714** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1000	20.0	1000	0	100	80	120			

Sample ID **1710667-015AMS** SampType: **MS** TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **SSW WQSP6A R28** Batch ID: **34408** RunNo: **46384**
Prep Date: **10/13/2017** Analysis Date: **10/16/2017** SeqNo: **1477733** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	4410	20.0	1000	3391	102	80	120			

Sample ID **1710667-015AMSD** SampType: **MSD** TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **SSW WQSP6A R28** Batch ID: **34408** RunNo: **46384**
Prep Date: **10/13/2017** Analysis Date: **10/16/2017** SeqNo: **1477734** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	4420	20.0	1000	3391	103	80	120	0.272	5	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1710667**

30-Oct-17

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R28

Sample ID **MB-34563**	SampType: **MBLK**	TestCode: **SM 4500 Norg C: TKN**
Client ID: **PBW**	Batch ID: **34563**	RunNo: **46596**
Prep Date: **10/23/2017**	Analysis Date: **10/24/2017**	SeqNo: **1484040** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	1.0								

Sample ID **LCS-34563**	SampType: **LCS**	TestCode: **SM 4500 Norg C: TKN**
Client ID: **LCSW**	Batch ID: **34563**	RunNo: **46596**
Prep Date: **10/23/2017**	Analysis Date: **10/24/2017**	SeqNo: **1484041** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10	1.0	10.00	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: WIPP | Work Order Number: 1710667 | RcptNo: 1

Received By: Richie Eriacho 10/12/2017 8:00:00 AM

Completed By: Anne Thorne 10/12/2017 8:52:00 AM

Reviewed By: 10/12/17

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☑	No ☐	Not Present ☐
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	FedEx		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? NO
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: DDS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			

04977

CHAIN OF CUSTODY RECORD

№ 1108

Page 1 of 2

Project Number:	Project Name:
T502542-2	SSW Sampling R28

Sampler(s): Brett Seal, Allen Hall

Sample Date	Sample Time	Matrix	Sample Number	Total Number of Containers	TDS	Chlorides	Sulfates	Comments
10/09/2017	0950	SSW	SSW C2811 R28 N1	1	x	x	x	7/10/067
10/09/2017	1053	SSW	SSW PZ12 R28 N1	1	x	x	x	USE for MS/MSD BS 10/11/17 -001
10/09/2017	1202	SSW	SSW PZ10 R28 N1	1	x	x	x	-002
10/09/2017	1330	SSW	SSW PZ7 R28 N1	1	x	x	x	-003
10/10/2017	0841	SSW	SSW PZ8 R28 N1	1	x	x	x	-004
10/10/2017	0911	SSW	SSW PZ13 R28 N1	1	x	x	x	-005
10/09/2017	1448	SSW	SSW PZ11 R28 N1	1	x	x	x	-006
10/09/2017	1507	SSW	SSW PZ11 R28 N1 EB	1	x	x	x	-007
10/10/2017	1050	SSW	SSW C2507 R28 N1	1	x	x	x	EQUIP Blank -008
10/10/2017	1220	SSW	SSW PZ1 R28 N1	1	x	x	x	-009
10/10/2017	1512	SSW	SSW PZ5 R28 N1	1	x	x	x	-010
10/10/2017	1513	SSW	SSW PZ5 10/12/17 CS R28 N1D	1	x	x	x	-011
10/10/2017	~~1512~~ 1531	SSW	SSW PZ5 R28 N1EB	1	x	x	x	-012
10/10/2017	1339	SSW	SSW PZ6 R28 N1	1	x	x	x	EQUIP Blank -013
								-014

Requested Analyses

Analytical Laboratory: HEAL Albuquerque NM

Relinquished By: (Signature/Date/Time) 10/11/17 1050

Received By: (Signature, Date/Time) 10/12/17 0800

Relinquished By: (Signature, Date/Time)

Received By: (Signature, Date/Time)

Relinquished By: (Signature, Date/Time)

Received By: (Signature, Date/Time)

Relinquished By: (Signature, Date/Time)

Received at Laboratory: (Signature, Date/Time)

Requested Turnaround Time: 30 Days

☒ Routine ☐ Rush

Sample Receipt Remarks: 04 ice @ 1.3°C

Special Instructions: High TDS: PZ-7, PZ-11, PZ-9, PZ-6, PZ-5, PZ-13, PZ-1

Report all data to three S.G. Figs Including QC Data LCS & LCSD be analyzed for all analytes (chlorides, sulfate, TDS TKN)

Sample Disposal:

☐ Return to Client ☒ Disposal by Lab

Carrier / Airbill No.: 8075 2092 2398

Results To:

Brett Seal
RES
PO Box 2078, MS 452-09
Carlsbad, NM 88221-2078
Phone: 575-706-6034 FAX: 575-234-6003
EDD: Brett.Seal@WIPP.ws

WHITE – Analytical Laboratory
DI – Deionized Water
GW – Groundwater

YELLOW – Field Copy
AF – Air Filter(s)
AN – Animal(s)

PINK – Record Copy
SE – Sediment
SO – Soil

SW – Surface Water
VG – Vegetation

FedEx

Form CoC/RFA, Rev. 0 – NICHOLS PRINTING, INC.

049078

CHAIN OF CUSTODY RECORD

№ 1109

Page 2 of 2

Project Number:	Project Name:
TS02542-2	SSW Sampling R28

Sampler(s): Brett Seal, Allen Hall

Sample Date	Sample Time	Matrix	Sample Number	Total Number of Containers	TDS	Chlorides	Sulfates	Nitrates	TKN					Analytical Laboratory
														HEAL Albuquerque NM
														Comments 1710667
10/11/2017	0957	SSW	SSW WQSPGA R28 N1		x	x	x	x						USE FOR MS/MSD TDS -016
10/11/2017	0959	SSW	SSW WQSPGA R28 N2					x	x					

NA BS 10/13/17

Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)
10/11/17 1050	10/12/17 0800		
Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received at Laboratory: (Signature, Date/Time)

Requested Turnaround Time: 30 Days

☑ Routine ☐ Rush _____

Sample Disposal:

☐ Return to Client ☑ Disposal by Lab

Carrier / Airbill No.: 8075 2092 2398

Sample Receipt Remarks:

Special Instructions:

Results To:

Brett Seal
RES
PO Box 2078, MS 452-09
Carlsbad, NM 88221-2078

Phone: 575-234-8966 FAX: 575-234-6003

EDD: Brett.Seal@WIPP.WS

WHITE – Analytical Laboratory
DI – Deionized Water
GW – Groundwater

YELLOW – Field Copy
AF – Air Filter(s)
AN – Animal(s)

PINK – Record Copy
SE – Sediment
SO – Soil

SW – Surface Water
VG – Vegetation

Form CoCURFA, Rev. 0 – NICHOLS PRINTING, INC.

04979

Table 8 - Monitoring Well Water Levels and Chemical Analyses											
	Field and General Chemistry Parameters								Other	Water Level Monitoring (Ft AMSL)	
Monitoring Site	Sample Date	pH (SU)	Temp. (°C)	Specific Conductivity @25 °C (µS/cm)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)	9/18/17-9/20/17	12/13/17-12/14/17
PZ-1	10/10/2017	6.41	22.71	94,950	NA	**1,900**	**36,100**	**63,900**	NA	3372.07	3371.98
PZ-2	NS	NS	NS	NS	NS	NS	NS	NS	NS	3371.61	3371.47
PZ-3	NS	NS	NS	NS	NS	NS	NS	NS	NS	3372.09	3371.96
PZ-4	NS	NS	NS	NS	NS	NS	NS	NS	NS	3367.22	3367.24
PZ-5	10/10/2017	7.18	23.41	62,850	NA	**638**	**4,790**	**11,300**	NA	3372.66	3372.61
PZ-6	10/10/2017	6.83	22.89	94,650	NA	**1,260**	**20,800**	**37,500**	NA	NA	3370.54
PZ-7	10/9/2017	6.31	27.79	85,410	NA	**2,170**	**36,800**	**80,100**	NA	3377.91	3377.83
PZ-8	NS	NS	NS	NS	NS	NS	NS	NS	NS	3355.88	3356.22
PZ-9	10/10/2017	6.16	20.85	99,050	NA	**4,580**	**91,900**	**172,000**	NA	3362.84	3362.87
PZ-10	10/9/2017	7.43	24.99	5,005	NA	161	135	414	NA	3368.68	3368.79
PZ-11	10/9/2017	6.53	25.90	88,510	NA	**1,710**	**49,800**	**61,900**	NA	3375.06	3374.57
PZ-12	10/9/2017	7.03	24.03	40,490	NA	521	**2,840**	**6,740**	NA	3357.40	3357.47
PZ-13	10/10/2017	Bailed			NA	**2,650**	**134,000**	**251,000**	NA	3357.41	3357.73
PZ-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	3353.96	3354.24
PZ-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	3383.76	3383.73
C-2811	10/9/2017	7.22	22.30	16,106	NA	375	**1,110**	**2,640**	NA	3348.36	3347.95
C-2505	NS	NS	NS	NS	NS	NS	NS	NS	NS	3368.55	3368.44
C-2506	NS	NS	NS	NS	NS	NS	NS	NS	NS	3369.22	3369.09
C-2507	10/10/2017	7.09	19.97	41,220	NA	**627**	**2,890**	**7,270**	NA	3365.69	3365.56
WQSP-6A	10/11/2017	7.05	21.45	14,640	4.87	**1,880**	**342**	**3,390**	<1.0	3195.59	3195.76
Explanation:	NA: Not Analyzed, parameter not required, per permit conditions.										
	NS: Not Sampled, not required per permit conditions										
	PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty using Low-Flow pumps										
	"**Bold**" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply										
	AMSL: Above Mean Sea Level										

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

JUL 26 2018

Ms. Michelle Hunter, Bureau Chief
New Mexico Environment Department
Ground Water Quality Bureau
Harold Runnels Building
1190 Saint Francis Drive
P.O. Box 5469
Santa Fe, NM 87502

Subject: Semi-Annual Discharge Monitoring Report for January 1 through June 30, 2018, Discharge Permit, DP-831

Dear Ms. Hunter:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Discharge Monitoring Report, including the required attachments on compact disc, for the period of January 1 through June 30, 2018. This report is required by Discharge Permit, DP-831.

If you have any questions about this report or require any additional information, please contact me at (575) 234-7476.

Sincerely,

Michael R. Brown, Director
Office of Environmental Protection

Enclosure (2)

cc: w/o enclosures
R. Strauch, NMED,GWQB *ED
R. Maestas, NMED, HWB ED
CBFO M&RC
*ED denotes electronic distribution

CBFO:OEP:MRB:AC:18-0338:UFC 5486.00

Waste Isolation Pilot Plant Semi-Annual Discharge Monitoring Report for Discharge Permit DP-831 for Reporting Period January 1, 2018 through June 30, 2018

U.S. Department of Energy

July 2018

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JANUARY 1, 2018 THROUGH JUNE 30, 2018

REPORTING REQUIREMENTS OF DP-831 OPERATIONAL PLAN

Part B. Applicable to the Facultative Lagoon System

Condition 8. *– The permittee shall measure the thickness of the sludge blanket in each pond of the Facultative Lagoon System once within the effective term of this Discharge Permit, but before the end of 2018. When sludge accumulation exceeds 1/3 of the total depth of any pond, the permittee shall remove the sludge in a manner, which is protective of the pond liner. Removed solids shall be contained, transported, and disposed of in accordance with all local, state, and federal regulations. The permittee shall maintain solids blanket measurements and solids disposal manifests for solids transported from the facility for off-site disposal. The permittee shall submit all measurements and manifests to NMED in the semi-annual monitoring report immediately following the solids thickness measurement.*

No sludge measurements were performed on the Facultative Lagoon System ponds during this reporting period. The most recent sludge measurements were made in November 2017 and the results were reported in the second semi-annual report for 2017.

Part D. Applicable to the Storm Water Runoff Impoundments in Contact with Salt Stockpiles (Salt Storage Ponds 1, 2, and 3) and Salt Stockpiles (Salt Cells 1, 2, and 3).

Condition 9. *– The permittee shall measure the thickness of the solids blanket in each impoundment once within the effective term of this Discharge Permit, but before the end of 2018. Removed solids shall be contained, transported, and disposed of in accordance with all local, state, and federal regulations. The permittee shall maintain solids blanket measurements and solids disposal manifests for solids transported from the facility for off-site disposal. The permittee shall submit all measurements and manifests to NMED in the semi-annual monitoring report immediately following the solids thickness measurement.*

Sludge blanket measurements were performed on all three of the Salt Storage Ponds on February 14, 2018. Only the sludge in Salt Storage Pond 2 reached the 1/3 total depth of the pond. An Action Request has been placed in the work order system to remove the sludge from Salt Storage Pond 2. Table 1 shows the location and results of the measurements.

Table 1- Sludge Blanket Measurements of the Salt Storage Ponds

Pond Name	Location	Date	Sludge Thickness (ft.)	Maximum Allowable Thickness (ft.)*
Salt Storage Pond 1	Staff Gauge	02/14/2018	0.25	1.30
Salt Storage Pond 2	Staff Gauge	02/14/2018	4.63	2.66
Salt Storage Pond 3	Staff Gauge	02/14/2018	5.14	6.66

*Maximum allowable thickness corresponds to the 1/3 of the total depth of the Ponds.

Condition 10. *– The permittee shall inspect the leak detection systems for Salt Storage Ponds 2 and 3 on a monthly basis for the presence of liquid. The permittee shall keep a log of the inspection findings and repairs made. The inspection log, including a statement whether or not liquids were observed in the leak detection systems, shall be submitted to NMED in the semi-annual monitoring reports.*

Monthly inspections of the Salt Storage Pond 2 and 3 leak detection systems occurred during this reporting period. Water was observed in both of the leak detection systems. The sumps of Salt Storage Ponds 2 and 3 were pumped. There were 9,100 gallons pumped from the Salt Storage Pond 2 Sump and 35,200 gallons pumped from the Salt Storage Pond 3 Sump. The average calculated leak rate was calculated to be 19 gallons per day for Salt Storage Pond 2 and 73 gallons per day in Salt Storage Pond 3 since the sumps were last pumped on May 15, 2017. The Action Leakage Rate for Salt Storage Pond 2 is 706 gallons per day and Salt Storage Pond 3 is 1,880 gallons per day. Both of the leakage rates were well below the Action Leakage Rate using EPA Standard EPA 530-R-92-004, NTIS #PB 92-128 214. The inspection log can be found on the accompanying compact disc (CD) as a portable document format (pdf) file named "Salt Pond Sump Inspection 1st Half 2018.pdf."

There were no repairs required to the leak detection system during this reporting period.

Condition 11. *– The permittee shall conduct regular maintenance of the earthen cover on the Salt Cell 1, and SPDV material pile. Inspections shall be conducted monthly and after storm events of 2 inches or greater in a 24-hour period to evaluate potential erosion and vegetation success of the cover. In the event of significant erosion or failure of vegetative success, the permittee shall provide a plan and schedule for repair within 90 days of discovery. General observations and cover repair shall be reported to NMED.*

The earthen cover of the Salt Cell 1 and the Site and Preliminary Design Validation (SPDV) material pile were inspected monthly for the reporting period. Monthly inspections noted that the water conveyance channels were in need of soil removal due to sloughing of the side slopes.

There were two rain events of 2 inches or greater in a 24-hour period in this reporting period (June 3 and June 16). After these two events, inspections to evaluate erosion and vegetation success were performed on the earthen covers as required after a rain event of 2 inches in a 24-hour period. No significant erosion during these rain events were noted in these inspections.

REQUIREMENTS OF DP-831 MONITORING AND REPORTING SECTION

Part B. Applicable to the Facultative Sewage Lagoon System

Condition 15. *– The volume of domestic influent discharged to the Facultative lagoon System shall be measured monthly using a totalizing flow meter on the influent line to the system or the totalizing meter that measures total domestic water usage. Volumes of other authorized discharges to the Facultative Lagoon System shall be calculated by a time/volume method or volumetric measurement of the transport container(s). NMED may require comprehensive laboratory analyses of such wastewater prior to discharge when NMED determines that additional information is needed. Monthly meter readings, the units of measurement, monthly discharge volumes and other volumetric calculations for the previous 6-month period shall be submitted to NMED semi-annually in the monitoring reports.*

Table 2 shows the volume of water discharged to the Facultative Lagoon System for this reporting period. Discharged water volume is based on total raw water use. No miscellaneous non-hazardous water was discharged to Evaporation Lagoons B or C.

Table 2 – Discharge to Facultative Lagoon System

Month	Volume (gallons)
January	339,888
February	341,631
March	352,189
April	405,402
May	632,973
June	427,188
Total	**2,499,271**

Weekly meter readings of the domestic water meter are found on the accompanying CD as a pdf file named "Water Discharge to Facultative System 1st Half of 2018.pdf."

Condition 16. *– The permittee shall collect a wastewater sample on a semi-annual basis (once every six months) from the influent to the Facultative Lagoon System. The grab sample shall be analyzed for TKN, NO_3-N, SO_4, TDS, and Cl. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.*

Samples were collected from the Settling Lagoon 2 influent, which is the influent to the Facultative Lagoon System. Table 3 summarizes the laboratory analytical results for Settling Lagoon 2.

Table 3 – Facultative Lagoon System Analytical Data

Analyte	Sample Date	Settling Lagoon 2 Concentration (mg/L)
TKN	05/30/18	109
NO_3-N	05/30/18	ND
SO_4	05/30/18	52.0
TDS	05/30/18	2,000
Cl	05/30/18	62.7

TKN: Total Kjeldahl nitrogen
TDS: Total dissolved solids
ND: Not detected, analyte below the method detection limit

Laboratory analytical results and the QA/QC Summary Report for the Facultative Lagoon System are found as a pdf file on the accompanying CD named "Facultative Lagoon and H-19 Analytical and QA-QC.pdf" on the accompanying CD.

Part C. Applicable to the Evaporation Pond H-19 and Storm Water Impoundments Not in Contact with Salt Stockpiles (Storm Water Ponds 1, 2, and 3)

Condition 17. *– The volume and origin of all wastewater discharged to the Evaporation Pond H-19 that is derived from miscellaneous non-hazardous sources shall be measured monthly and reported to NMED. Discharge volumes to the Evaporation Pond H-19 shall be calculated by a time/volume method or volumetric measurement of the transport container(s). NMED may require comprehensive laboratory analyses of such wastewater prior to discharge when NMED determines that additional information is needed. Monthly discharge volumes and other volumetric calculations for the previous 6-month period shall be submitted to NMED semi-annually in the monitoring reports.*

Table 4 shows the volume of miscellaneous non-hazardous water discharged to Evaporation Pond H-19 for this reporting period. This water is from groundwater well pumping (GW), condensate from the Exhaust Shaft ductwork (ES), and from the Waste Shaft sump water (WS).

Table 4 – Discharge to H-19 Evaporation Pond

Month	Volume (gallons)	Water Origin
January	0	-
February	5,510	ES & WS
March	0	-
April	0	-
May	5,680	GW & WS
June	3,695	GW & WS
Total	**14,885**	

Condition 18. *– A sample shall be collected semi-annually from the Evaporation Pond H-19 and analyzed for SO_4, Cl, and TDS. Samples shall be collected annually after a significant storm event from each of the storm water ponds, Storm Water Ponds 1, 2, and 3 and analyzed for SO_4, Cl, and TDS. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring report.*

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

Significant storm events occurred on June 3, 2018 and on June 16, 2018. Samples from Evaporation Pond H-19 and Storm Water Ponds 1, 2, and 3 will be collected in the second half of 2018, and reported in the second semi-annual report which is due February 1, 2019.

Evaporation Pond H-19 was not sampled during this reporting period because there was not enough water in the pond during the sampling event.

Table 5 – Storm Water Ponds and Evaporation Pond H-19 Analytical Data

Analyte	Sample Date	Evaporation Pond H-19	Storm Water Pond 1	Storm Water Pond 2	Storm Water Pond 3
SO_4 (mg/L)	NS	NS	NS	NS	NS
Cl (mg/L)	NS	NS	NS	NS	NS
TDS (mg/L)	NS	NS	NS	NS	NS

NS – not sampled during this reporting period. Samples will be collected and reported in the second semi-annual report for 2018.

Condition 19. *– The water depth shall be measured monthly to the nearest tenth of a foot (0.1 ft) in the Storm Water ponds 1, 2, and 3. The approximate volume of storm water shall be calculated and submitted to NMED in the semi-annual monitoring reports.*

Table 6 Summarizes that measured water depths and calculated storm water volumes for the Storm Water Ponds.

Table 6 – Storm Water Ponds Depths and Volumes

	January 01/15/18	February 02/19/18	March 03/08/18	April 04/24/18	May 05/08/18	June 06/04/18
Storm Water Pond 1						
Water Depth (ft)	0.7	0.4	0.2	0.0	0.0	1.7
Water Volume (gal)	97,390	55,651	27,826	0	0	236,518
Storm Water Pond 2						
Water Depth (ft)	4.2	3.9	3.7	2.8	2.6	4.3
Water Volume (gal)	1,443,483	1,340,377	1,271,639	962,322	893,584	1,477,851
Storm Water Pond 3						
Water Depth (ft)	2.8	2.5	2.3	1.6	1.2	3.0
Water Volume (gal)	4,038,701	3,605,983	3,317,505	2,307,829	1,730,872	4,327,180

Part D. Applicable to the Storm Water Runoff Impoundments in Contact with Salt Stockpiles (Salt Storage Ponds 1, 2, and 3) and Salt Stockpiles (Salt Cells 1, 2, and 3)

Condition 20. *– A sample shall be collected annually after a significant storm event from each of the Salt Storage Cells 1, 2, and 3 and analyzed for SO_4, Cl, and TDS. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.*

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

Samples from Salt Storage Ponds 1, 2, and 3 will be collected and reported in the next reporting period for 2018.

Condition 21. *The water depth shall be measured monthly to the nearest tenth of a foot (0.1 ft) in the Salt Storage Ponds 1, 2, and 3. The approximate volume of storm water shall be calculated and submitted to NMED in the semi-annual monitoring reports.*

Table 7 summarizes that measured water depths and calculated storm water volumes for the Salt Storage Ponds.

Table 7 – Salt Storage Ponds Depths and Volumes

	January 01/15/18	February 02/19/18	March 03/08/18	April 04/24/18	May 05/08/18	June 06/04/2018
Salt Storage Pond 1						
Water Depth (ft)	0.0	0.0	0.0	0.0	0.0	0.5
Water Volume (gal)	0	0	0	0	0	569,247
Salt Storage Pond 2						
Water Depth (ft)	5.6	5.5	5.3	4.6	4.6	4.3
Water Volume (gal)	2,005,837	1,970,018	1,898,381	1,647,652	1,647,652	1,540,196
Salt Storage Pond 3						
Water Depth (ft)	12.4	12.0	12.0	11.6	11.4	11.0
Water Volume (gal)	14,186,418	13,728,792	13,728,792	13,271,166	13,728,792	12,584,726

Ground Water Monitoring and Reports

Condition 22. *– Depth to the water table shall be measured to the nearest hundredth of a foot (0.01 ft) quarterly in the piezometers/monitoring wells:*

- *PZ-1, PZ-2, PZ-3, PZ-4, PZ-5, PZ-6, PZ-7, PZ-8, PZ-9, PZ-10, PZ-11, PZ-12, PZ-13, PZ-14 and PZ-15*
- *C-2505, C-2506, C-2507, C-2811, and WQSP-6A*

For depth to the water in the piezometers and monitoring wells, see Table 8 – Monitoring Well Water Levels and Chemical Analyses.

Condition 23. *– The permittee shall perform semi-annual ground water sampling in the following piezometers/monitoring wells and analyze the samples for temperature, pH, specific conductance, SO4, TDS, and Cl:*

- *Piezometers: PZ-1, PZ-5, PZ-6, PZ-7, PZ-9, PZ-10, PZ-11, PZ-12, and PZ-13*
- *Monitoring Wells: C-2507, C-2811, and WQSP-6A*

Ground water sample collection, preservation, transport and analysis shall be performed according to the following procedure:

a) Measure the depth-to-most-shallow ground water from the top of the well casing to the nearest hundredth of a foot.

b) Purge three well volumes of water from the well prior to sample collection.
c) Obtain samples from the well for analysis.
d) Properly prepare, preserve and transport samples.
e) Analyze samples in accordance with the methods authorized in this Discharge Permit.

Depth-to-most-shallow ground water measurements, analytical results, including the laboratory QA/QC summary report, and a facility layout map showing the location and number of each well shall be submitted to NMED in the semi-annual monitoring reports.

Water levels in the shallow wells (PZ-1 through PZ-15, C-2811, C-2505, C-2506, and C-2507) were measured in quarterly events; March 6 through March 7, 2018, and June 4 through June 6, 2018. These were taken in accordance with quarterly milestones outlined in the Ground Water Monitoring Schedule specified in the Discharge Permit renewal, DP-831, dated July 29, 2014. During the reporting period, the water levels at the shallow subsurface water (SSW) monitoring points decreased by an average elevation of 0.08 feet. The drop in water elevation over this reporting period is most likely due to a low amount of precipitation during 2018. Water levels are included in Table 8 – Monitoring Well Water Levels and Chemical Analyses.

To meet the requirements of Condition 23, the SSW piezometers were sampled for field and general chemistry parameters on May 21 through May 23, 2018. Results for the field sampling parameters and laboratory analyses are presented in Table 8.

Laboratory analytical results and the QA/QC Summary Report are found on the accompanying CD as a pdf file named "Shallow Surface Water Analytical and QA-QC.pdf".

Condition 24. *– The permittee shall perform semi-annual ground water sampling from monitoring well WQSP-6A and analyzed for TKN and NO3. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.*

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

WQSP-6A was sampled on May 23, 2018. Sulfate, chloride, and total dissolved solids were detected in WQSP-6A samples at concentrations above the standards of 20.6.2.3103 NMAC, *Standards for Ground Water of 10,000 mg/L TDS concentration or less for Human Health and Domestic Water Supply.* Although the concentrations were higher than the standards, they are less than background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285). Nitrate was also detected, but did not exceed the standards. Total Kjeldahl Nitrogen was below the detection limit of 1 mg/L. The SSW identified at the WIPP facility does not appear to have impacted the Dewey Lake groundwater in WQSP-6A, based on the consistency of analyzed parameters in this well.

For WQSP-6A analytical results, see Table 8 – Monitoring Well Water Levels and Chemical Analyses.

Laboratory analytical results and the QA/QC Summary Report for WQSP-6A samples are found on the accompanying CD as a pdf file named "Shallow Surface Water Analytical and QA-QC.pdf".

Condition 25. *– Hydrographs shall be submitted annually for all monitoring wells and piezometers covered under Condition 22 of this Discharge Permit. At a minimum, graphs shall include the previous five years of water level data, or for recently installed wells, all data since the well was installed. Data for several wells may be included on one graph.*

The hydrographs of all monitoring wells and piezometers will be included in the second 2018 semi-annual report, which is due February 1, 2019.

Condition 26. *– A potentiometric map for facility area shall be submitted annually. The map shall incorporate the most recent water level data for all monitoring wells and piezometers installed in the shallow subsurface water (SSW).*

The potentiometric map that incorporates the most recent water level data for all monitoring wells and piezometers installed in the shallow subsurface water will be included in the second 2018 semi-annual report, which is due February 1, 2019.

Condition 27. *– A single table in a paper and electronic format (EXCEL spreadsheet) of water level measurements and water quality data with only those constituents analyzed and water levels measured during a single event shown in columns. Tabulated field measurements to include temperature, pH, and electrical conductivity corrected to 25 degrees Celsius. Monitoring sites shall be shown in rows. The second column shall contain the date of the sampling event. Values exceeding standards shall be bolded. Any constituent not analyzed for a particular site shall be shown as "NA", any site not sampled shall be shown as "NS" with an associated reason, and any site not measured for water levels shall be shown as "NM" with an associated reason.*

Table 8 – Monitoring Well Water Levels and Chemical Analyses, is included in this report and in electronic Excel format on the accompanying CD. The file name on the CD is "Table 8 – Monitoring Well Water Levels and Chemical Analyses." Electrical conductivity is listed as specific conductivity in Table 8.

Condition 28. *– A single table that includes all available ground water data to date shall be submitted annually. For each monitoring well, the name of the well shall be entered in the far left column in a row by itself. Sampling events, beginning with the earliest event first, shall be entered in subsequent rows with the sampling date in the second column and the corresponding analytical data in columns further to the right. Each new sampling event shall be added as an additional row to the existing spreadsheet with the corresponding date of the sampling event noted in the second column next to the monitoring well name.*

The table that includes all available ground water data to date will be included in the second 2018 semi-annual report which is due February 1, 2019.

Condition 45. *– In the event the permittee implements changes to the wastewater system authorized by this Discharge Permit which result in only a minor effect on the character of the discharge, the permittee shall report such changes (including submission of record drawings, where applicable) as of January 1 and June 30 of each year to the NMED.*

There were no changes to the wastewater system authorized by this Discharge Permit during this reporting period

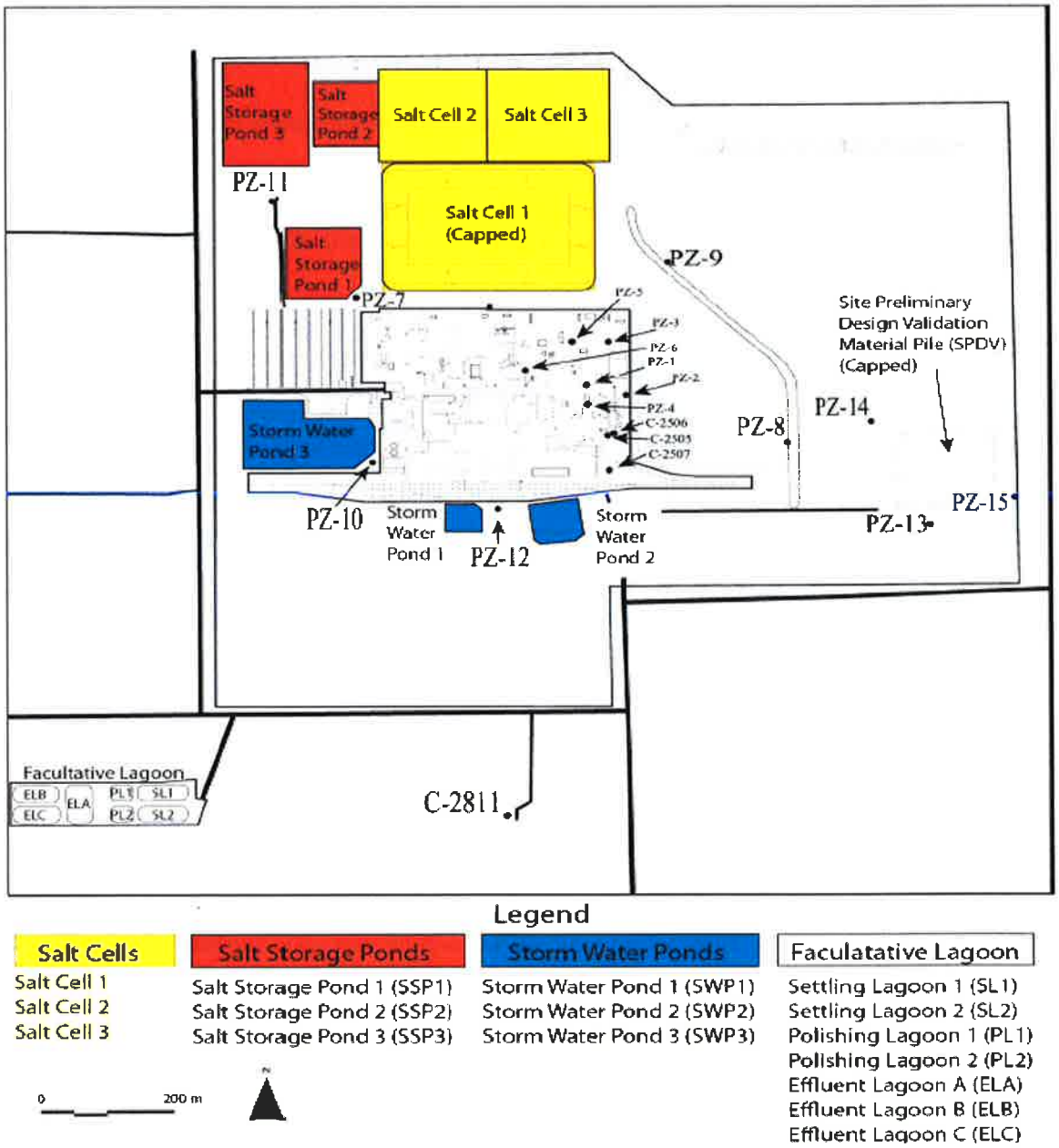


Figure 1 – Well and Pond Locations

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JANUARY 1, 2018 THROUGH JUNE 30, 2018

Table 8 – Monitoring Well Water Levels and Chemical Analyses

	Field and General Chemistry Parameters								Other	Water Level Monitoring (Ft AMSL)	
Monitoring Site	Sample Date	pH (SU)	Temp. (°C)	Specific Conductivity @25 °C (µS/cm)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)	03/06/18-03/07/18	06/05/18-06/06/18
PZ-1	5/22/2018	6.54	25.46	89,650	NA	**1,860**	**26,500**	**54,500**	NA	3371.77	3371.63
PZ-2	NS	NS	NS	NS	NS	NS	NS	NS	NS	3371.24	3371.08
PZ-3	NS	NS	NS	NS	NS	NS	NS	NS	NS	3371.66	3371.65
PZ-4	NS	NS	NS	NS	NS	NS	NS	NS	NS	3366.99	3366.82
PZ-5	5/22/2018	7.26	23.66	68,660	NA	585	**5,910**	**12,800**	NA	3372.37	3372.34
PZ-6	5/22/2018	7.01	23.76	92,800	NA	**1,210**	**18,400**	**32,300**	NA	3370.35	3370.31
PZ-7	5/21/2018	6.40	22.71	92,610	NA	**2,950**	**54,600**	**100,000**	NA	3377.56	3377.65
PZ-8	NS	NS	NS	NS	NS	NS	NS	NS	NS	3356.35	3356.70
PZ-9	5/22/2018	6.32	23.78	92,920	NA	**4,790**	**99,200**	**180,000**	NA	3362.76	3362.94
PZ-10	5/21/2018	7.47	23.14	5,345	NA	224	193	998	NA	3368.35	3368.08
PZ-11	5/21/2018	6.59	22.66	92,640	NA	**1,980**	**36,400**	**66,300**	NA	3374.25	3374.13
PZ-12	5/21/2018	7.04	23.29	41,260	NA	576	**3,280**	**7,280**	NA	3357.22	3357.01
PZ-13	5/22/2018	Bailed			NA	**2,800**	**146,000**	**269,000**	NA	3357.55	3357.66
PZ-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	3354.11	3354.38
PZ-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	3383.41	3383.33
C-2811	5/21/2018	7.32	21.31	14,700	NA	347	**1,090**	**2,510**	NA	3347.56	3347.16
C-2505	NS	NS	NS	NS	NS	NS	NS	NS	NS	3368.27	3368.09
C-2506	NS	NS	NS	NS	NS	NS	NS	NS	NS	3368.89	3368.72
C-2507	5/22/2018	7.19	23.80	40,000	NA	**638**	**3,040**	**6,850**	NA	3365.42	3365.30
WQSP-6A	5/23/2018	7.12	23.64	13,760	4.98[H]	**1,770**	**340**	**3,480**	ND	3347.56	3347.16
Explanation:	NA: Not Analyzed, parameter not required, per permit conditions.										
	NS: Not Sampled, not required per permit conditions										
	ND: Non-detect										
	PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty using Low-Flow pumps										
	AMSL: Above Mean Sea Level										
	"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply										
	H: Hold times for preparation or analysis exceeded										

04992

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

June 25, 2018

Greg Jungclaus
Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8966
FAX

RE: ENVIRONMENTAL OrderNo.: 1805G28

Dear Greg Jungclaus:

Hall Environmental Analysis Laboratory received 5 sample(s) on 5/31/2018 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued June 22, 2018.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1805G28**
Date Reported: **6/25/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL
Lab ID: 1805G28-001 **Matrix:** AQUEOUS

Client Sample ID: EC-SL2-20180530-1.4
Collection Date: 5/30/2018 8:02:00 AM
Received Date: 5/31/2018 7:28:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Nitrogen, Nitrate (As N)	ND	0.0660	1.00		mg/L	10	5/31/2018 5:49:37 PM	R51680

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-SL2-20180530-2.4
Project: ENVIRONMENTAL
Collection Date: 5/30/2018 7:58:00 AM
Lab ID: 1805G28-002 **Matrix:** AQUEOUS **Received Date:** 5/31/2018 7:28:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
SM 4500 NORG C: TKN							Analyst: **smb**	
Nitrogen, Kjeldahl, Total	109	5.68	10.0	D	mg/L	1	6/8/2018 1:37:00 PM	38543

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-SL2-20180530-3.4
Project: ENVIRONMENTAL
Collection Date: 5/30/2018 7:48:00 AM
Lab ID: 1805G28-003 **Matrix:** AQUEOUS **Received Date:** 5/31/2018 7:28:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **JRR**	
Chloride	62.7	0.293	5.00		mg/L	10	6/19/2018 2:31:44 AM	A52074
Sulfate	52.0	2.06	5.00		mg/L	10	6/19/2018 2:31:44 AM	A52074
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **sat**	
Total Dissolved Solids	2000	2000	2000	*D	mg/L	1	6/7/2018 4:07:00 PM	38515

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-SL2-20180530-4.5
Project: ENVIRONMENTAL
Collection Date: 5/30/2018 7:48:00 AM
Lab ID: 1805G28-004 **Matrix:** AQUEOUS **Received Date:** 5/31/2018 7:28:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **JRR**	
Chloride	63.6	0.293	5.00		mg/L	10	6/19/2018 2:56:33 AM	A52074
Sulfate	54.1	2.06	5.00		mg/L	10	6/19/2018 2:56:33 AM	A52074
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **sat**	
Total Dissolved Solids	2000	2000	2000	*D	mg/L	1	6/7/2018 4:07:00 PM	38515

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL
Lab ID: 1805G28-005 **Matrix:** AQUEOUS

Client Sample ID: EC-BLK-20180530-1.1
Collection Date: 5/30/2018 7:52:00 AM
Received Date: 5/31/2018 7:28:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **JRR**	
Chloride	0.138	0.0293	0.500	J	mg/L	1	6/19/2018 3:21:23 AM	A52074
Sulfate	ND	0.206	0.500		mg/L	1	6/19/2018 3:21:23 AM	A52074
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **sat**	
Total Dissolved Solids	ND	20.0	20.0		mg/L	1	6/7/2018 4:07:00 PM	38515

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1805G28**

26-Jun-18

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R51680**	RunNo: **51680**							
Prep Date:	Analysis Date: **5/31/2018**	SeqNo: **1685952**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	7.8	0.10	7.200	0	109	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R51680**	RunNo: **51680**							
Prep Date:	Analysis Date: **5/31/2018**	SeqNo: **1685954**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	ND	0.100								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R51680**	RunNo: **51680**							
Prep Date:	Analysis Date: **5/31/2018**	SeqNo: **1685955**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	2.60	0.100	2.500	0	104	90	110			

Sample ID **LCS-d**	SampType: **lcsd**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS02**	Batch ID: **R51680**	RunNo: **51680**							
Prep Date:	Analysis Date: **5/31/2018**	SeqNo: **1685956**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	2.53	0.100	2.500	0	101	90	110	2.70	20	

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R51680**	RunNo: **51680**							
Prep Date:	Analysis Date: **5/31/2018**	SeqNo: **1685963**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	4.99	0.100	4.800	0	104	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R51680**	RunNo: **51680**							
Prep Date:	Analysis Date: **5/31/2018**	SeqNo: **1685975**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	7.8	0.10	7.200	0	108	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1805G28**

26-Jun-18

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R51680**	RunNo: **51680**
Prep Date:	Analysis Date: **6/1/2018**	SeqNo: **1685987** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	5.0	0.10	4.800	0	104	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R51680**	RunNo: **51680**
Prep Date:	Analysis Date: **6/1/2018**	SeqNo: **1685999** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	7.8	0.10	7.200	0	108	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R51680**	RunNo: **51680**
Prep Date:	Analysis Date: **6/1/2018**	SeqNo: **1686008** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	97.8	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A52074**	RunNo: **52074**
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1704016** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.500								
Sulfate	ND	0.500								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A52074**	RunNo: **52074**
Prep Date:	Analysis Date: **6/18/2018**	SeqNo: **1704017** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.89	0.500	5.000	0	97.9	90	110			
Sulfate	9.64	0.500	10.00	0	96.4	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1805G28**

26-Jun-18

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL

Sample ID **MB-38515**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **38515**	RunNo: **51822**
Prep Date: **6/6/2018**	Analysis Date: **6/7/2018**	SeqNo: **1691999** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-38515**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **38515**	RunNo: **51822**
Prep Date: **6/6/2018**	Analysis Date: **6/7/2018**	SeqNo: **1692000** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1805G28**

26-Jun-18

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL

Sample ID	**MB-38543**	SampType:	**MBLK**	TestCode:	**SM 4500 Norg C: TKN**					
Client ID:	**PBW**	Batch ID:	**38543**	RunNo:	**51841**					
Prep Date:	**6/7/2018**	Analysis Date:	**6/8/2018**	SeqNo:	**1693015**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	1.00								

Sample ID	**LCS-38543**	SampType:	**LCS**	TestCode:	**SM 4500 Norg C: TKN**					
Client ID:	**LCSW**	Batch ID:	**38543**	RunNo:	**51841**					
Prep Date:	**6/7/2018**	Analysis Date:	**6/8/2018**	SeqNo:	**1693016**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10.1	1.00	10.00	0	101	80	120			

Sample ID	**LCSD-38543**	SampType:	**LCSD**	TestCode:	**SM 4500 Norg C: TKN**					
Client ID:	**LCSS02**	Batch ID:	**38543**	RunNo:	**51841**					
Prep Date:	**6/7/2018**	Analysis Date:	**6/8/2018**	SeqNo:	**1693017**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10.2	1.00	10.00	0	102	80	120	1.38	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: WIPP | Work Order Number: 1805G28 | RcptNo: 1

Received By: Erin Melendrez 5/31/2018 7:28:00 AM

Completed By: Anne Thorne 5/31/2018 1:48:46 PM

Reviewed By: 5/31/18

Labeled LB

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	FedEx		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

X LB 5/31/18

# of preserved bottles checked for pH: 1 (<2 or >12 unless noted)

Adjusted? NO

Checked by: LB

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks:

CUSTODY SEALS ON ALL SAMPLE BOTTLES/at 5/31/18

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.4	Good	Yes			

05003

CHAIN-OF-CUSTODY RECORD

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

C of C Control № 10309

RFA Control № 10309

SAMPLING PROGRAM ENVIRONMENTAL

LAB DESTINATION Hall Environmental (HEAL)

SAMPLE TEAM MEMBERS Jerome Hernandez, Stacey Britain

CARRIER/WAYBILL NO. Fed-Ex tracking # 8066 9057 8039

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)
EC-SL2-20180530-1.4	Settling Lagoon 2	5-30-18 0802	Sewage	1 liter	1865628 cc
2.4		0758		500 mL	202
3.4		0748			203
4.5		0748			204
EC-BLK-20180530-1.1	Blank	0752	Blank		205

Special Instructions: Do Nitrate (1 Liter Settling Lagoon 2) within 48 hrs of collected time (5-30-18 @ 0802)

Possible Sample Hazards: ☐ Radiological ☐ Bio-Hazard Sewage Lagoon (Temp. 1.9-0.5(CF)=1.4°C) via: Fedex-ENM

SIGNATURES: (Name, Company, Date and Time) 5/31/1

1. Relinquished By: Jerome Hernandez NWP 5-30-18 1230
   Received By: [illegible] 5/31/18 0728
2. Relinquished By: _____
   Received By: _____
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: _____

WP 02-EM3001- Environmental Monitoring | WHITE - Original to accompany samples | YELLOW - Field copy | PINK - Other

05004

REQUEST FOR ANALYSIS

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED 5-30-18 RFA Control № 10309

LAB DESTINATION Hall Environmetal

LABORATORY CONTACT Andy Freeman

SEND LAB REPORT TO NWP C of C Control № 10309

P.O. Box 2078 m/s 452-09

Carlsbad, New Mexico 88221

DATE REPORT REQUIRED Per S.O.W

PROJECT CONTACT C/o Greg Jonglaus

PROJECT CONTACT PHONE NO. (575) 234-8615

SAMPLING PROGRAM ENVIRONMENTAL

PURCHASE ORDER NO. 502542,4

1805G28

Sample Number	Sample Type	Sample Quantity	Preservative	Req't. Testing Program	Special Instructions
EC-SL2-20180530-1,4	Sewage	1 Liter	≤4°C	Nitrate	maximum Holding 48h
2,4	↓	500mL	H_2SO_4 to pH≤2, ≤4°C	TKN	N/A
3,4		↓	≤4°C	Sulfate, Chloride, TDS	↓
4,4			↓	↓	
EC-BLK-20180530-1,1	Blank				
		4			
		2			

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL X RUSH _____ (Subject in rush surcharge

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NONHAZARD _____ RADIOLOGICAL _____ FLAMMABLE _____ SKIN IRRITANT _____ HIGHLY TOXIC _____ BIOLOGICAL _____ OTHER Sewage sample (Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT _____ DISPOSAL BY LAB X

FOR LAB USE ONLY

RECEIVED BY [signature] DATE/TIME 05/31/18 0728

WP 02-EM3001- Environmental Monitoring WHITE - Original to accompany samples YELLOW - Field copy PINK - Other

NICHOLS PRINTING INC

050005

Water Level Measurement Field Data Sheet

From January to June Year 2018

Pond Name	Date	Time	Water Depth (ft)	Initials	Comments
Salt Storage Pond 2	1/16/18	13:02	31.98	RJ	
Salt Storage Pond 3	1/16/18	13:08	33.00	RJ	
Salt Storage Pond 2	2/7/18	15:50	32.12	RJ	
Salt Storage Pond 3	2/7/18	15:44	34.33	RJ	
Salt Storage Pond 2	3/6/18	0856	32.64	RJ	
Salt Storage Pond 3	3/6/18	0901	33.97	RJ	
Salt Storage Pond 2	4/4/18	1310	45.23	RJ	
Salt Storage Pond 3	4/4/18	1316	61.45	RJ	
Salt Storage Pond 2	5/9/18	1307	42.88	RJ	
Salt Storage Pond 3	5/16/18	0740	39.65	RJ	
Salt Storage Pond 2	6/6/18	1237	40.59	RJ	
Salt Storage Pond 3	6/6/18	1241	37.87	RJ	

Performer: Print Name: Richard Jimenez Signature:

Performer: Print Name: John Thurston Signature:

Performer: Print Name: Allen S. Hall Signature:

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

July 03, 2018

Brett Seal

Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8966
FAX

RE: SSW Sampling R29 OrderNo.: 1805D34

Dear Brett Seal:

Hall Environmental Analysis Laboratory received 16 sample(s) on 5/24/2018 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued June 26, 2018.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1805D34**
Date Reported: **7/3/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R29
Lab ID: 1805D34-001 **Matrix:** AQUEOUS

Client Sample ID: SSWC2811R29N1
Collection Date: 5/21/2018 10:12:00 AM
Received Date: 5/24/2018 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Chloride	1090	2.93	50.0		mg/L	100	5/26/2018 3:03:29 AM	R51542
Sulfate	347	2.06	5.00		mg/L	10	5/26/2018 2:51:03 AM	R51542
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **sat**	
Total Dissolved Solids	2510	40.0	40.0	*D	mg/L	1	5/30/2018 9:37:00 AM	38329

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ12R29N1
Project: SSW Sampling R29
Collection Date: 5/21/2018 11:22:00 AM
Lab ID: 1805D34-002
Matrix: AQUEOUS
Received Date: 5/24/2018 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **JRR**	
Chloride	3280	14.6	250		mg/L	500	6/11/2018 10:42:13 AM	R51893
Sulfate	576	20.6	50.0		mg/L	100	5/26/2018 3:28:18 AM	R51542
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **sat**	
Total Dissolved Solids	7280	40.0	40.0	*D	mg/L	1	5/30/2018 9:37:00 AM	38329

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ10 R29N1
Project: SSW Sampling R29
Collection Date: 5/21/2018 12:18:00 PM
Lab ID: 1805D34-003
Matrix: AQUEOUS
Received Date: 5/24/2018 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Chloride	193	0.293	5.00		mg/L	10	5/26/2018 3:40:42 AM	R51542
Sulfate	224	2.06	5.00		mg/L	10	5/26/2018 3:40:42 AM	R51542
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **sat**	
Total Dissolved Solids	998	40.0	40.0	*D	mg/L	1	5/30/2018 9:37:00 AM	38329

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ7R29N1
Project: SSW Sampling R29
Collection Date: 5/21/2018 1:31:00 PM
Lab ID: 1805D34-004
Matrix: AQUEOUS
Received Date: 5/24/2018 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Chloride	54600	293	5000		mg/L	1E+	5/26/2018 4:42:47 AM	R51542
Sulfate	2950	206	500		mg/L	1E+	5/26/2018 4:30:22 AM	R51542
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **sat**	
Total Dissolved Solids	100000	200	200	*D	mg/L	1	5/30/2018 9:37:00 AM	38329

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R29
Lab ID: 1805D34-005 **Matrix:** AQUEOUS

Client Sample ID: SSWPZ11R29N1
Collection Date: 5/21/2018 3:01:00 PM
Received Date: 5/24/2018 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Chloride	36400	293	5000		mg/L	1E+	5/26/2018 5:07:36 AM	R51542
Sulfate	1980	206	500		mg/L	1E+	5/26/2018 4:55:11 AM	R51542
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **sat**	
Total Dissolved Solids	66300	2000	2000	*D	mg/L	1	5/30/2018 9:37:00 AM	38329

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ11 R29EB
Project: SSW Sampling R29
Collection Date: 5/21/2018 3:17:00 PM
Lab ID: 1805D34-006 **Matrix:** AQUEOUS **Received Date:** 5/24/2018 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Chloride	4.11	0.0293	0.500		mg/L	1	5/26/2018 5:44:50 AM	A51542
Sulfate	8.72	0.206	0.500		mg/L	1	5/26/2018 5:44:50 AM	A51542
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **sat**	
Total Dissolved Solids	260	100	100	D	mg/L	1	5/30/2018 9:37:00 AM	38329

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ13R29N1
Project: SSW Sampling R29
Collection Date: 5/22/2018 9:48:00 AM
Lab ID: 1805D34-007
Matrix: AQUEOUS
Received Date: 5/24/2018 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Chloride	146000	293	5000		mg/L	1E+	5/26/2018 6:46:53 AM	A51542
Sulfate	2800	206	500		mg/L	1E+	5/26/2018 6:09:38 AM	A51542
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **sat**	
Total Dissolved Solids	269000	2000	2000	*D	mg/L	1	5/30/2018 9:37:00 AM	38329

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ9R29N1
Project: SSW Sampling R29
Collection Date: 5/22/2018 9:12:00 AM
Lab ID: 1805D34-008
Matrix: AQUEOUS
Received Date: 5/24/2018 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Chloride	99200	293	5000		mg/L	1E+	5/26/2018 7:11:42 AM	A51542
Sulfate	4790	206	500		mg/L	1E+	5/26/2018 6:59:17 AM	A51542
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **sat**	
Total Dissolved Solids	180000	2000	2000	*D	mg/L	1	5/30/2018 9:37:00 AM	38329

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWC2507R29N1
Project: SSW Sampling R29
Collection Date: 5/22/2018 11:17:00 AM
Lab ID: 1805D34-009
Matrix: AQUEOUS
Received Date: 5/24/2018 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Chloride	3040	29.3	500		mg/L	1E+	5/26/2018 7:36:32 AM	A51542
Sulfate	638	20.6	50.0		mg/L	100	5/26/2018 7:24:07 AM	A51542
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **sat**	
Total Dissolved Solids	6850	200	200	*D	mg/L	1	5/30/2018 9:37:00 AM	38329

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ1R29N1
Project: SSW Sampling R29
Collection Date: 5/22/2018 12:37:00 PM
Lab ID: 1805D34-010
Matrix: AQUEOUS
Received Date: 5/24/2018 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **JRR**	
Chloride	26500	146	2500		mg/L	5E+	6/11/2018 10:54:38 AM	R51893
Sulfate	1860	20.6	50.0		mg/L	100	5/26/2018 7:48:56 AM	A51542
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **sat**	
Total Dissolved Solids	54500	2000	2000	*D	mg/L	1	5/30/2018 9:37:00 AM	38329

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ6R29N1
Project: SSW Sampling R29
Collection Date: 5/22/2018 1:50:00 PM
Lab ID: 1805D34-011
Matrix: AQUEOUS
Received Date: 5/24/2018 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **JRR**	
Chloride	18400	58.6	1000		mg/L	2E+	6/11/2018 11:07:03 AM	R51893
Sulfate	1210	20.6	50.0		mg/L	100	5/26/2018 8:13:45 AM	A51542
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **sat**	
Total Dissolved Solids	32300	2000	2000	*D	mg/L	1	5/30/2018 9:37:00 AM	38329

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ5R29N1D
Project: SSW Sampling R29
Collection Date: 5/22/2018 3:18:00 PM
Lab ID: 1805D34-012
Matrix: AQUEOUS
Received Date: 5/24/2018 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Chloride	8000	29.3	500		mg/L	1E+	5/26/2018 9:15:47 AM	A51542
Sulfate	623	20.6	50.0		mg/L	100	5/26/2018 8:38:33 AM	A51542
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **sat**	
Total Dissolved Solids	13900	200	200	*D	mg/L	1	5/30/2018 9:37:00 AM	38329

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ5R29N1EB
Project: SSW Sampling R29
Collection Date: 5/22/2018 3:33:00 PM
Lab ID: 1805D34-013
Matrix: AQUEOUS
Received Date: 5/24/2018 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Chloride	2.89	0.0293	0.500		mg/L	1	5/26/2018 9:28:12 AM	A51542
Sulfate	0.467	0.206	0.500	J	mg/L	1	5/26/2018 9:28:12 AM	A51542
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **sat**	
Total Dissolved Solids	ND	40.0	40.0	D	mg/L	1	5/30/2018 9:37:00 AM	38329

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ5R29N1
Project: SSW Sampling R29
Collection Date: 5/22/2018 3:17:00 PM
Lab ID: 1805D34-014
Matrix: AQUEOUS
Received Date: 5/24/2018 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Chloride	5910	29.3	500		mg/L	1E+	5/26/2018 10:30:15 AM	A51542
Sulfate	585	20.6	50.0		mg/L	100	5/26/2018 10:17:51 AM	A51542
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **sat**	
Total Dissolved Solids	12800	200	200	*D	mg/L	1	5/30/2018 9:37:00 AM	38329

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWWQSP6AR29N1
Project: SSW Sampling R29
Collection Date: 5/23/2018 8:19:00 AM
Lab ID: 1805D34-015
Matrix: AQUEOUS
Received Date: 5/24/2018 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **JRR**	
Chloride	340	1.46	25.0		mg/L	50	6/11/2018 11:19:28 AM	R51893
Nitrogen, Nitrate (As N)	4.98	0.00660	0.100	H	mg/L	1	5/26/2018 10:42:40 AM	R51542
Sulfate	1770	10.3	25.0		mg/L	50	6/11/2018 11:19:28 AM	R51893
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **sat**	
Total Dissolved Solids	3480	100	100	*D	mg/L	1	5/30/2018 9:37:00 AM	38329

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWWQSP6AR29N2
Project: SSW Sampling R29
Collection Date: 5/23/2018 8:21:00 AM
Lab ID: 1805D34-016
Matrix: AQUEOUS
Received Date: 5/24/2018 7:20:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Nitrate+Nitrite as N	4.44	0.274	1.00		mg/L	5	5/26/2018 11:57:09 AM	A51542
SM 4500 NORG C: TKN							Analyst: **smb**	
Nitrogen, Kjeldahl, Total	ND	0.57	1.0		mg/L	1	6/3/2018 2:28:00 PM	38435

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1805D34**

03-Jul-18

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R29

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R51542**	RunNo: **51542**							
Prep Date:	Analysis Date: **5/25/2018**	SeqNo: **1679961**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	99.9	90	110			
Nitrogen, Nitrate (As N)	7.7	0.10	7.200	0	107	90	110			
Sulfate	31	0.50	30.00	0	103	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R51542**	RunNo: **51542**							
Prep Date:	Analysis Date: **5/25/2018**	SeqNo: **1679963**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R51542**	RunNo: **51542**							
Prep Date:	Analysis Date: **5/25/2018**	SeqNo: **1679964**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	97.3	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	102	90	110			
Sulfate	9.9	0.50	10.00	0	98.7	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R51542**	RunNo: **51542**							
Prep Date:	Analysis Date: **5/25/2018**	SeqNo: **1679972**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.0	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	102	90	110			
Sulfate	20	0.50	20.00	0	99.4	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R51542**	RunNo: **51542**							
Prep Date:	Analysis Date: **5/25/2018**	SeqNo: **1679984**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	100	90	110			
Nitrogen, Nitrate (As N)	7.7	0.10	7.200	0	108	90	110			
Sulfate	31	0.50	30.00	0	103	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1805D34**

03-Jul-18

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R29

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R51542**	RunNo: **51542**
Prep Date:	Analysis Date: **5/25/2018**	SeqNo: **1679996** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.8	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	96.7	90	110			
Sulfate	12	0.50	12.50	0	96.0	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R51542**	RunNo: **51542**
Prep Date:	Analysis Date: **5/25/2018**	SeqNo: **1680008** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	95.9	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	102	90	110			
Sulfate	20	0.50	20.00	0	99.5	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R51542**	RunNo: **51542**
Prep Date:	Analysis Date: **5/25/2018**	SeqNo: **1680020** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	100	90	110			
Nitrogen, Nitrate (As N)	7.7	0.10	7.200	0	107	90	110			
Sulfate	31	0.50	30.00	0	103	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R51542**	RunNo: **51542**
Prep Date:	Analysis Date: **5/25/2018**	SeqNo: **1680032** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.6	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	97.3	90	110			
Sulfate	12	0.50	12.50	0	95.9	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R51542**	RunNo: **51542**
Prep Date:	Analysis Date: **5/26/2018**	SeqNo: **1680043** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.1	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	102	90	110			
Sulfate	20	0.50	20.00	0	99.5	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1805D34**

03-Jul-18

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R29

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R51542**	RunNo: **51542**
Prep Date:	Analysis Date: **5/26/2018**	SeqNo: **1680055** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	100	90	110			
Nitrogen, Nitrate (As N)	7.8	0.10	7.200	0	108	90	110			
Sulfate	31	0.50	30.00	0	103	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A51542**	RunNo: **51542**
Prep Date:	Analysis Date: **5/26/2018**	SeqNo: **1680062** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A51542**	RunNo: **51542**
Prep Date:	Analysis Date: **5/26/2018**	SeqNo: **1680063** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	97.7	90	110			
Sulfate	9.8	0.50	10.00	0	98.0	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	101	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R51542**	RunNo: **51542**
Prep Date:	Analysis Date: **5/26/2018**	SeqNo: **1680067** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.4	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	97.4	90	110			
Sulfate	12	0.50	12.50	0	96.1	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R51542**	RunNo: **51542**
Prep Date:	Analysis Date: **5/26/2018**	SeqNo: **1680079** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.7	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	103	90	110			
Sulfate	20	0.50	20.00	0	99.4	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1805D34**

03-Jul-18

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R29

Sample ID	**1805D34-013AMS**	SampType:	**ms**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**SSWPZ5R29N1EB**	Batch ID:	**A51542**		RunNo:	**51542**				
Prep Date:		Analysis Date:	**5/26/2018**		SeqNo:	**1680083**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.81	0.500	5.000	2.895	98.3	85.9	109			
Sulfate	9.95	0.500	10.00	0.4669	94.8	84.3	120			

Sample ID	**1805D34-013AMSD**	SampType:	**msd**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**SSWPZ5R29N1EB**	Batch ID:	**A51542**		RunNo:	**51542**				
Prep Date:		Analysis Date:	**5/26/2018**		SeqNo:	**1680084**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.81	0.500	5.000	2.895	98.4	85.9	109	0.0440	20	
Sulfate	10.0	0.500	10.00	0.4669	95.4	84.3	120	0.596	20	

Sample ID	**A6**	SampType:	**ccv_6**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**BatchQC**	Batch ID:	**R51542**		RunNo:	**51542**				
Prep Date:		Analysis Date:	**5/26/2018**		SeqNo:	**1680091**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	101	90	110			
Nitrogen, Nitrate (As N)	7.8	0.10	7.200	0	108	90	110			
Sulfate	31	0.50	30.00	0	104	90	110			

Sample ID	**A4**	SampType:	**ccv_4**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**BatchQC**	Batch ID:	**R51542**		RunNo:	**51542**				
Prep Date:		Analysis Date:	**5/26/2018**		SeqNo:	**1680103**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.2	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	97.5	90	110			
Sulfate	12	0.50	12.50	0	96.1	90	110			

Sample ID	**A5**	SampType:	**ccv_5**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**BatchQC**	Batch ID:	**R51542**		RunNo:	**51542**				
Prep Date:		Analysis Date:	**5/26/2018**		SeqNo:	**1680115**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.8	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	103	90	110			
Sulfate	20	0.50	20.00	0	99.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1805D34**

03-Jul-18

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R29

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R51542**	RunNo: **51542**							
Prep Date:	Analysis Date: **5/26/2018**	SeqNo: **1680120**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	100	90	110			
Nitrogen, Nitrate (As N)	7.8	0.10	7.200	0	108	90	110			
Sulfate	31	0.50	30.00	0	103	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R51893**	RunNo: **51893**							
Prep Date:	Analysis Date: **6/11/2018**	SeqNo: **1695653**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	97.0	90	110			
Sulfate	29	0.50	30.00	0	96.1	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R51893**	RunNo: **51893**							
Prep Date:	Analysis Date: **6/11/2018**	SeqNo: **1695655**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R51893**	RunNo: **51893**							
Prep Date:	Analysis Date: **6/11/2018**	SeqNo: **1695656**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.3	90	110			
Sulfate	9.6	0.50	10.00	0	96.2	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R51893**	RunNo: **51893**							
Prep Date:	Analysis Date: **6/11/2018**	SeqNo: **1695664**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.5	0.50	8.000	0	94.3	90	110			
Sulfate	20	0.50	20.00	0	99.1	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1805D34**

03-Jul-18

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R29

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R51893**	RunNo: **51893**
Prep Date:	Analysis Date: **6/11/2018**	SeqNo: **1695676** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.5	0.50	5.000	0	91.0	90	110			
Sulfate	12	0.50	12.50	0	96.0	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R51893**	RunNo: **51893**
Prep Date:	Analysis Date: **6/11/2018**	SeqNo: **1695687** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.6	0.50	8.000	0	94.6	90	110			
Sulfate	20	0.50	20.00	0	99.6	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R51893**	RunNo: **51893**
Prep Date:	Analysis Date: **6/11/2018**	SeqNo: **1695698** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	97.7	90	110			
Sulfate	31	0.50	30.00	0	103	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R51893**	RunNo: **51893**
Prep Date:	Analysis Date: **6/11/2018**	SeqNo: **1695710** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.5	0.50	8.000	0	94.1	90	110			
Sulfate	20	0.50	20.00	0	99.4	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1805D34**

03-Jul-18

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R29

Sample ID	**MB-38329**	SampType: **MBLK**			TestCode: **SM2540C MOD: Total Dissolved Solids**					
Client ID:	**PBW**	Batch ID: **38329**			RunNo: **51591**					
Prep Date:	**5/25/2018**	Analysis Date: **5/30/2018**			SeqNo: **1682001**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	**LCS-38329**	SampType: **LCS**			TestCode: **SM2540C MOD: Total Dissolved Solids**					
Client ID:	**LCSW**	Batch ID: **38329**			RunNo: **51591**					
Prep Date:	**5/25/2018**	Analysis Date: **5/30/2018**			SeqNo: **1682002**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Sample ID	**1805D34-015AMS**	SampType: **MS**			TestCode: **SM2540C MOD: Total Dissolved Solids**					
Client ID:	**SSWWQSP6AR29N**	Batch ID: **38329**			RunNo: **51591**					
Prep Date:	**5/25/2018**	Analysis Date: **5/30/2018**			SeqNo: **1682021**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	8310	100	5000	3480	96.7	80	120			D

Sample ID	**1805D34-015AMSD**	SampType: **MSD**			TestCode: **SM2540C MOD: Total Dissolved Solids**					
Client ID:	**SSWWQSP6AR29N**	Batch ID: **38329**			RunNo: **51591**					
Prep Date:	**5/25/2018**	Analysis Date: **5/30/2018**			SeqNo: **1682022**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	8440	100	5000	3480	99.2	80	120	1.49	5	D

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1805D34**

03-Jul-18

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R29

Sample ID	**MB-38435**	SampType:	**MBLK**	TestCode:	**SM 4500 Norg C: TKN**					
Client ID:	**PBW**	Batch ID:	**38435**	RunNo:	**51692**					
Prep Date:	**6/1/2018**	Analysis Date:	**6/3/2018**	SeqNo:	**1686766**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	1.0								

Sample ID	**LCS-38435**	SampType:	**LCS**	TestCode:	**SM 4500 Norg C: TKN**					
Client ID:	**LCSW**	Batch ID:	**38435**	RunNo:	**51692**					
Prep Date:	**6/1/2018**	Analysis Date:	**6/3/2018**	SeqNo:	**1686767**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10	1.0	10.00	0	101	80	120			

Sample ID	**LCSD-38435**	SampType:	**LCSD**	TestCode:	**SM 4500 Norg C: TKN**					
Client ID:	**LCSS02**	Batch ID:	**38435**	RunNo:	**51692**					
Prep Date:	**6/1/2018**	Analysis Date:	**6/3/2018**	SeqNo:	**1686768**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10	1.0	10.00	0	104	80	120	2.74	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: WIPP | Work Order Number: 1805D34 | RcptNo: 1

Received By: Isaiah Ortiz 5/24/2018 7:20:00 AM

Completed By: Anne Thorne 5/24/2018 10:44:35 AM

Reviewed By: ENM 5/24/18

Labeled by: JO

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	FedEx		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 1
(<2 or >12 unless noted)
Adjusted? no
Checked by: JO

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: ____ Date: ____
By Whom: ____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: ____
Client Instructions: ____

16. Additional remarks:

CUSTODY SEALS INTACT ON SAMPLE BOTTLES

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.7	Good	Yes			

05032

CHAIN OF CUSTODY RECORD

No. 1254

Project Number:	Project Name:
T50254-2	SSW Sampling R29

Sampler(s): Brett Seal, Allen Hall, John Thurston

Sample Date	Sample Time	Matrix	Sample Number	Total Number of Containers	TDS	Chlorides	Sulfates						Comments
5/21/18	1012	SSW	SSWC2811R29N1	1	X	X	X						1805D54-001
5/21/18	1122		SSWPZ12R29N1	1	X	X	X						-002
5/21/18	1218		SSWPZ10R29N1	1	X	X	X						-003
5/21/18	1331		SSWPZ7R29N1	1	X	X	X						-004
5/21/18	1501		SSWPZ11R29N1	1	X	X	X						-005
5/21/18	1517		SSWPZ11R29EB	1	X	X	X						EQUIP Blank -006
5/22/18	0948		SSWPZ13R29N1	1	X	X	X						-007
5/22/18	0912		SSWPZ9R29N1	1	X	X	X						-008
5/22/18	1117		SSWC2507R29N1	1	X	X	X						-009
5/22/18	1237		SSWPZ1R29N1	1	X	X	X						-010
5/22/18	1350		SSWPZ6R29N1	1	X	X	X						-011
5/22/18	1518		SSWPZ5R29N1D	1	X	X	X						-012
5/22/18	1533		SSWPZ5R29N1EB	1	X	X	X						EQUIP Blank -013
5/22/18	1517		SSWPZ5R29N1	1	X	X	X						-014

Analytical Laboratory: HEAL Albuquerque, NM

Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)
5/23/18 1113	JOA 5/24/18 Fed Ex 720		
Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time) AT 05/24	Relinquished By: (Signature, Date/Time)	Received at Laboratory: (Signature, Date/Time)

Requested Turnaround Time: 30 Days

☒ Routine ☐ Rush _____

Sample Disposal:

☐ Return to Client ☒ Disposal by Lab

Carrier / Airbill No.: 8066 9057 8040

Sample Receipt Remarks: Temp. 1.7

Results To: Brett Seal
RES
PO Box 2078, MS 452-09
Carlsbad, NM 88221-2078
Phone: 575-706-6034 FAX: 575-234-6003
EDD: Brett.Seal@WIPP.WS

Special Instructions: High TDS: PZ7, PZ11, PZ9, PZ-4, PZ5, PZ13, PZ1 Report all data to three sig. figs., including cc data LCS, + ICSD be analyzed for all analytes (chlorides, sulfate, TDS, TKN

WHITE – Analytical Laboratory
DI – Deionized Water
GW – Groundwater
YELLOW – Field Copy
AF – Air Filter(s)
AN – Animal(s)
PINK – Record Copy
SE – Sediment
SO – Soil
SW – Surface Water
VG – Vegetation

Form CofC/RFA, Rev. 0 – NICHOLS PRINTING, INC.

05033

CHAIN OF CUSTODY RECORD

No. 1253

Page 2 of 2

Project Number:	Project Name:
T502542-2	SSW Sampling R29

Sampler(s): Brett Seal, Allen Hall

Sample Date	Sample Time	Matrix	Sample Number	Total Number of Containers	Requested Analyses: TDS	Chlorides	Sulfates	Nitrates	TKN					Analytical Laboratory / Comments
5/23/18	0819	SSW	SSW WQSP6A R29 N1	1	X	X	X	X						USE FOR MS/MSD -015
5/23/18	0821	SSW	SSW WQSP6A R29 N2	1				X	X					-016

Relinquished By: (Signature, Date/Time) 5/23/18 1113

Received By: (Signature, Date/Time) 5/24/18 Fed Ex 720

Relinquished By: (Signature, Date/Time)

Received By: (Signature, Date/Time)

Relinquished By: (Signature, Date/Time)

Received By: (Signature, Date/Time) 05/24/18

Relinquished By: (Signature, Date/Time)

Received at Laboratory: (Signature, Date/Time)

Requested Turnaround Time: 30 Days

☒ Routine ☐ Rush _____

Sample Receipt Remarks: Temp. 1.7

Special Instructions:

Sample Disposal:

☐ Return to Client ☒ Disposal by Lab

Carrier / Airbill No.: 8066 9057 8040

Results To:

Brett Seal
RES
PO Box 2078, MS 452-09
Carlsbad, NM 88221-2078
Phone: 575-234-8866 FAX: 575-234-6003
EDD: Brett.Seal@WIPP.WS

WHITE – Analytical Laboratory
DI – Deionized Water
GW – Groundwater

YELLOW – Field Copy
AF – Air Filter(s)
AN – Animal(s)

PINK – Record Copy
SE – Sediment
SO – Soil

SW – Surface Water
VG – Vegetation

05034

Table 8

	Field and General Chemistry Parameters							
Monitoring Site	Sample Date	pH (SU)	Temp. (^{O}C)	Specific Conductivity @25 ^{O}C (µS/cm)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)
PZ-1	5/22/2018	6.54	25.46	89,650	NA	**1,860**	**26,500**	**54,500**
PZ-2	NS	NS	NS	NS	NS	NS	NS	NS
PZ-3	NS	NS	NS	NS	NS	NS	NS	NS
PZ-4	NS	NS	NS	NS	NS	NS	NS	NS
PZ-5	5/22/2018	7.26	23.66	68,660	NA	585	**5,910**	**12,800**
PZ-6	5/22/2018	7.01	23.76	92,800	NA	**1,210**	**18,400**	**32,300**
PZ-7	5/21/2018	6.40	22.71	92,610	NA	**2,950**	**54,600**	**100,000**
PZ-8	NS	NS	NS	NS	NS	NS	NS	NS
PZ-9	5/22/2018	6.32	23.78	92,920	NA	**4,790**	**99,200**	**180,000**
PZ-10	5/21/2018	7.47	23.14	5,345	NA	224	193	998
PZ-11	5/21/2018	6.59	22.66	92,640	NA	**1,980**	**36,400**	**66,300**
PZ-12	5/21/2018	7.04	23.29	41,260	NA	576	**3,280**	**7,280**
PZ-13	5/22/2018	Bailed			NA	**2,800**	**146,000**	**269,000**
PZ-14	NS	NS	NS	NS	NS	NS	NS	NS
PZ-15	NS	NS	NS	NS	NS	NS	NS	NS
C-2811	5/21/2018	7.32	21.31	14,700	NA	347	**1,090**	**2,510**
C-2505	NS	NS	NS	NS	NS	NS	NS	NS
C-2506	NS	NS	NS	NS	NS	NS	NS	NS
C-2507	5/22/2018	7.19	23.80	40,000	NA	**638**	**3,040**	**6,850**
WQSP-6A	5/23/2018	7.12	23.64	13,760	4.98^{H}	**1,770**	**340**	**3,480**

Explanation:
NA: Not Analyzed, parameter not required, per permit conditions.
NS: Not Sampled, not required per permit conditions
ND: Non-detect
PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty
"**Bold**" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic W
H: Hold times for preparation or analysis exceeded

Other	Water Level Monitoring (Ft AMSL)	
TKN (mg/L)	03/06/2018-03/07/18	06/05/18-06/06/18
NA	3371.77	3371.63
NS	3371.24	3371.08
NS	3371.66	3371.65
NS	3366.99	3366.82
NA	3372.37	3372.34
NA	3370.35	3370.31
NA	3377.56	3377.65
NS	3356.35	3356.70
NA	3362.76	3362.94
NA	3368.35	3368.08
NA	3374.25	3374.13
NA	3357.22	3357.01
NA	3357.55	3357.66
NS	3354.11	3354.38
NS	3383.41	3383.33
NA	3347.56	3347.16
NS	3368.27	3368.09
NS	3368.89	3368.72
NA	3365.42	3365.30
ND	3347.56	3347.16

using Low-Flow pumps

ater Supply

Discharge to Facultative Lagoon System
January Through June 2018

Date	Gallons Raw Water	Gallons for the Month	Avg. Gal per day	Comments
01/01 - 01/07*	84,972			
01/08 - 01/14*	84,972			
01/15 - 01/21*	84,972			
01/22 - 01/28*	84,972	339,888	12,139	
1/29 - 02/04	95,077			
02/05 - 02/11	107,887			
02/12 - 02/18	35,150			
02/19 - 02/25	103,517	341,631	12,201	
02/26 - 03/04	83,229			
03/05 - 03/11	70,824			
03/12 - 03/18	33,422			
03/19 - 03/25	81,508			
03/26 - 04/01	83,206	352,189	10,672	
4/2 - 4/8	66,336			
4/9 - 4/15	116,185			
4/16 - 4/22	75,930			
4/23 - 4/29	146,951	405,402	14,479	
4/30 - 5/6	85,327			
5/7 - 5/13	113,121			
5/14 - 5/20	92,678			
5/21 - 5/27	272,409			
5/28 - 6/3	69,438	632,973	18,085	
6/4 - 6/10	101,657			
6/11 - 6/17	138,767			
6/18 - 6/24	92,007			
6/25 - 7/1	94,757	427,188	15,257	
	Total Flow	2,499,271		

*Gallons Raw water estimated by using the average of February known flows.
The water flow meter was malfunctioning.

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 1-1-18 End Date: 1-7-18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		AC	FG	CB	AJ	AC	AJ	CB	AJ	BT		BT		BT	MA
				FOT	C/O	MM	EC	MM	[illegible]	MM	E.T.	MM	[illegible]	[illegible]	[illegible]	LD	[illegible]	[illegible]	[illegible]
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
412 ODOR ABS MOD FILTER (PDI-07)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS CHAR FILTER (PDI-08)	(in wg)		[E]	0.5	0	0													
412 ODOR ABS MOD FILTER (PDI-09)	(in wg)		[E]	0.5	0	0													
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①		①		①		①		①		①		①		①
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	69	68	69	68	69	68	69	68	62	64	64	65	66	65	65
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		② ↓		② ↓												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		↓		↓												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	②③ ↓		②③ ↓		③ ↓		③ ↓		③ ↓		②③ ↓		②③ ↓		②③ ↓
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	②		②		②		②		②		②		②		②

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: 1. CHLORINE TANK # 2 TAGGED. AR: # 1736274
2. DAYSHIFT ONLY PER TIMELY ORDER
3. OOS AR: # 1629890

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 010818 End Date: 011448

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		DAY		2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		SHIFT																
		REVIEWER																
		FOT		C/O			R.T.			CO								
ITEM	MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																		
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	0 STBY														
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	0 STBY														
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	0 STBY														
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		①		①		①		①		①		①		①		①
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	65	65	65	60	65	63	65	63	65	65	65	65	64	64	64
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		②③ done		②③												
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		↓		↓												
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	②③		②③		②③		②③		②③		②③		②③		②③
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	↓		↓		↓		↓		↓		↓		↓		↓
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	②		②		②		②		②		②		②		②

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: 1) chlorine tank #2 tagged AR# 1736274
2) Dayshift only timely order
3) OOS AR# 1429890

APPROVED FOR USE/DATE: 3/14/16

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 1-15-18 End Date: 1-21-18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER		BT	AC	BT		BT		BT	MP	AC					
		FOT	C/O	EC	MM			LD									
ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
412 ODOR ABS MOD FILTER (PDI-07) (in wg)		[E]	0.5	Stby	STBY												
412 ODOR ABS CHAR FILTER (PDI-08) (in wg)		[E]	0.5	Stby	STBY												
412 ODOR ABS MOD FILTER (PDI-09) (in wg)		[E]	0.5	Stby	STBY												
458, ALTERNATE CMR – VERIFY CMS SYSTEM OPERABILITY [D]					✓	4 ~~4~~ 2		4		4		✓					
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		1		1		1		1		1					
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	64	64	65	65	68	63	68	68	68	67				
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)		RESET MONDAY [A]		2 3 ↓ ↓		2 3 ↓											
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]															
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	2 3 ↓ ↓		2 3 ↓ ↓		2 3 ↓ ↓		2 3 ↓ ↓		2 3 ↓ ↓					
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000														
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	2		2		2		2		2					

ISSUED 1-19-18

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: 1.) Chlorine Tank #2 Tagged AR# 1736274 2.) Day Shift ONLY per Timely Order 3.) OOS AR# 1629890
4 ~~2~~ CMS OUTAGE
~~2~~ 1/16/18

APPROVED FOR USE/DATE: Scott Sutton 3/14/16

ISSUED

MASTER COPY

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 1.22.18 **End Date:** 1.28.18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
			DAY															
			SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
			REVIEWER			(4)		(4)		5 (4)		(4)		(4)				
			FOT	C/O		(4)		(4)		(4)		(4)	R.T.	LD (4)				
ITEM		**MIN**	**NORM**	**MAX**														
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS	[F]		SAT [G]		✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	65		66		66		69		67		68		68	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			(2) (3)	(3) 4220497.67												
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]																
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING		N/A	[B]	230	(3) (1) (2)	(3)		(3)		(3)		(3)		(3)		(3)		(3)
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000														
HACH TEST KIT																		
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	1.15	1.12		1.13		1.09		1.01		.99		.95		.88

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
(1) CHLORINE TANK #2 TAGGED AR1736274
(2) DAY SHIFT ONLY PER TIMELY ORDER
(3) OOS AR1629890
(4) No Reading taken on 2nd shift Fac Ops Mgr informed

APPROVED FOR USE/DATE: — 1-19-18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

MASTER COPY

Start Date: 1-29-18 End Date: 2-4-18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		BT	BT	AC	mc	BT	mc	BT	mc	BT		BT		BT	AJP
				FOT	C/O				R.T.			LD	R.T.	LD		LD		LD	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		(3)		(3)	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	68	67		67		67		67		67		67		67	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			(1)	95077													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			↓	77533													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	(2)	(2)		(2)		(2)		(2)		(2)		(2)		(2)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.88	.83		.78		.99		.97		.84		.87		.74	

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
(1) DAYSHIFT ONLY per timely order. cleared 1-29-18 L.D.
(2) O.O.S. AR 1629890
(3) CMS outage

APPROVED FOR USE/DATE: [signature] 1-19-18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 2-5-18 End Date: 2-11-18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O														
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓ ② 2-05-18		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	67	63		67		67		68		66		67		66	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			95077	107887													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			71533	89894													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	①	①		OOS ①		OOS ①		OOS ①		OOS ①		OOS ①		OOS ①	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.74	.93		.93		0.9		0.77		.84		.82		.81	

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① OUT OF SERVICE AR # 1629890
② CMS OUTAGE FSM NOTIFIED

APPROVED FOR USE/DATE: 1-19-18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 2-12-18 End Date: 2-18-18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING		DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		REVIEWER		BT	N/A	BT		BT		BT		AC					
		FOT	C/O		N/A	CD		CD		CD					RT		
ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	66	67		68		68		67		66		67		67
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)	RESET MONDAY [A]			101887	35150												
DOMESTIC WATER GALLONS (gal)	RESET MONDAY [A]			84894	77140												
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	OOS ①	OOS ①	OOS ①		OOS ①		OOS ①		OOS ①		OOS ①		OOS ①	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	↓	↓	↓		↓		↓		↓		↓		↓	
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.81	.78	1.18		1.10		1.07		1.03		1.00		.96	

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① out of service AR# 1629890

APPROVED FOR USE/DATE: — 1-19-18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 02-19-2018 **End Date:** 02-25-2018

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		PJP	[illegible]	PJP	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	—	[illegible]	—
				FOT	C/O	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	R.T.	—	[illegible]	—	[illegible]	—
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]					✓	✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	66 67 (02-18-18)	67		69		68		68		67		67		68	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			35150	103517													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			77140	81117													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS ①	OOS ①		OOS ①	OOS ① (02-20-18)	OOS ①		OOS ①		OOS ①		OOS ①		OOS ①	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓	↓ (2-20-18)	↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.96	.81		.80		1.12		1.11		1.12		.94		.90	

NOTES: [A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① OUT OF SERVICE AR#1629890

APPROVED FOR USE/DATE: [signature] — 1-19-18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

MASTER COPY

Start Date: 2/26/18 **End Date:** 3/4/18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		GB	BA	AE	[illegible]	GB	[illegible]	GB	[illegible]	BA	[illegible]	BA	[illegible]	BA	[illegible]
				FOT	C/O	[illegible]	LD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	68	68		65		69		66		67		67		66	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			103517	83229													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			81117	86790													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS ① ↓	OOS ① ↓		OOS ① ↓		OOS ① ↓		OOS ① ↓		OOS ① ↓		OOS ① ↓		OOS ① ↓	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.90	.87		.84		.72		1.15		1.15		1.15		1.09	

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① OUT OF SERVICE, AR# 1629890

APPROVED FOR USE/DATE: [signature] — 1-19-18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 030518 **End Date:** 031118

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		[illegible]	[illegible]	[illegible]	BT	[illegible]	BT	[illegible]	BT	✓	SB	✓	SB	✓	SB
				FOT	C/O	LD	~	R.T.	[illegible]	[illegible]	LD	JRM	LD	~	MB	~	MB	~	MB
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	66	68		67		66		67		67		67		69	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			83229	70824													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			86790	87806													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS ① ↓	OOS ① ↓		OOS ① ↓		OOS ① ↓		OOS ① ↓		OOS ① ↓		OOS ① ↓		OOS ① ↓	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	1.09	.98		.87		.81		.98		.87		.85		.81	

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① OUT OF SERVICE AR#1629890

APPROVED FOR USE/DATE: [signature] 1-19-18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 3/12/18 End Date: 3/18/18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		BT		BT	PIP	BT		BT		CB	NL	AC	NL	CB	NL
				FOT	C/O		~~BS~~ AC 3-12-18	LD				LD		RT					KM
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	68	68		67		67		67		68		67		66	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			70824	33422													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			87806	94706													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS ①	OOS ①		OOS ①		OOS ①		OOS ①		OOS ①		OOS ①		OOS ①	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.81	1.39 ②		1.2		1.14		1.08		0.97		.96		.95	

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ② FSM Notified - CLEARED 3/13/18 LD
① Out of Spec - AR# 1629890 ~~Cleared 3-13-18~~ 3/3/18 LD

APPROVED FOR USE/DATE: [signature] — 1-19-18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

MASTER COPY

Start Date: 03-19-2018 End Date: 03-25-2018

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
			DAY	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
			SHIFT		A	N	A	A	MP	B	MP		N	BT		BT	N	BT
			REVIEWER															
			FOT	C/O	N	R.T.	N	R.T.	93	HB	93	HB	R.T.	EC		CD	R.T.	
ITEM	MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		1/03-23-18 NRT ③		NRT ③		NRT ③	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		✓	✓		✓		✓		✓ ②		②		②		②	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	66	67		64		64		63		63		63		65	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)	RESET MONDAY [A]			33422	81508.5													
DOMESTIC WATER GALLONS (gal)	RESET MONDAY [A]			94706	82955.2													
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	OOS ①	OOS ①		OOS ①		OOS ①		OOS ①		OOS ①		OOS ①		OOS ①	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.95	.96		1.01		1.02		1.03		.88		.98		.83	

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① OUT OF SPEC AR#1629890 ② HYPOCHLORINATOR ALARM DUE TO TANK #2 TAGGED OUT OF SERVICE ③ NRT DUE TO UNPLANNED POWER OUTAGE

APPROVED FOR USE/DATE: — 1-19-18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 3-26-18 End Date: 4-1-18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		AC	BT	GB	AC	GB	MM	AC	MM	BT	PJP	BT	PJP	BT	PJP
				FOT	C/O	MB	LD	MB	RM		RT					LD		LD	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①	①		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	65	64.9		65.0		64.3		64.8		65		64		64	
456-FIY-010-001 WATER FLOW METER						83206													
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			81508	~~194~~	MB 3-26-18												
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			82855	~~7.9~~ 81962	MB 3-26-18												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS ②	OOS ②		OOS ②		OOS ②		OOS ②		OOS ②		OOS ②		OOS ②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.83	1.09		1.01		.99		.89		.93		.91		.92	

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① HYPOCHLORINATOR ALARM DUE TO TANK #2 TAGGED O.O.S.
② OUT OF SPEC - AR#1629890 Correction: AR # 1629840 on 456-FM-045-001 MB

APPROVED FOR USE/DATE: — 1-19-18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 04/02/18 End Date: 04/08/18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1		1	2	1	2	1	2	1	2
				REVIEWER		MW	PJP	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	PJP	[illegible]
				FOT	C/O	[illegible]	[illegible]	R.T.	CD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①	①		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	64	63		62		65		66		64		65		64	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		83206	66336													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		81902	81125													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	005 ②	005 ②		005 ②		005 ②		OOS ①		005 ②		005 ②		005 ②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.92	.90		.90		.83		.90		.71		.94		.90	

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Hypochlorinator alarm due to Tank #2 Tagged OOS. AR# 1736274 For Tank #2
② Out of Spec. AR 1629840 on 456-FM-045-001

APPROVED FOR USE/DATE: [signature] 3-28-18

ISSUED

COPY

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 04/09/18 **End Date:** 04/15/18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		BT	GB	BT	PIP	BT	PIP	AC	PIP	GB	NP	GB	NP	GB	NP
				FOT	C/O	EC		EC	~	~	~	~	~	LT	RT	~	~	~	RT
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓ JSAT 4-9-18 EC		✓		✓		✓		✓		✓		~	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]			(1)		(1)		(1)		(1)		(1)		(1)		(1)	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70		64	67	67		66		65		65		65		66	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]			46336	116,189												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]			81125	80,874												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230		OOS (2)	OOS (2)	OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000		↓	↓	↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2		.90	.82	.74		1.17		1.05		.95		.96		.93	

NOTES:
[A] - RESET meter after taking the reading on Monday second shift.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) Hypochlorinator alarm due to Tank #2 Tagged OOS, AR# 1736274
(2) Out of Spec AR#1629840 on 456-FM-045-001

APPROVED FOR USE/DATE: E — 3-28-18

ISSUED

COPY

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 04-16-2018 **End Date:** 04-22-2018

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		PJP		PJP		PJP									
				FOT	C/O	DJ		DJ		DJ				R.T.		km	RDS/CC		EC
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		NRT (5)		✓		—	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		(1)	(1)		(1)		(1)		(1) (3)		(1)		(1)		(1)	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	66	65		66		66		66		65		66		67	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			116185	75930													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			80874	87642													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS (2)	OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)	
[NMED, DP-831] **Max 23,000 gal** (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.93	.78		.71		1.15		1.2 (4)		1.25 (4)		1.08		1.07	

NOTES:
- **[A] - RESET meter after taking the reading on Monday second shift.**
- **[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].**
- **[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.**
- **[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.**
- **[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.**
- **[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.**
- **[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.**

COMMENTS:
(1) HYPOCHLORINATOR ALARM DUE TO TANK NO. 2 TAGGED OUT OF SERVICE. AR# 1736274
(2) OUT OF SPEC AR#1629840 ON 456-FM-045-001
(3) During testing of FW level indicator, DW pump cycling
(4) CL- level OOS, Fill tank to dilute chlorine
(5) DDC cms IS OOS DUE TO SCHEDULED POWER OUTAGE

APPROVED FOR USE/DATE: E — 3-28-18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 4-23-18 **End Date:** 4-29-18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING			DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
			SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
			REVIEWER		GB		GB		GB		GB		BT		BT		BT	
			FOT	C/O	DP		JH		RZ		JH		[illegible]		[illegible]		[illegible]	
ITEM	**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		(1)	(1)		(1)		(1)		(1)		(1)		(1)		(1)	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	67	67		63.8		66		67		66		66		66	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		75,930	146951													
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		87,642	91804													
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	005	005 (2)		005 (2)		005 (2)		.005 (2)		005 (2)		005 (2)		005 (2)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	1.07	1.0		0.94		.80		.79		.81		1.2		1.19	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) HYPOCHLORINATOR ALARM DUE TO TANK NO. 2 TAGGED OUT OF SERVICE AR # 1736274
(2) OUT OF SPEC AR # 1629840 ON 456-FM-045-001

APPROVED FOR USE/DATE: [signature] 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 04/30/18 **End Date:** 05/06/18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		MW		MW		[illegible]		[illegible]		PJP		PJP		PJP	
				FOT	C/O	R.T.		DJ km		CO		R.T.		~		JB		~	
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①	①		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	66	66		66		67		65		64		67		67	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			146951	85327													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			91804	100820													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS ②	OOS ②		OOS ③		OOS ③		OOS ①		OOS ④		OOS ②		OOS ④	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	1.19	1.02		1.02		.94		.86		.81		1.08		1.04	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Hypochlorinator alarm due to tank NO. 2 tagged out of service AR# 1736274
② out of spec AR# 1629840 on 456-FM-045-001

APPROVED FOR USE/DATE: [signature] 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 5/7/18 End Date: 5/13/18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
	REVIEWER		BT		BT		BT		BT		CB		CB		CB	
	FOT	C/O	EC		EC		97		✓		JG		JG		JG	

ITEM	MIN	NORM	MAX	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		①	①		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	67	67		64		65		65		64		65		67	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)	RESET MONDAY [A]			85327	113,121													
DOMESTIC WATER GALLONS (gal)	RESET MONDAY [A]			100820	72,817													
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	005 ②	005 ②		005 ②		005 ②		005 ②		005 ②		005 ②		005 ②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	1.04	.95		1.0		.90		.85		.77		0.90		0.81	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Hypochlorinator alarm due to tank No. 2 tagged out of service AR # 173627 4
② out of spec AR # 167940 on 456-FM-045-001

APPROVED FOR USE/DATE: [signature] 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 5-14-18 **End Date:** 5-20-18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER						PJP									
				FOT	C/O	~JB				JB		JB		me		km		R.T.	
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]					✓	✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL					R.T. 5-13-18														
CONTROL PANEL ALARMS	[F]		SAT [G]		N(1)	(1)		(1)		(1)		(1)		(1)		(1)		(1)	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	67	65		64		66		65		65		67		66	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			113,121	92,678													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			72,817	88,499													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS(2) ↓	OOS(2) ↓		OOS(2) ↓		OOS(2) ↓		OOS(2) ↓		OOS ↓		OOS(2) ↓		OOS(2) ↓	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.81	.79		1.2		.84		.71		1.27		1.2		1.19	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) Hypochlorinator alarm due to tank #2 Tagged out of service. AR # 1736274
(2) Out of spec. AR # 1629840
(3) Out of spec filling water tank to lessen readings

APPROVED FOR USE/DATE: 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 05/21/18 **End Date:** 05/27/18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		BR		JB		BR		AC		BR		BR		BR	
				FOT	C/O	GG		JB		EC		QZ		EC		DT		QZ	
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①	①		✓		✓		✓		✓		✓ DT 5/26/18		①	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	66	67		66		65		62		65		65		66	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			272409 5-24-18														
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			164100 5-24-18														
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS②	OOS②		OOS②		OOS②		OOS②		OOS②		OOS②		OOS②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	1.19	1.20		1.12		1.12		.70		.84		.82		.85	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Hypochlorinator alarm due to Tank # 2 tagged OOS. AR# 17360274
② Out of spec. AR# 16298410

APPROVED FOR USE/DATE: — 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 052518 **End Date:** 060318

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		ML		D		DJ		JD		PJP		PJP		PJP	
				FOT	C/O	97		HG		55		Q		JB		QB		~	
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①	①		①		①		①		①		①		①③	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	66	66		65.8		66		66		66		66		66	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		272409	69438.46													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		144100	78344.31													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS②	OOS②		OOS②		OOS②		OOS②		OOS②		OOS②		OOS②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.85	.90		.75		.86		.73		1.01		.95		.91	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
1) Hydrochlorinator alarm due to tank #2 tagged AR# 1736274
2) out of spec AR# 1629840
3) Low level alarm on tank #1 AR# 1807340

APPROVED FOR USE/DATE: — 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 6/4/18 End Date: 6/10/18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		AE		BT		BT		BT		(R)		(R)		(R)	
				FOT	C/O	EC		MC		SO		EC		JG		JG			
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		(1) (3)	(1) (3)		(1) (3)		(1) (3)		(1) (3)		(1) (3)		(1) (3)		(1) (3)	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	66	64		63		63		62		64		65		65	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		69438.4	10,657.3													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		78344.3	81,509.7													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS (2)	OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.91	.90		.80		.75		.72		1.2		1.2		1.2	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) HYDROCHLORINATOR ALARM DUE TO TANK #2 - TAGGED AR# 1736274
(2) OUT OF SPEC - AR# 1629840
(3) LOW LEVEL ALARM ON TANK #1 - AR# 1807346

APPROVED FOR USE/DATE: [signature] 4/16/18

ISSUED

MASTER COPY

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 6-11-18 End Date: 6-17-18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		mc		JB		JB		JB		mc		mc		mc	
				FOT	C/O	JL		DJ		BJ		DJ		DJ		R.T.			
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						-		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①③	①③		①③		①③		①③		①③		①③		①③	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	65	66		65		60		66		66		66		66	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			101657.3	138767.0													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			81509.7	89306.3													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS②	OOS②		OOS②		OOS②		OOS②		OOS②		OOS②		OOS②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	1.2	1.16		1.20		1.2		1.05		1.01		.96		.95	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
① Hydrochlorinator alarm due to tank #2 Tripped AR# 1736274
② Out of spec. AR# 1629340
③ Low level alarm on tank #1 AR# 1807346

APPROVED FOR USE/DATE: [signature] 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 6-18-18 End Date: 6-24-18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		JJ		R		R		R		BA		BA		JJ	
				FOT	C/O	JJ		DB		DB		DJ		[illegible]		[illegible]		[illegible]	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		(1) (3)	(1) (3)		(1) (3)		(1) (3)		(1) (3)		(1) (3)		(1) (3)		(1) (3)	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	66	67		65		64		64		65		64		65	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			138767.0	92007.03													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			89306.3	38163.62													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS (2)	OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.95	.81		1.06		.98		1.08		.93		.88		.85	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
(1) HYDROCLORINATOR ALARM DUE TO TANK #2 TAGGED AR# 1736274
(2) OUT OF SPEC. AR# 1629840
(3) LOW LEVEL ALARM ON TANK #1 AR# 1807346

APPROVED FOR USE/DATE: [signature] 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 6-25-18 End Date: 7-1-18

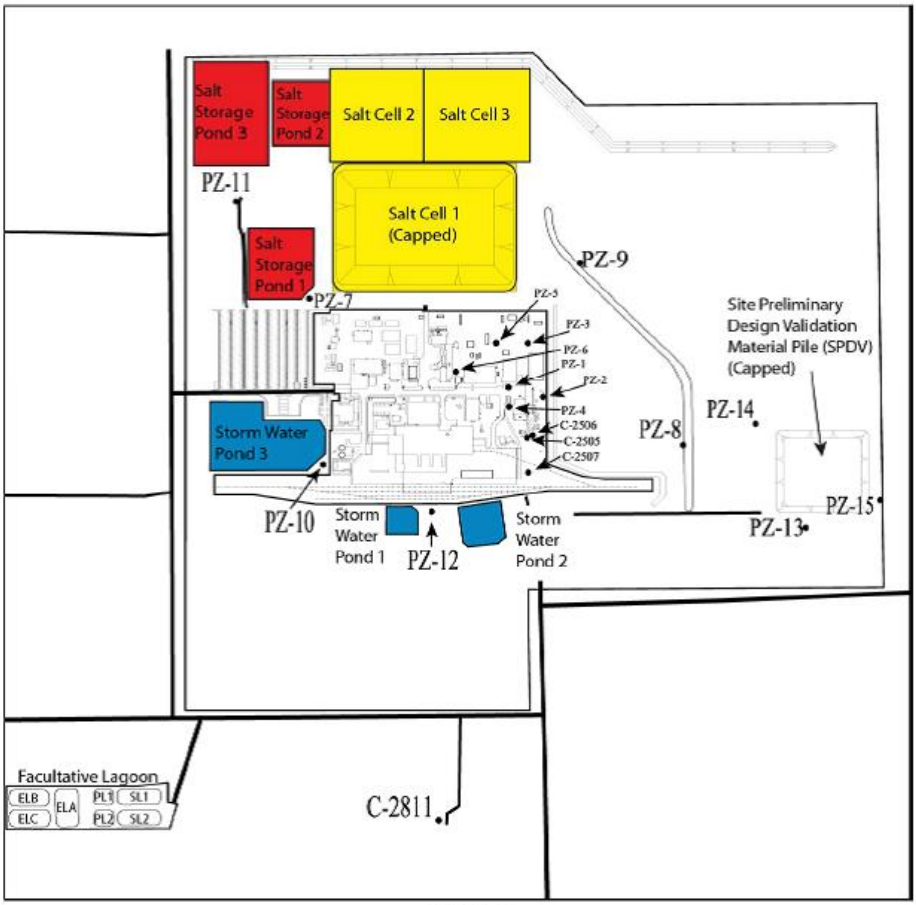
Location: 458, GUARD & SECURITY BUILDING 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		JL		mc		JL		JL		PJP		PJP		PJP	
				FOT	C/O			DJ				R.T-							
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①②	①②		①②		①②		①②		①②		①②		①②	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	65	64		64		65		66		65		65		60	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			92007.03	94757													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			81631.62	79021													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS③	OOS③		OOS③		OOS③		OOS③		OOS③		OOS③		OOS③	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.85	.84		.81		.74		.79		.71		.70		1.2	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① HYPOCHLORINATOR ALARM DUE TO TANK #2 TAGGED AR#1736274 ② LOW LEVEL ALARM ON TANK #1 AR# 1807346
③ OUT OF SPEC AR # 1629840

APPROVED FOR USE/DATE: [signature] 4/16/18

05063



Legend

Salt Cells	Salt Storage Ponds	Storm Water Ponds	Faculatative Lagoon
Salt Cell 1	Salt Storage Pond 1 (SSP1)	Storm Water Pond 1 (SWP1)	Settling Lagoon 1 (SL1)
Salt Cell 2	Salt Storage Pond 2 (SSP2)	Storm Water Pond 2 (SWP2)	Settling Lagoon 2 (SL2)
Salt Cell 3	Salt Storage Pond 3 (SSP3)	Storm Water Pond 3 (SWP3)	Polishing Lagoon 1 (PL1)
			Polishing Lagoon 2 (PL2)
			Effluent Lagoon A (ELA)
			Effluent Lagoon B (ELB)
			Effluent Lagoon C (ELC)

0 200 m

N

05064

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

JAN 3 0 2019

Ms. Michelle Hunter, Bureau Chief
New Mexico Environment Department
Ground Water Quality Bureau
Harold Runnels Building
1190 Saint Francis Drive
P.O. Box 5469
Santa Fe, NM 87502

Subject: Semi-Annual Discharge Monitoring Report for July 1 through December 31, 2018, Discharge Permit 831

Dear Ms. Hunter:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Semi-Annual Discharge Monitoring Report, including the required attachments on compact disc, for the period of July 1, 2018, through December 31, 2018. This report is required by Discharge Permit 831.

If you have any questions about this report or require any additional information, please contact me at (575) 234-7476.

Sincerely,

Michael R. Brown, Director
Office of Environmental Protection

Enclosure (2)

cc: w/enclosures
R. Maestas, NMED *ED
CBFO M&RC
*ED denotes electronic distribution

1900207

JAN 3 0 2019

MAIL & RECORDS CENTER COPY

CBFO:OEP:MRB:AC:19-0202:UFC 5486.00

05065

cc:w/o enclosures

R. Patterson, CBFO	* ED
T. Shrader, CBFO	ED
A. Stone, CBFO	ED
A. Ward, CBFO	ED
C. Ceballos	ED
D. Cook, NWP	ED
B. Covert, NWP	ED
K. Donovan, NWP	ED
M. Gonzales, NWP	ED
R. Macfarlane, NWP	ED
W. Rodriquez, NWP	ED
S. Strong, NWP	ED
R. Taylor, NWP	ED
R. Chavez, RES	ED
K. Day, RES	ED
S. Harper, RES	ED
J. Haschets, RES	ED
W. Jaco, RES	ED
S. Jones, RES	ED
S. Kouba, RES	ED
L. Ramos, RES	ED
R. Salness, RES	ED

*ED denotes electronic distribution

MAIL & RECORDS
CENTER COPY

Waste Isolation Pilot Plant Semi-Annual Discharge Monitoring Report for Discharge Permit DP-831 for Reporting Period July 1, 2018 through December 31, 2018

U.S. Department of Energy

January 2019

MAIL & RECORDS
CENTER COPY

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR
DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2018 THROUGH DECEMBER 31, 2018

REPORTING REQUIREMENTS OF DP-831 OPERATIONAL PLAN

Part B. Applicable to the Facultative Lagoon System

Condition 8. *– The permittee shall measure the thickness of the sludge blanket in each pond of the Facultative Lagoon System once within the effective term of this Discharge Permit, but before the end of 2018. When sludge accumulation exceeds 1/3 of the total depth of any pond, the permittee shall remove the sludge in a manner, which is protective of the pond liner. Removed solids shall be contained, transported, and disposed of in accordance with all local, state, and federal regulations. The permittee shall maintain solids blanket measurements and solids disposal manifests for solids transported from the facility for off-site disposal. The permittee shall submit all measurements and manifests to NMED in the semi-annual monitoring report immediately following the solids thickness measurement.*

No sludge blanket measurements were performed on the Facultative Lagoon System ponds during this reporting period. The most recent sludge measurements were made on November 29, 2017 and the results were reported in the second semi-annual report for 2017. None of the sludge blankets were above the 1/3 volume of the ponds. These results are shown below.

Effluent Lagoon A	1.00 inches	16 inches allowable
Effluent Lagoon B	0.75 inches	24 inches allowable
Effluent Lagoon C	2.75 inches	24 inches allowable
Polishing Lagoon 1	1.25 inches	24 inches allowable
Polishing Lagoon 2	4.00 inches	24 inches allowable
Settling lagoon 1	3.25 inches	24 inches allowable
Settling lagoon 2	22.50 inches	24 inches allowable
Evaporation Pond H-19	3.00 inches	12 inches allowable

Part D. Applicable to the Storm Water Runoff Impoundments in Contact with Salt Stockpiles (Salt Storage Ponds 1, 2, and 3) and Salt Stockpiles (Salt Cells 1, 2, and 3).

Condition 9. *– The permittee shall measure the thickness of the solids blanket in each impoundment once within the effective term of this Discharge Permit, but before the end of 2018. Removed solids shall be contained, transported, and disposed of in accordance with all local, state, and federal regulations. The permittee shall maintain solids blanket measurements and solids disposal manifests for solids transported from the facility for off-site disposal. The permittee shall submit all measurements and manifests to NMED in the semi-annual monitoring report immediately following the solids thickness measurement.*

Sludge blanket measurements were performed on all of the Salt Storage Ponds on February 14, 2018 to satisfy this condition. The results were reported in the semi-annual report for the first half of 2018.

Below are the results of these sludge measurements that were reported in the previous semi-annual report.

Salt Storage Pond 1	0.25 ft. sludge thickness
Salt Storage Pond 2	4.63 ft. sludge thickness
Salt Storage Pond 3	5.14 ft. sludge thickness

As reported in the previous semi-annual report, Salt Storage Pond has a sludge level above the 1/3 volume of the pond. Work to begin removing the sludge from the pond is scheduled to commence in June 2019.

Condition 10. *– The permittee shall inspect the leak detection systems for Salt Storage Ponds 2 and 3 on a monthly basis for the presence of liquid. The permittee shall keep a log of the inspection findings and repairs made. The inspection log, including a statement whether or not liquids were observed in the leak detection systems, shall be submitted to NMED in the semi-annual monitoring reports.*

Monthly inspections of the Salt Storage Pond 2 and 3 leak detection systems occurred during this reporting period. Water was observed in both of the leak detection systems. The sumps of Salt Storage Ponds 2 and 3 were pumped. There were 5,800 gallons pumped from the Salt Storage Pond 2 Sump and 18,900 gallons pumped from the Salt Storage Pond 3 Sump. The average leakage rate was calculated to be 22 gallons per day for Salt Storage Pond 2 and 78 gallons per day in Salt Storage Pond 3 since the sumps were last pumped on April 17, 2018. The Action Leakage Rate for Salt Storage Pond 2 is 706 gallons per day and Salt Storage Pond 3 is 1,880 gallons per day. Both of the leakage rates are well below the Action Leakage Rate based on the EPA's action leakage rates for leak detection systems (EPA 530-R-92-004). The inspection log can be found on the accompanying compact disc (CD) as a portable document format (pdf) file named "Salt Pond Sump Inspection 2nd Half 2018.pdf."

There were no repairs required to the leak detection system during this reporting period.

Condition 11. *– The permittee shall conduct regular maintenance of the earthen cover on the Salt Cell 1, and SPDV material pile. Inspections shall be conducted monthly and after storm events of 2 inches or greater in a 24-hour period to evaluate potential erosion and vegetation success of the cover. In the event of significant erosion or failure of vegetative success, the permittee shall provide a plan and schedule for repair within 90 days of discovery. General observations and cover repair shall be reported to NMED.*

The earthen cover of the Salt Cell 1 and the Site and Preliminary Design Validation (SPDV) material pile were inspected monthly for the reporting period. The soil cover overlying the synthetic liner on both piles was noted as needing repair early in the reporting period. The Engineering Department is working on a contract to repair the liners of both Salt Cell 1 and the SPDV Pile. A request for proposals has been issued. Work is projected to begin by the end of February 2019 to repair Salt Cell 1 repair, and the end of August 2019 on the SPDV Pile.

There were no rain events of 2 inches or greater in a 24-hour period during this reporting period.

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR
DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2018 THROUGH DECEMBER 31, 2018

REQUIREMENTS OF DP-831 MONITORING AND REPORTING SECTION

Part B. Applicable to the Facultative Sewage Lagoon System

Condition 15. *– The volume of domestic influent discharged to the Facultative lagoon System shall be measured monthly using a totalizing flow meter on the influent line to the system or the totalizing meter that measures total domestic water usage. Volumes of other authorized discharges to the Facultative Lagoon System shall be calculated by a time/volume method or volumetric measurement of the transport container(s). NMED may require comprehensive laboratory analyses of such wastewater prior to discharge when NMED determines that additional information is needed. Monthly meter readings, the units of measurement, monthly discharge volumes and other volumetric calculations for the previous 6-month period shall be submitted to NMED semi-annually in the monitoring reports.*

Table 1 shows the volume of water discharged to the Facultative Lagoon System for this reporting period. Discharged water volume is based on total domestic water use. No miscellaneous non-hazardous water was discharged to Evaporation Lagoons B or C.

Table 1 – Discharge to Facultative Lagoon System

Month	Volume (gallons)
July	414,825
August	571,976
September	426,763
October	439,481
November	293,981
December	265,813
Total	**2,412,839**

Weekly meter readings of the domestic water meter are found on the accompanying CD as a pdf file named "Domestic Water Usage 2nd Half of 2018.pdf."

Condition 16. *– The permittee shall collect a wastewater sample on a semi-annual basis (once every six months) from the influent to the Facultative Lagoon System. The grab sample shall be analyzed for TKN, NO_3-N, SO_4, TDS, and Cl. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.*

Samples were collected from the Settling Lagoon 2 influent, which is the influent to the Facultative Lagoon System.

Table 2 – Facultative Lagoon System Analytical Data

Analyte	Sample Date	Settling Lagoon 2 Concentration (mg/L)
TKN	10/11/18	130
NO_3-N	10/11/18	ND
SO_4	10/11/18	44.5
TDS	10/11/18	700
Cl	10/11/18	104

TKN: Total Kjeldahl nitrogen
TDS: Total dissolved solids
ND: Not detected, analyte below the method detection limit

Laboratory analytical results and QA/QC Summary Report for the Facultative Lagoon System are found as a pdf file on the accompanying CD named "Facultative Lagoon and H-19 Analytical and QA-QC.pdf."

Part C. Applicable to the Evaporation Pond H-19 and Storm Water Impoundments Not in Contact with Salt Stockpiles (Storm Water Ponds 1, 2, and 3)

Condition 17. *– The volume and origin of all wastewater discharged to the Evaporation Pond H-19 that is derived from miscellaneous non-hazardous sources shall be measured monthly and reported to NMED. Discharge volumes to the Evaporation Pond H-19 shall be calculated by a time/volume method or volumetric measurement of the transport container(s). NMED may require comprehensive laboratory analyses of such wastewater prior to discharge when NMED determines that additional information is needed. Monthly discharge volumes and other volumetric calculations for the previous 6-month period shall be submitted to NMED semi-annually in the monitoring reports.*

Table 3 shows the volume of miscellaneous non-hazardous water discharged to Evaporation Pond H-19 for this reporting period. This water is from groundwater well pumping (GW), condensate from the Exhaust Shaft ductwork (ES), and Waste Shaft sump water (WS).

Table 3 – Discharge to H-19 Evaporation Pond

Month	Volume (gallons)	Water Origin
July	12,305	GW & WS
August	1,600	GW
September	950	GW
October	8,360	GW & WS
November	3,650	ES & WS
December	0	-
Total	**26,865**	

Condition 18. *– A sample shall be collected semi-annually from the Evaporation Pond H-19 and analyzed for SO_4, Cl, and TDS. Samples shall be collected annually after a significant storm event from each of the storm water ponds, Storm Water Ponds 1, 2, and 3 and analyzed for SO_4, Cl, and TDS. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring report.*

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

Table 4 shows results for analytical parameters associated with Evaporation Pond H-19 and Storm Water Ponds 1, 2, and 3. The routine semi-annual sample from Evaporation Pond H-19 was collected on October 31, 2018, whereas samples from the Storm Water Ponds were collected on July 11, 2018.

Table 4 – Storm Water Ponds and Evaporation Pond H-19 Analytical Data

Analyte	Sample Date	Evaporation Pond H-19	Storm Water Pond 1	Storm Water Pond 2	Storm Water Pond 3
SO_4 (mg/L)	10/31/18 for EP H-19 and 07/11/18 for SWPs	522	38.0	8.47	28.2
Cl (mg/L)	10/31/18 for EP H-19 and 07/11/18 for SWPs	90,700	145	100	137
TDS (mg/L)	10/31/18 for EP H-19 and 07/11/18 for SWPs	174,000	400	244	437

Laboratory analytical results and QA/QC Summary Report for Evaporative Pond H-19 are found on the accompanying CD as a pdf file named "Facultative Lagoon and H-19 Analytical and QA-QC.pdf." The Laboratory analytical results and QA/QC Summary Report for Storm Water Ponds 1, 2, and 3 are found on the accompanying CD as a pdf file named "Salt Storage Pond and Storm Water Ponds Analytical and QA-QC.pdf."

Condition 19. *– The water depth shall be measured monthly to the nearest tenth of a foot (0.1 ft) in the Storm Water ponds 1, 2, and 3. The approximate volume of storm water shall be calculated and submitted to NMED in the semi-annual monitoring reports.*

Table 5 summarizes the water depths and volumes in the three storm water ponds for the reporting period.

Table 5 – Storm Water Ponds Depths and Volumes

	July 7/19/18	August 08/21/18	September 09/18/18	October 10/22/18	November 11/05/18	December 12/11/18
Storm Water Pond 1						
Water Depth (ft)	1.5	2.2	3.5	3.7	4.2	4.0
Water Volume (gal)	208,692	306,082	486,948	514,774	584,338	556,512
Storm Water Pond 2						
Water Depth (ft)	4.7	5.7	5.5	6.1	5.8	5.5
Water Volume (gal)	1,615,326	1,959,012	1,890,275	2,096,487	1,993,381	189,275
Storm Water Pond 3						
Water Depth (ft)	3.2	4.4	5.7	6.2	5.2	4.5
Water Volume (gal)	4,615,659	6,346,531	8,221,642	8,654,360	7,500,445	6,490,770

Part D. Applicable to the Storm Water Runoff Impoundments in Contact with Salt Stockpiles (Salt Storage Ponds 1, 2, and 3) and Salt Stockpiles (Salt Cells 1, 2, and 3)

Condition 20. *– A sample shall be collected annually after a significant storm event from each of the Salt Storage Cells 1, 2, and 3 and analyzed for SO_4, Cl, and TDS. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.*

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

Table 6 shows the levels of SO_4, Cl, and TDS in the three salt storage ponds for the reporting period.

Table 6 – Salt Storage Ponds Analytical Data

Analyte	Salt Storage Pond 1 07/11/18	Salt Storage Pond 2 07/11/18	Salt Storage Pond 3 07/11/18
SO_4 (mg/L)	1,910	12,000	27,000
Cl (mg/L)	143,000	188,000	190,000
TDS (mg/L)	250,000	334,000	377,000

Laboratory analytical results and QA/QC Summary Report for Evaporative Pond H-19 are found on the accompanying CD as a pdf file named "Salt Storage Pond and Storm Water Ponds Analytical and QA-QC.pdf."

Condition 21. *The water depth shall be measured monthly to the nearest tenth of a foot (0.1 ft) in the Salt Storage Ponds 1, 2, and 3. The approximate volume of storm water shall be calculated and submitted to NMED in the semi-annual monitoring reports.*

Table 7 summarizes water depths and volumes in the three salt storage ponds for the reporting period.

Table 7 – Salt Storage Ponds Depths and Volumes

	July 07/19/18	August 08/21/18	September 09/18/18	October 10/22/18	November 11/05/18	December 12/11/18
Salt Storage Pond 1						
Water Depth (ft)	0.0	0.8	1.1	0.8	1.1	0.9
Water Volume (gal)	0	910,795	1,252,344	910,795	1,252,344	1,024,645
Salt Storage Pond 2						
Water Depth (ft)	4.3	4.4	5.1	5.6	6.0	6.1
Water Volume (gal)	1,540,196	1,576,015	1,826,744	2,005,837	2,149,111	2,184,929
Salt Storage Pond 3						
Water Depth (ft)	11.0	11.1	11.9	12.3	12.7	12.8
Water Volume (gal)	12,584,726	12,699,133	13,614,385	14,186,418	14,529,638	14,644,045

Ground Water Monitoring and Reports

Condition 22. *– Depth to the water table shall be measured to the nearest hundredth of a foot (0.01 ft) quarterly in the piezometers/monitoring wells:*

- *PZ-1, PZ-2, PZ-3, PZ-4, PZ5, PZ-6, PZ-7, PZ-8, PZ-9, PZ-10, PZ-11, PZ-12, PZ-13, PZ-14 and PZ-15*
- *C-2505, C-2506, C-2507, C-2811, and WQSP-6A*

One piezometer/monitoring well (PZ-8) was plugged and abandoned in July 2018, for construction of the new ventilation building, as approved by the New Mexico Environment Department.

For depth to the water in the piezometer and monitoring wells, see Table 8 – Monitoring Well Water Levels and Chemical Analyses.

Condition 23. *– The permittee shall perform semi-annual ground water sampling in the following piezometers/monitoring wells and analyze the samples for temperature, pH, specific conductance, SO4, TDS, and Cl:*

- *Piezometers: PZ-1, PZ-5, PZ-6, PZ-7, PZ-9, PZ-10, PZ-11, PZ-12, and PZ-13*
- *Monitoring Wells: C-2507, C-2811, and WQSP-6A*

Ground water sample collection, preservation, transport and analysis shall be performed according to the following procedure:

a) Measure the depth-to-most-shallow ground water from the top of the well casing to the nearest hundredth of a foot.
b) Purge three well volumes of water from the well prior to sample collection.
c) Obtain samples from the well for analysis.
d) Properly prepare, preserve and transport samples.
e) Analyze samples in accordance with the methods authorized in this Discharge Permit.

Depth-to-most-shallow ground water measurements, analytical results, including the laboratory QA/QC summary report, and a facility layout map showing the location and number of each well shall be submitted to NMED in the semi-annual monitoring reports.

Water levels in the shallow wells were obtained September 12-13, 2018, and December 4-6, 2018. Water levels are included in Table 8. These were taken in accordance with quarterly milestones outlined in the Ground Water Monitoring Schedule specified in the Discharge Permit renewal, DP-831, dated July 29, 2014. During the reporting period, the water levels at the shallow subsurface water (SSW) monitoring points showed an average increase in elevation of 0.40 feet. The rise in water elevation over this reporting period is most likely due to an increase in precipitation during 2018 when compared to 2017, which was above average.

The SSW piezometers, required to be sampled according to Condition 23, were sampled for field and general chemistry parameters in October 2018. Five locations were sampled on October 15, 2018, five on October 15, 2018, and one on October 17, 2018. Results for the field sampling parameters and laboratory analyses are presented in Table 8.

Laboratory analytical results and QA/QC Summary Report are found on the accompanying CD as a pdf file named "Shallow Surface Water Analytical and QA-QC.pdf".

Condition 24. *– The permittee shall perform semi-annual ground water sampling from monitoring well WQSP-6A and analyzed for TKN and NO3. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.*

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

WQSP-6A was sampled on October 17, 2018. Sulfate, chloride, and total dissolved solids were detected in WQSP-6A samples at concentrations above the standards of 20.6.2.3103 NMAC, *Standards for Ground Water of 1,000 mg/L TDS concentration or less for Human Health and Domestic Water Supply*. Although the concentrations were higher than the standards, they are less than background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285). Nitrate was also

detected, but did not exceed the standards. Total Kjeldahl Nitrogen was below the detection limit of 1 mg/L. The SSW identified at the WIPP facility does not appear to have impacted the Dewey Lake groundwater in WQSP-6A, based on the consistency of analyzed parameters in this well.

For WQSP-6A analytical results, see Table 8 – Monitoring Well Water Levels and Chemical Analyses.

Laboratory analytical results and QA/QC Summary Report for WQSP-6A samples are found on the accompanying CD as a pdf file named "Shallow Surface Water Analytical and QA-QC.pdf".

Condition 25. *– Hydrographs shall be submitted annually for all monitoring wells and piezometers covered under Condition 22 of this Discharge Permit. At a minimum, graphs shall include the previous five years of water level data, or for recently installed wells, all data since the well was installed. Data for several wells may be included on one graph.*

The hydrographs of all monitoring wells and piezometers are included in this 2018 semi-annual report (see Attachment 1).

Condition 26. *– A potentiometric map for facility area shall be submitted annually. The map shall incorporate the most recent water level data for all monitoring wells and piezometers installed in the shallow subsurface water (SSW).*

The potentiometric surface for the SSW using June 2018 data is presented in Figure 2. Water levels from June 2018 were used for contouring so that data from PZ-8 could be included on the map. The interpolated contours were generated using *SURFER*, Version 13, surface mapping software by Golden Software. Sixteen data points were used in the contour development, whereas the contours around the SPDV salt pile were estimated by hand. This contour is an estimate of two piezometers, PZ-14 and PZ-13; PZ-15 is completed in the Gatuna Formation and not considered in the potentiometric map. The subsurface shallow water (SSW) system around the Site Preliminary Design Pile (SPDV) is considered to be a separate system than the SSW at the site proper. This was determined through the chemistry differences in PZ-14 and PZ-13 versus wells around the site proper. Also, PZ-8 has historically been dry, thus considered a hydraulic divide between the two systems.

Condition 27. *– A single table in a paper and electronic format (EXCEL spreadsheet) of water level measurements and water quality data with only those constituents analyzed and water levels measured during a single event shown in columns. Tabulated field measurements to include temperature, pH, and electrical conductivity corrected to 25 degrees Celsius. Monitoring sites shall be shown in rows. The second column shall contain the date of the sampling event. Values exceeding standards shall be bolded. Any constituent not analyzed for a particular site shall be shown as "NA", any site not sampled shall be shown as "NS" with an associated reason, and any site not measured for water levels shall be shown as "NM" with an associated reason.*

Table 8 – Monitoring Well Water Levels and Chemical Analyses is included in paper form in this report and in electronic Excel format on the accompanying CD. The file name on the CD is "Table 8 – Monitoring Well Water Levels and Chemical Analyses." Electrical conductivity is listed as specific conductivity in this table.

Condition 28. *– A single table that includes all available ground water data to date shall be submitted annually. For each monitoring well, the name of the well shall be entered in the far left column in a row by itself. Sampling events, beginning with the earliest event first, shall be entered in subsequent rows with the sampling date in the second column and the corresponding analytical data in columns further to the right. Each new sampling event shall be added as an additional row to the existing spreadsheet with the corresponding date of the sampling event noted in the second column next to the monitoring well name.*

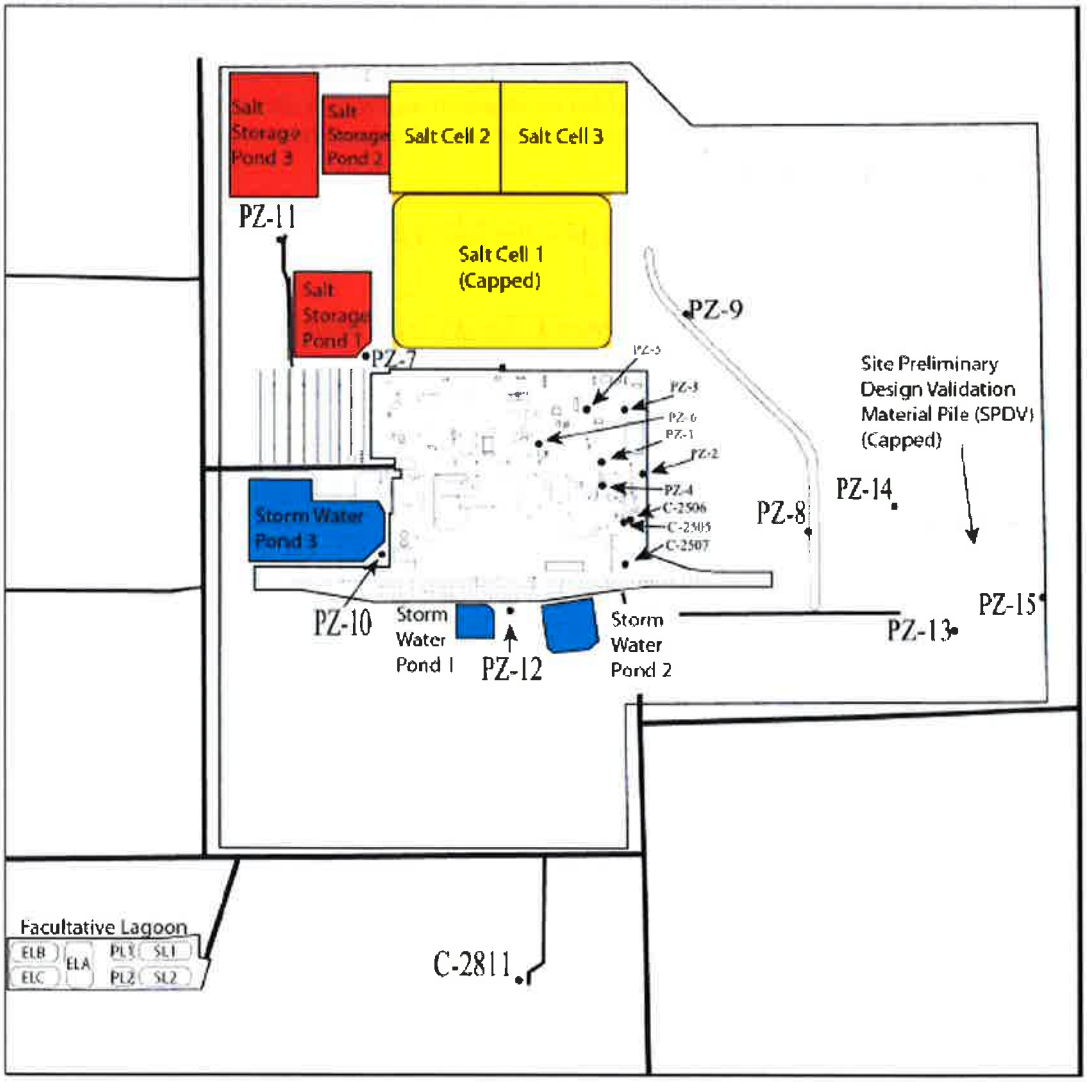
The table that includes all available ground water data to date is included in this second semi-annual report for 2018 (see Table 9).

Condition 45. *– In the event the permittee implements changes to the wastewater system authorized by this Discharge Permit which result in only a minor effect on the character of the discharge, the permittee shall report such changes (including submission of record drawings, where applicable) as of January 1 and June 30 of each year to the NMED.*

There were no changes to the wastewater system authorized by this Discharge Permit during this reporting period.

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR
DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2018 THROUGH DECEMBER 31, 2018

Figure 1 – Site Map



Legend

Salt Cells	Salt Storage Ponds	Storm Water Ponds	Faculatative Lagoon
Salt Cell 1	Salt Storage Pond 1 (SSP1)	Storm Water Pond 1 (SWP1)	Settling Lagoon 1 (SL1)
Salt Cell 2	Salt Storage Pond 2 (SSP2)	Storm Water Pond 2 (SWP2)	Settling Lagoon 2 (SL2)
Salt Cell 3	Salt Storage Pond 3 (SSP3)	Storm Water Pond 3 (SWP3)	Polishing Lagoon 1 (PL1)
			Polishing Lagoon 2 (PL2)
			Effluent Lagoon A (ELA)
			Effluent Lagoon B (ELB)
			Effluent Lagoon C (ELC)

0 200 m

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2018 THROUGH DECEMBER 31, 2018

Table 8 - Monitoring Well Water Levels and Chemical Analyses

	Field and General Chemistry Parameters								Other	Water Level Monitoring (Ft AMSL)	
Monitoring Site	Sample Date	pH (SU)	Temp. (°C)	Specific Conductivity @25 °C (µS/cm)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)	9/12/18-9/13/18	12/04/18-12/06/18
PZ-1	10/16/2018	6.42	20.09	100,500	NA	**1,980**	**35,800**	**72,000**	NA	3371.20	3371.18
PZ-2	NS	NS	NS	NS	NS	NS	NS	NS	NS	3370.62	3370.47
PZ-3	NS	NS	NS	NS	NS	NS	NS	NS	NS	3371.24	3371.11
PZ-4	NS	NS	NS	NS	NS	NS	NS	NS	NS	3366.39	3366.81
PZ-5	10/16/2018	7.16	19.57	73,970	NA	482	**5,870**	**14,400**	NA	3371.89	3371.79
PZ-6	10/16/2018	6.92	19.74	101,200	NA	**1,140**	**19,900**	**36,100**	NA	3369.94	3370.39
PZ-7	10/15/2018	6.41	19.12	105,300	NA	**2,600**	**50,900**	**108,000**	NA	3377.43	3377.95
PZ-9	10/16/2018	6.22	18.65	103,700	NA	**4,540**	**100,000**	**171,000**	NA	3362.89	3362.60
PZ-10	10/15/2018	7.25	16.75	4,221	NA	105	92.8	734	NA	3368.09	3370.00
PZ-11	10/15/2018	6.48	19.17	105,100	NA	**1,920**	**39,000**	**82,000**	NA	3373.77	3376.00
PZ-12	10/15/2018	6.85	19.13	44,570	NA	542	**3,270**	**7,600**	NA	3356.59	3357.43
PZ-13	10/17/2018	Bailed			NA	**2,650**	**152,000**	**263,000**	NA	3357.56	3357.26
PZ-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	3354.36	3355.26
PZ-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	3383.15	3383.50
C-2811	10/15/2018	7.18	16.98	13,810	NA	291	**864**	**2,370**	NA	3346.84	3347.22
C-2505	NS	NS	NS	NS	NS	NS	NS	NS	NS	3367.94	3367.97
C-2506	NS	NS	NS	NS	NS	NS	NS	NS	NS	3368.57	3368.60
C-2507	10/16/2018	7.10	17.83	40,600	NA	**638**	**3,440**	**7,870**	NA	3365.06	3365.20
WQSP-6A	10/17/2018	6.58	21.35	14,300	4.46	**1,970**	**300**	**3,340**	ND	3195.79	3195.46

Explanation:
- NA: Not Analyzed, parameter not required, per permit conditions.
- NS: Not Sampled, not required per permit conditions
- PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty using Low-Flow pumps
- "**Bold**" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply
- PZ-8 was plugged and abandoned in 2018.
- ND: Non-detect
- AMSL: Above Mean Sea Level

050079

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2018 THROUGH DECEMBER 31, 2018

Table 9 – All Ground Water Data

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-1	6/21/2004	<10	1,530	36,300	79,600	0.044	<0.005
PZ-1	11/9/2004	1.3	6,530	45,700	85,800	0.106	<0.010
PZ-1	5/17/2005	1.47	2,640	62,300	100,500	0.06	0.077
PZ-1	10/11/2005	2.59	1,950	54,900	74,800	0.043	<0.010
PZ-1	5/16/2006	<2.5	2,490	62,400	113,000	0.051	<0.010
PZ-1	10/10/2006	<1.00	1,390	55,300	70,200	<0.050	<0.025
PZ-1	5/9/2007	2.7	2,220	63,000	107,000	<0.050	<0.025
PZ-1	10/9/2007	<1.00	2,820	83,200	99,500	<0.100	<0.025
PZ-1	6/5/2008	<2.0	2,100	57,000	98,000	0.667	0.002
PZ-1	10/14/2008	NA	2,200	59,000	94,000	NA	NA
PZ-1	5/19/2009	NA	2,200	54,000	96,000	NA	NA
PZ-1	10/19/2009	NA	2,300	66,000	101,000	NA	NA
PZ-1	5/25/2010	NA	2,200	53,000	92,800	NA	NA
PZ-1	10/26/2010	NA	1,800	62,000	96,100	NA	NA
PZ-1	5/24/2011	NA	2,000	51,000	85,200	NA	NA
PZ-1	10/5/2011	NA	2,000	50,000	84,600	NA	NA
PZ-1	5/16/2012	NA	2,100	54,000	82,100	NA	NA
PZ-1	10/2/2012	NA	2,110	48,100	84,200	NA	NA
PZ-1	5/14/2013	NA	1,840	35,800	74,400	NA	NA
PZ-1	10/22/2013	NA	2,050	42,500	100,000	NA	NA
PZ-1	5/13/2014	NA	2,010	44,000	76,000	NA	NA
PZ-1	10/14/2014	NA	2,090	46,700	84,800	NA	NA
PZ-1	5/13/2015	NA	1,830	40,800	73,400	NA	NA
PZ-1	11/10/2015	NA	1,740	37,100	75,800	NA	NA
PZ-1	5/31/2016	NA	1,740	42,900	79,600	NA	NA
PZ-1	9/28/2016	NA	1,940	34,000	67,000	NA	NA
PZ-1	5/31/2017	NA	1,890	37,600	71,200	NA	NA
PZ-1	10/10/2017	NA	1,900	36,100	63,900	NA	NA
PZ-1	5/22/2018	NA	1,860	26,500	54,500	NA	NA
PZ-1	10/16/2018	NA	1,980	35,800	72,000	NA	NA
PZ-5	6/21/2004	20.7	1,340	28,800	55,200	0.067	<0.005
PZ-5	11/9/2004	<2.50	1,820	47800	86,000	0.094	<0.010
PZ-5	5/17/2005	2.96	3,260	46,000	65,400	0.093	0.067
PZ-5	10/11/2005	5.14	769	14,000	32,800	0.062	<0.010
PZ-5	5/16/2006	2.56	1,520	18,300	32,600	0.071	<0.010
PZ-5	10/10/2006	5.04	1,330	28,800	47,400	<0.050	<0.025
PZ-5	5/9/2007	4.6	1,640	17,300	32,400	<0.050	<0.025
PZ-5	10/9/2007	<1.00	1,880	19,400	28,700	0.071	<0.005
PZ-5	6/5/2008	5.7	1,500	19,000	33,000	0.080	0.003
PZ-5	10/14/2008	NA	1,400	13,000	25,000	NA	NA

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-5	5/19/2009	NA	1,500	13,000	24,000	NA	NA
PZ-5	10/19/2009	NA	1,600	14,000	20,200	NA	NA
PZ-5	5/25/2010	NA	1,400	13,000	21,900	NA	NA
PZ-5	10/26/2010	NA	1,400	13,000	20,800	NA	NA
PZ-5	5/24/2011	NA	1,200	10,000	18,400	NA	NA
PZ-5	10/4/2011	NA	1,300	13,000	19,800	NA	NA
PZ-5	5/16/2012	NA	1,500	12,000	21,400	NA	NA
PZ-5	10/2/2012	NA	1,340	9,870	18,600	NA	NA
PZ-5	5/15/2013	NA	1,200	9,540	19,200	NA	NA
PZ-5	10/23/2013	NA	1,180	11,400	25,200	NA	NA
PZ-5	5/13/2014	NA	1,180	9,080	18,100	NA	NA
PZ-5	10/14/2014	NA	1,250	13,300	26,500	NA	NA
PZ-5	5/13/2015	NA	1,100	7,380	14,800	NA	NA
PZ-5	11/10/2015	NA	917	7,470	15,200	NA	NA
PZ-5	5/31/2016	NA	970	7,180	14,500	NA	NA
PZ-5	9/28/2016	NA	748	7,170	17,400	NA	NA
PZ-5	5/31/2017	NA	737	4,470	10,300	NA	NA
PZ-5	10/10/2017	NA	638	4,790	11,300	NA	NA
PZ-5	5/22/2018	NA	585	5,910	12,800	NA	NA
PZ-5	10/16/2018	NA	482	5,870	14,400	NA	NA
PZ-6	6/21/2004	21.2	2,860	70,500	134,000	0.017	<0.005
PZ-6	11/9/2004	4.89	13,000	75,400	113,000	0.06	<0.010
PZ-6	5/17/2005	4.25	3,610	109,000	160,500	0.05	0.054
PZ-6	10/11/2005	<20.0	2,850	83,800	106,000	0.021	<0.010
PZ-6	5/16/2006	7.69	3,050	68,800	115,000	<0.010	<0.010
PZ-6	10/10/2006	252	2,790	79,800	134,000	<0.050	<0.025
PZ-6	5/9/2007	6.65	2,840	73,500	122,500	<0.050	<0.025
PZ-6	10/9/2007	<1.00	3,080	81,000	105,000	<0.100	<0.025
PZ-6	6/5/2008	6.1	2,100	47,000	81,000	0.041	0.003
PZ-6	10/14/2008	NA	2,500	58,000	87,000	NA	NA
PZ-6	5/19/2009	NA	2,700	61,000	89,000	NA	NA
PZ-6	10/19/2009	NA	2,300	50,000	83,600	NA	NA
PZ-6	5/25/2010	NA	2,300	47,000	82,100	NA	NA
PZ-6	10/26/2010	NA	1,900	47,000	72,300	NA	NA
PZ-6	5/24/2011	NA	1,700	37,000	67,700	NA	NA
PZ-6	10/5/2011	NA	1,900	41,000	69,800	NA	NA
PZ-6	5/16/2012	NA	1,800	41,000	67,200	NA	NA
PZ-6	10/2/2012	NA	2,130	52,200	78,700	NA	NA
PZ-6	5/15/2013	NA	2,060	47,900	86,900	NA	NA
PZ-6	10/22/2013	NA	2,120	46,000	90,500	NA	NA

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2018 THROUGH DECEMBER 31, 2018

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-6	5/13/2014	NA	2,040	46,600	80,800	NA	NA
PZ-6	10/14/2014	NA	2,160	49,800	80,400	NA	NA
PZ-6	5/13/2015	NA	2,180	49,200	77,000	NA	NA
PZ-6	11/10/2015	NA	1,900	37,500	69,200	NA	NA
PZ-6	5/31/2016	NA	1,680	31,000	50,500	NA	NA
PZ-6	9/28/2016	NA	1,330	21,900	43,100	NA	NA
PZ-6	5/31/2017	NA	1,230	21,000	39,300	NA	NA
PZ-6	10/10/2017	NA	1,260	20,800	37,500	NA	NA
PZ-6	5/22/2018	NA	1,210	18,400	32,300	NA	NA
PZ-6	10/16/2018	NA	1,140	19,900	36,100	NA	NA
PZ-7	6/21/2004	20.7	2,620	53,000	109,000	0.041	<0.005
PZ-7	11/8/2004	2.89	7,460	43,600	80,400	0.088	<0.010
PZ-7	5/16/2005	4.02	2,530	42,100	65,900	0.082	0.094
PZ-7	10/10/2005	6.37	2,770	61,000	88,000	0.047	<0.010
PZ-7	5/15/2006	<5.3	3,190	54,100	139,000	0.068	<0.010
PZ-7	10/9/2006	<1.00	2,890	66,800	81,500	<0.00100	<0.050
PZ-7	5/7/2007	5.15	3,190	64,800	119,000	<0.0200	0.02
PZ-7	10/8/2007	<1.00	2,660	45,600	65,000	0.064	<0.005
PZ-7	6/4/2008	5	2,300	49,000	86,000	0.064	0.003
PZ-7	10/13/2008	NA	1,700	27,000	42,000	NA	NA
PZ-7	5/18/2009	NA	3,700	76,000	120,000	NA	NA
PZ-7	10/20/2009	NA	4,200	67,000	106,000	NA	NA
PZ-7	5/24/2010	NA	3,000	68,000	103,000	NA	NA
PZ-7	10/25/2010	NA	3,000	75,000	103,000	NA	NA
PZ-7	5/23/2011	NA	2,700	60,000	101,000	NA	NA
PZ-7	10/4/2011	NA	3,100	81,000	116,000	NA	NA
PZ-7	5/15/2012	NA	3,000	64,000	96,600	NA	NA
PZ-7	10/3/2012	NA	4,380	67,500	106,000	NA	NA
PZ-7	5/13/2013	NA	3,050	58,500	112,000	NA	NA
PZ-7	10/22/2013	NA	3,100	61,100	126,000	NA	NA
PZ-7	5/13/2014	NA	2,650	35,400	114,000	NA	NA
PZ-7	10/13/2014	NA	3,530	74,500	136,000	NA	NA
PZ-7	5/12/2015	NA	3,240	68,200	118,000	NA	NA
PZ-7	11/9/2015	NA	2,960	44,900	114,000	NA	NA
PZ-7	5/24/2016	NA	3,790	75,400	109,000	NA	NA
PZ-7	9/27/2016	NA	2,850	51,600	99,300	NA	NA
PZ-7	5/30/2017	NA	2,890	59,800	111,000	NA	NA
PZ-7	10/9/2017	NA	2,170	36,800	80,100	NA	NA
PZ-7	5/21/2018	NA	2,950	54,600	100,000	NA	NA
PZ-7	10/15/2018	NA	2,600	50,900	108,000	NA	NA

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2018 THROUGH DECEMBER 31, 2018

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-8	10/15/2007	0.677	500	7,440	15,000	0.039	<0.005
PZ-8	6/6/2008	1.8	630	11,000	16,000	0.066	<0.001
PZ-9	6/21/2004	<20.0	3,740	80,200	140,000	<0.010	<0.005
PZ-9	11/9/2004	1.4	14,500	92,400	144,000	0.066	<0.010
PZ-9	5/17/2005	2.82	5,090	182,000	164,000	0.05	0.071
PZ-9	10/11/2005	<20.0	3,930	85,500	107,000	0.022	<0.010
PZ-9	5/16/2006	3.01	4,350	84,700	153,000	0.023	<0.010
PZ-9	10/10/2006	<20.0	3,370	102,000	135,000	<0.050	<0.025
PZ-9	5/9/2007	3.28	4,320	89,600	164,000	<0.050	<0.025
PZ-9	10/9/2007	<200	4,720	116,000	144,000	<0.020	<0.005
PZ-9	6/5/2008	2.2	4,400	87,000	150,000	0.035	0.005
PZ-9	10/14/2008	NA	4,100	96,000	140,000	NA	NA
PZ-9	5/19/2009	NA	3,600	94,000	130,000	NA	NA
PZ-9	10/19/2009	NA	4,000	77,000	139,000	NA	NA
PZ-9	5/25/2010	NA	4,400	94,000	144,000	NA	NA
PZ-9	10/26/2010	NA	4,300	95,000	149,000	NA	NA
PZ-9	5/24/2011	NA	4300	83,000	147,000	NA	NA
PZ-9	10/4/2011	NA	4600	99,000	153,000	NA	NA
PZ-9	5/16/2012	NA	4,900	98,000	152,000	NA	NA
PZ-9	10/3/2012	NA	4,440	99,700	141,000	NA	NA
PZ-9	5/14/2013	NA	4,580	82,000	152,000	NA	NA
PZ-9	10/22/2013	NA	4,620	88,200	179,000	NA	NA
PZ-9	5/13/2014	NA	4,730	83,600	161,000	NA	NA
PZ-9	10/14/2014	NA	5,150	98,600	172,000	NA	NA
PZ-9	5/13/2015	NA	7,090	112,000	175,000	NA	NA
PZ-9	11/10/2015	NA	4,390	84,300	176,000	NA	NA
PZ-9	5/25/2016	NA	5,640	115,000	167,000	NA	NA
PZ-9	9/28/2016	NA	4,860	99,200	353,000	NA	NA
PZ-9	5/30/2017	NA	5,200	113,000	169,000	NA	NA
PZ-9	10/10/2017	NA	4,580	91,900	172,000	NA	NA
PZ-9	5/22/2018	NA	4,790	99,200	180,000	NA	NA
PZ-9	10/16/2018	NA	4,540	100,000	171,000	NA	NA
PZ-10	6/14/2004	3.81	469	368	1,714	0.02	<0.005
PZ-10	11/8/2004	3.69	431	353	1,576	<0.050	<0.010
PZ-10	5/16/2005	3.63	572	416	1,756	0.044	0.037
PZ-10	10/10/2005	3.34	515	318	1,720	0.015	<0.010
PZ-10	5/15/2006	3.42	539	460	1,830	0.014	<0.010
PZ-10	10/9/2006	5.5	549	350	1,600	<0.001	<0.050
PZ-10	5/7/2007	14.8	407	274	1,504	<0.020	0.02
PZ-10	10/8/2007	<1.00	211	186	968	0.026	<0.005

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2018 THROUGH DECEMBER 31, 2018

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-10	6/4/2008	4.5	390	300	1,500	0.014	0.001
PZ-10	10/13/2008	NA	380	290	1,400	NA	NA
PZ-10	5/18/2009	NA	530	460	1,800	NA	NA
PZ-10	10/20/2009	NA	500	440	1,730	NA	NA
PZ-10	5/24/2010	NA	500	370	1,680	NA	NA
PZ-10	10/25/2010	NA	410	360	1,530	NA	NA
PZ-10	5/23/2011	NA	400	310	1,620	NA	NA
PZ-10	10/4/2011	NA	440	370	1,640	NA	NA
PZ-10	5/15/2012	NA	450	410	1,650	NA	NA
PZ-10	10/1/2012	NA	480	414	1,700	NA	NA
PZ-10	5/13/2013	NA	426	394	1,580	NA	NA
PZ-10	10/21/2013	NA	434	348	1,710	NA	NA
PZ-10	5/12/2014	NA	471	407	1,840	NA	NA
PZ-10	10/13/2014	NA	178	167	910	NA	NA
PZ-10	5/12/2015	NA	435	370	1,620	NA	NA
PZ-10	11/9/2015	NA	339	255	1,310	NA	NA
PZ-10	5/24/2016	NA	274	200	1,100	NA	NA
PZ-10	9/27/2016	NA	116	113	805	NA	NA
PZ-10	5/30/2017	NA	203	173	998	NA	NA
PZ-10	10/9/2017	NA	161	135	414	NA	NA
PZ-10	5/21/2018	NA	224	193	998	NA	NA
PZ-10	10/15/2018	NA	105	92.8	734	NA	NA
PZ-11	6/21/2004	20.8	2,220	58,100	123,000	<0.010	<0.005
PZ-11	11/8/2004	3.15	13,000	84,100	119,000	<0.050	<0.010
PZ-11	5/16/2005	4.63	2,890	66,000	100,000	<0.010	<0.010
PZ-11	10/10/2005	<20.0	2,950	84,300	129,000	0.013	<0.010
PZ-11	5/15/2006	<5.3	3,090	71,000	133,000	<0.010	<0.010
PZ-11	10/9/2006	<1.00	2,550	85,800	123,000	<0.001	<0.050
PZ-11	5/7/2007	3.84	2,620	68,700	135,000	<0.020	<0.010
PZ-11	10/8/2007	<1.00	2,970	94,400	108,000	<0.020	<0.005
PZ-11	6/4/2008	3.9	2,100	65,000	110,000	0.015	0.002
PZ-11	10/13/2008	NA	3,000	79,000	110,000	NA	NA
PZ-11	5/18/2009	NA	2,500	72,000	110,000	NA	NA
PZ-11	10/20/2009	NA	3,200	64,000	112,000	NA	NA
PZ-11	5/24/2010	NA	2,500	69,000	107,000	NA	NA
PZ-11	10/25/2010	NA	2,300	77,000	100,000	NA	NA
PZ-11	5/23/2011	NA	2,000	45,000	80,500	NA	NA
PZ-11	10/3/2011	NA	2,300	65,000	92,200	NA	NA
PZ-11	5/15/2012	NA	2,400	59,000	93,200	NA	NA
PZ-11	10/3/2012	NA	2,220	53,000	95,600	NA	NA

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-11	5/13/2013	NA	2,270	64,800	105,000	NA	NA
PZ-11	10/21/2013	NA	2,360	59,000	123,000	NA	NA
PZ-11	5/12/2014	NA	2,260	45,000	102,000	NA	NA
PZ-11	10/13/2014	NA	2,740	68,800	123,000	NA	NA
PZ-11	5/12/2015	NA	2,590	57,000	105,000	NA	NA
PZ-11	11/9/2015	NA	2,770	59,900	96,400	NA	NA
PZ-11	5/24/2016	NA	2,640	54,900	93,200	NA	NA
PZ-11	9/27/2016	NA	2,240	43,300	82,700	NA	NA
PZ-11	5/30/2017	NA	911	18,000	40,000	NA	NA
PZ-11	10/9/2017	NA	1,710	49,800	61,900	NA	NA
PZ-11	5/21/2018	NA	1,980	36,400	66,300	NA	NA
PZ-11	10/15/2018	NA	1,920	39,000	82,000	NA	NA
PZ-12	6/14/2004	11.2	773	5,320	9,700	0.077	<0.005
PZ-12	11/8/2004	19.8	879	7,170	9,540	0.066	<0.010
PZ-12	5/16/2005	8.85	679	3,730	5,890	0.051	0.054
PZ-12	10/10/2005	426	805	3,790	7,740	0.02	<0.010
PZ-12	5/15/2006	20.6	866	4,510	8,790	0.019	<0.010
PZ-12	10/9/2006	13.2	795	5,340	9,150	<0.001	<0.050
PZ-12	5/7/2007	10.8	831	3,780	7,010	<0.020	0.024
PZ-12	10/8/2007	<1.00	958	4,310	6,200	0.026	<0.005
PZ-12	6/4/2008	11	760	3,300	6,800	0.029	0.001
PZ-12	10/13/2008	NA	850	3,300	7,000	NA	NA
PZ-12	5/18/2009	NA	870	4,600	8,300	NA	NA
PZ-12	10/20/2009	NA	980	6,500	10,100	NA	NA
PZ-12	5/24/2010	NA	990	5,500	10,100	NA	NA
PZ-12	10/25/2010	NA	990	5,800	10,300	NA	NA
PZ-12	5/23/2011	NA	900	5,600	10,900	NA	NA
PZ-12	10/3/2011	NA	900	6,800	13,100	NA	NA
PZ-12	5/15/2012	NA	620	6,400	9,400	NA	NA
PZ-12	10/1/2012	NA	503	5,290	9,780	NA	NA
PZ-12	5/13/2013	NA	449	3,990	7,610	NA	NA
PZ-12	10/21/2013	NA	415	3,320	8,110	NA	NA
PZ-12	5/12/2014	NA	374	2,490	5,640	NA	NA
PZ-12	10/13/2014	NA	409	2,440	6,100	NA	NA
PZ-12	5/12/2015	NA	665	4,470	8,720	NA	NA
PZ-12	11/9/2015	NA	627	3,450	8,280	NA	NA
PZ-12	5/24/2016	NA	560	2,570	6,100	NA	NA
PZ-12	9/27/2016	NA	548	2,460	6,240	NA	NA
PZ-12	5/30/2017	NA	509	2,470	6,100	NA	NA
PZ-12	10/9/2017	NA	521	2,840	6,740	NA	NA

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2018 THROUGH DECEMBER 31, 2018

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-12	5/21/2018	NA	576	3,280	7,280	NA	NA
PZ-12	10/15/2018	NA	542	3,270	7,600	NA	NA
PZ-13	10/10/2007	12.4	2,670	150,000	245,500	<0.100	<0.005
PZ-13	6/6/2008	<200	2,600	170,000	240,000	0.012	0.003
PZ-13	10/13/2008	NA	2,900	160,000	230,000	NA	NA
PZ-13	5/18/2009	NA	3,300	180,000	240,000	NA	NA
PZ-13	10/20/2009	NA	3,300	170,000	255,000	NA	NA
PZ-13	5/24/2010	NA	3,000	170,000	240,000	NA	NA
PZ-13	10/26/2010	NA	2,900	190,000	246,000	NA	NA
PZ-13	5/24/2011	NA	2,700	150,000	248,000	NA	NA
PZ-13	10/4/2011	NA	3,000	170,000	259,000	NA	NA
PZ-13	5/15/2012	NA	3,300	160,000	252,000	NA	NA
PZ-13	10/2/2012	NA	3,260	170,000	263,000	NA	NA
PZ-13	5/14/2013	NA	3,130	144,000	260,000	NA	NA
PZ-13	10/22/2013	NA	3,220	139,000	262,000	NA	NA
PZ-13	5/13/2014	NA	2,900	104,000	265,000	NA	NA
PZ-13	10/14/2014	NA	3,100	179,000	274,000	NA	NA
PZ-13	5/13/2015	NA	3,550	197,000	267,000	NA	NA
PZ-13	11/10/2015	NA	2,980	118,000	233,000	NA	NA
PZ-13	5/25/2016	NA	1,600	168,000	260,000	NA	NA
PZ-13	9/28/2016	NA	2,790	153,000	236,000	NA	NA
PZ-13	5/31/2017	NA	2,730	150,000	251,000	NA	NA
PZ-13	10/10/2017	NA	2,650	134,000	251,000	NA	NA
PZ-13	5/22/2018	NA	2,800	146,000	269,000	NA	NA
PZ-13	10/17/2018	NA	2,650	152,000	263,000	NA	NA
PZ-14	10/15/2007	1.41	2,140	71,500	106,000	<0.010	<0.005
PZ-14	6/6/2008	<100	3,300	130,000	180,000	0.020	0.002
PZ-15	10/15/2007	2.97	169	764	2,060	0.022	<0.005
PZ-15	6/6/2008	12	160	460	1,600	0.004	<0.001
C-2811	6/14/2004	6.06	299	769	2,022	0.047	<0.005
C-2811	11/8/2004	7.63	305	1,030	1,996	0.054	<0.010
C-2811	5/16/2005	6.02	524	1,930	3,740	0.058	0.053
C-2811	10/10/2005	7.48	584	2,250	4,410	0.034	<0.010
C-2811	5/15/2006	6.94	511	1,760	3,740	0.031	<0.0100
C-2811	10/9/2006	6.05	402	1,310	2,100	<0.001	<0.050
C-2811	5/7/2007	5.31	516	1,760	4,205	<0.020	0.031
C-2811	10/8/2007	<1.00	635	2,980	3,860	0.051	<0.005
C-2811	6/4/2008	5.7	390	1,300	2,800	0.002	0.035
C-2811	10/13/2008	NA	320	1,000	2,100	NA	NA
C-2811	5/18/2009	NA	360	1,200	2,300	NA	NA

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2018 THROUGH DECEMBER 31, 2018

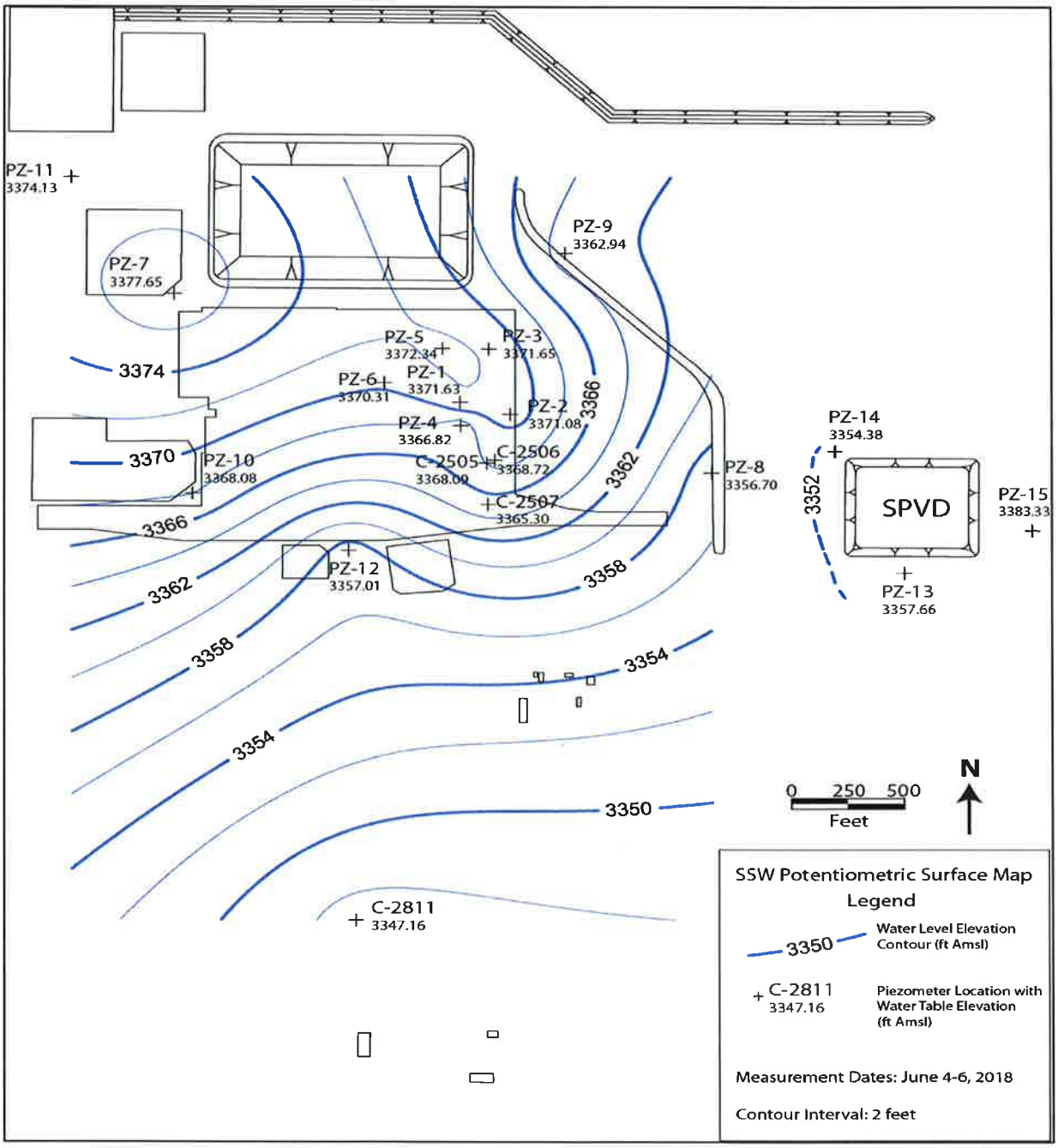
Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
C-2811	10/20/2009	NA	320	1,000	2,120	NA	NA
C-2811	5/24/2010	NA	340	920	2,090	NA	NA
C-2811	10/25/2010	NA	370	1,100	2,470	NA	NA
C-2811	5/23/2011	NA	350	960	2,370	NA	NA
C-2811	10/3/2011	NA	340	910	2,330	NA	NA
C-2811	5/14/2012	NA	320	810	1,870	NA	NA
C-2811	10/1/2012	NA	337	862	2,100	NA	NA
C-2811	5/13/2013	NA	328	872	2,090	NA	NA
C-2811	10/21/2013	NA	341	838	2,490	NA	NA
C-2811	5/13/2014	NA	297	865	2,250	NA	NA
C-2811	10/14/2014	NA	277	827	2,580	NA	NA
C-2811	5/12/2015	NA	586	1,430	3,460	NA	NA
C-2811	11/9/2015	NA	451	1260	3,300	NA	NA
C-2811	5/24/2016	NA	491	1,210	2,720	NA	NA
C-2811	9/27/2016	NA	422	1,100	2,820	NA	NA
C-2811	5/30/2017	NA	479	1,020	3,100	NA	NA
C-2811	10/9/2017	NA	375	1,110	2,640	NA	NA
C-2811	5/21/2018	NA	347	1,090	2,510	NA	NA
C-2811	10/15/2018	NA	291	864	2,370	NA	NA
C-2507	6/21/2004	7.55	717	1,300	3,830	0.029	0.028
C-2507	11/9/2004	7.58	824	1,380	3,350	0.08	0.014
C-2507	5/17/2005	7.94	860	1,370	3,340	0.078	0.063
C-2507	10/11/2005	6.13	920	1,630	3,240	0.047	<0.010
C-2507	5/16/2006	7.37	1,040	1,930	5,300	0.051	<0.010
C-2507	10/10/2006	2.9	943	3,640	1,740	<0.050	<0.025
C-2507	5/9/2007	6.62	1,110	3,060	5,485	<0.050	<0.025
C-2507	10/9/2007	<1.00	1,220	3,500	5,540	0.055	0.007
C-2507	6/5/2008	6.9	990	2,800	5,800	0.064	0.005
C-2507	10/14/2008	NA	940	2,200	5,100	NA	NA
C-2507	5/19/2009	NA	950	2,600	5,200	NA	NA
C-2507	10/19/2009	NA	930	3,400	5,710	NA	NA
C-2507	5/25/2010	NA	910	3,500	6,640	NA	NA
C-2507	10/26/2010	NA	980	3,500	7,120	NA	NA
C-2507	5/24/2011	NA	790	3,200	6,190	NA	NA
C-2507	10/5/2011	NA	810	3,400	6,660	NA	NA
C-2507	5/16/2012	NA	800	2,800	5,720	NA	NA
C-2507	10/1/2012	NA	774	2,970	6,790	NA	NA
C-2507	5/14/2013	NA	704	2,820	6,020	NA	NA
C-2507	10/21/2013	NA	692	3,270	8,350	NA	NA
C-2507	5/13/2014	NA	643	2,770	7,590	NA	NA

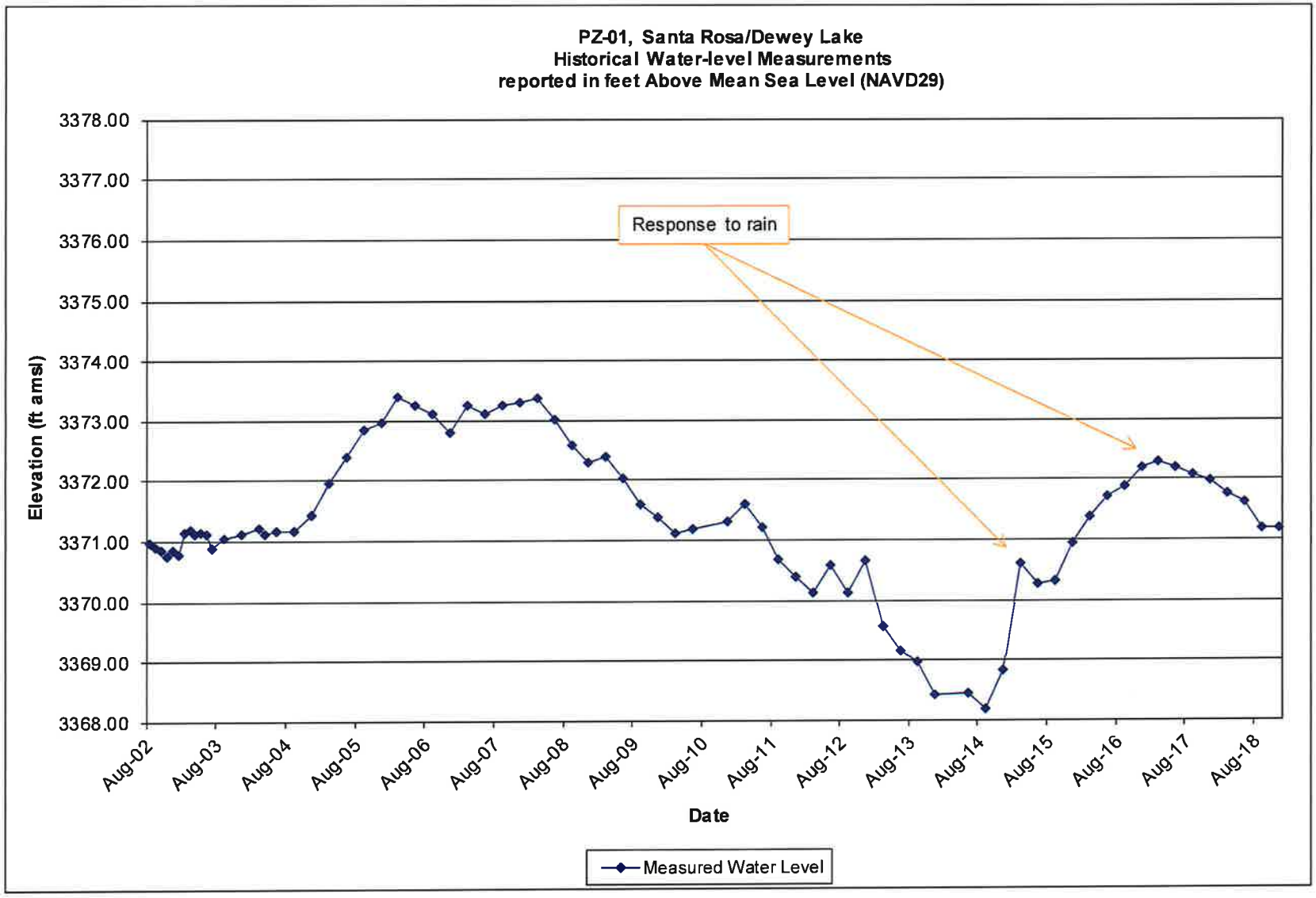
WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2018 THROUGH DECEMBER 31, 2018

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
C-2507	10/14/2014	NA	693	3,830	9,180	NA	NA
C-2507	5/13/2015	NA	683	3,430	7,590	NA	NA
C-2507	11/10/2015	NA	605	2,800	6,850	NA	NA
C-2507	5/31/2016	NA	679	3,110	6,620	NA	NA
C-2507	9/28/2016	NA	626	2,960	7,280	NA	NA
C-2507	5/31/2017	NA	683	3,490	8,020	NA	NA
C-2507	10/10/2017	NA	627	2,890	7,270	NA	NA
C-2507	5/22/2018	NA	638	3,040	6,850	NA	NA
C-2507	10/16/2018	NA	638	3,440	7,870	NA	NA
WQSP-6A	7/13/1995	7.62	1,905	1,040	11,000	<0.006	<0.025
WQSP-6A	3/28/1996	3.98	1,810	507	3,920	<0.013	<0.025
WQSP-6A	7/11/1996	2.75	1,971	6,748	4,500	0.02	<0.025
WQSP-6A	4/10/1997	4.64	2,240	675	3,960	0.017	<0.025
WQSP-6A	7/10/1997	4.04	2,560	660	3,840	<0.050	<0.100
WQSP-6A	6/10/1998	6.19	1,950	644	4,120	0.016	0.002
WQSP-6A	11/3/1998	11	2,100	770	4,100	0.22	<0.500
WQSP-6A	5/26/1999	7	1,900	540	3,800	<0.100	<0.050
WQSP-6A	11/10/1999	9.4	1,900	540	3,800	<0.050	<0.050
WQSP-6A	5/24/2000	7.5	2,100	530	3,800	0.013	<0.020
WQSP-6A	11/30/2000	6.7	1,900	480	3,700	<0.013	<0.025
WQSP-6A	6/6/2001	6.37	1,900	536	3,680	0.039	<0.025
WQSP-6A	11/14/2001	3.67	1,900	414	4,600	<0.050	<0.010
WQSP-6A	5/22/2002	5.52	1,930	487	3,540	<0.050	<0.010
WQSP-6A	11/20/2002	5.61	2,090	419	3,685	<0.050	<0.010
WQSP-6A	5/21/2003	4.74	1,950	384	3,650	<0.123	<0.050
WQSP-6A	11/19/2003	<0.01	1,950	391	3,955	<0.219	<0.025
WQSP-6A	5/26/2004	9.61	1,970	416	3,646	<0.025	<0.025
WQSP-6A	11/17/2004	6.72	1,960	491	3,655	<0.025	<0.025
WQSP-6A	4/20/2005	5.98	1,920	432	3,700	0.057	<0.025
WQSP-6A	10/19/2005	<0.01	1,940	360	3,430	<0.025	<0.025
WQSP-6A	5/3/2006	2.5	2,210	450	3,200	<0.025	<0.025
WQSP-6A	9/20/2006	6	2,120	360	3,515	<0.025	<0.025
WQSP-6A	3/7/2007	5.78	2,170	484	3,355	<0.025	<0.025
WQSP-6A	9/12/2007	5.47	1,950	350	3,400	<0.025	<0.025
WQSP-6A	3/12/2008	4.67	2,090	378	3,400	<0.025	<0.025

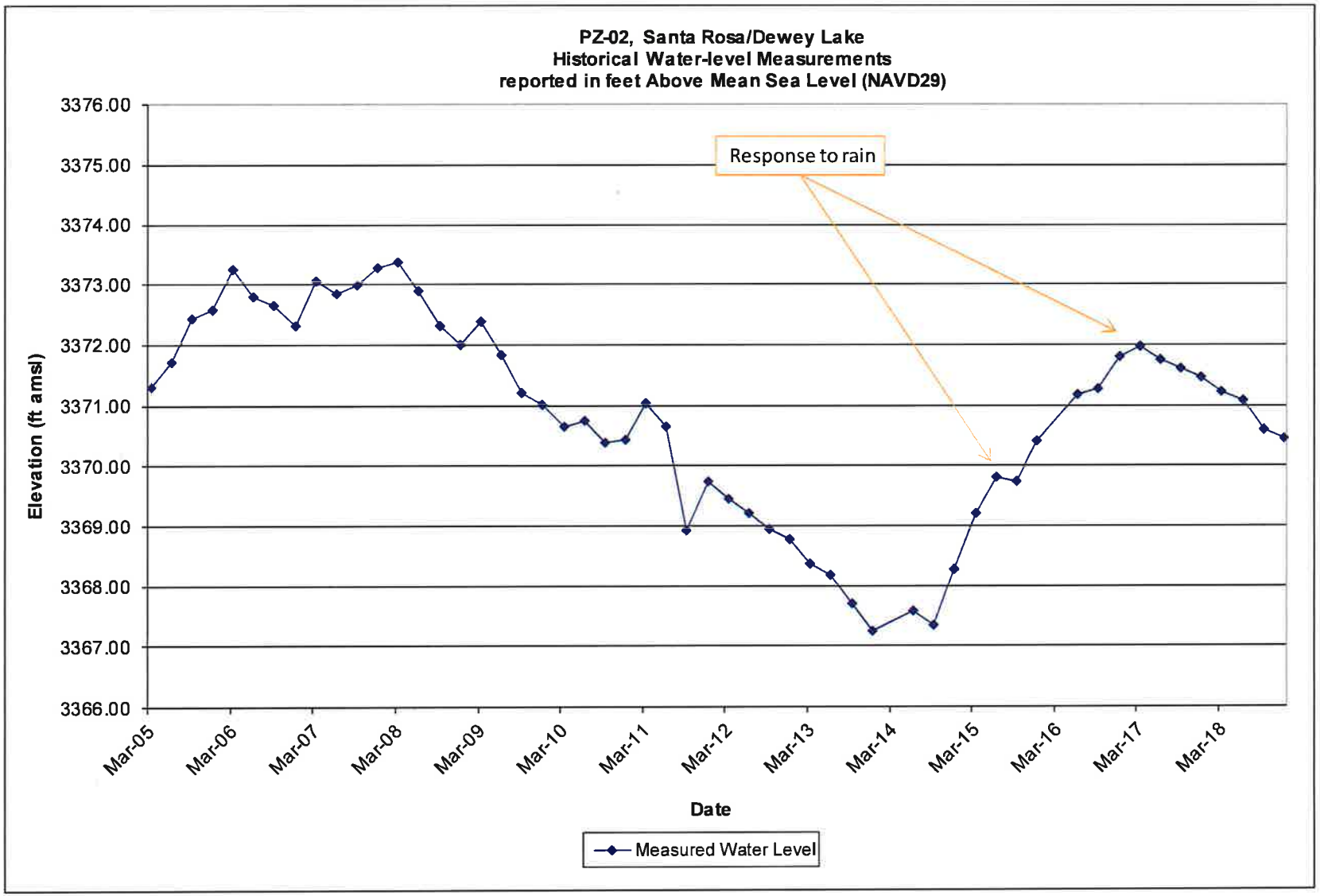
Shallow Subsurface Water Quality Sampling Results						
General Chemistry Parameters						
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/l)
WQSP-6A	9/10/2008	5.69	2,030	348	3,150	< 5
WQSP-6A	3/4/2009	5.9	2,100	350	3,500	<1.0
WQSP-6A	9/10/2009	6.3	2,100	350	3,640	<1.0
WQSP-6A	3/3/2010	6.55	2,145	330	3,545	<1.0
WQSP-6A	9/23/2010	6.34	2,090	321	3,500	<1.0
WQSP-6A	5/26/2011	6.5	2,100	270	3,480	<1.0
WQSP-6A	10/6/2011	5.9	2,100	280	3,450	<1.0
WQSP-6A	5/16/2012	5.4	2,200	310	3,340	<1.0
WQSP-6A	10/2/2012	5.1	2,110	301	3,400	<1.0
WQSP-6A	5/14/2013	5.29	2,260	318	3,420	<1.0
WQSP-6A	10/23/2013	5.85	1,840	284	3,540	<1.0
WQSP-6A	5/14/2014	5.4	1,870	342	3,500	<1.0
WQSP-6A	10/15/2014	5.38	2,000	285	3,360	<1.0
WQSP-6A	5/14/2015	5.11	1,940	294	3,520	<1.0
WQSP-6A	11/11/2015	5.45	1,840	296	3,290	<1.0
WQSP-6A	5/25/2016	4.91	1,900	379	3,380	<1.0
WQSP-6A	9/29/2016	5.61	1,860	286	3,490	<1.0
WQSP-6A	6/1/2017	5.27	1,870	322	3,380	<1.0
WQSP-6A	10/11/2017	4.87	1,880	342	3,390	<1.0
WQSP-6A	5/23/2018	4.98[H]	1,770	340	6,850	<1.0
WQSP-6A	10/17/2018	4.46	1,970	300	3,340	<1.0
NA: Not Analyzed, parameter not required, per permit conditions. **H: Hold times exceeded.**						

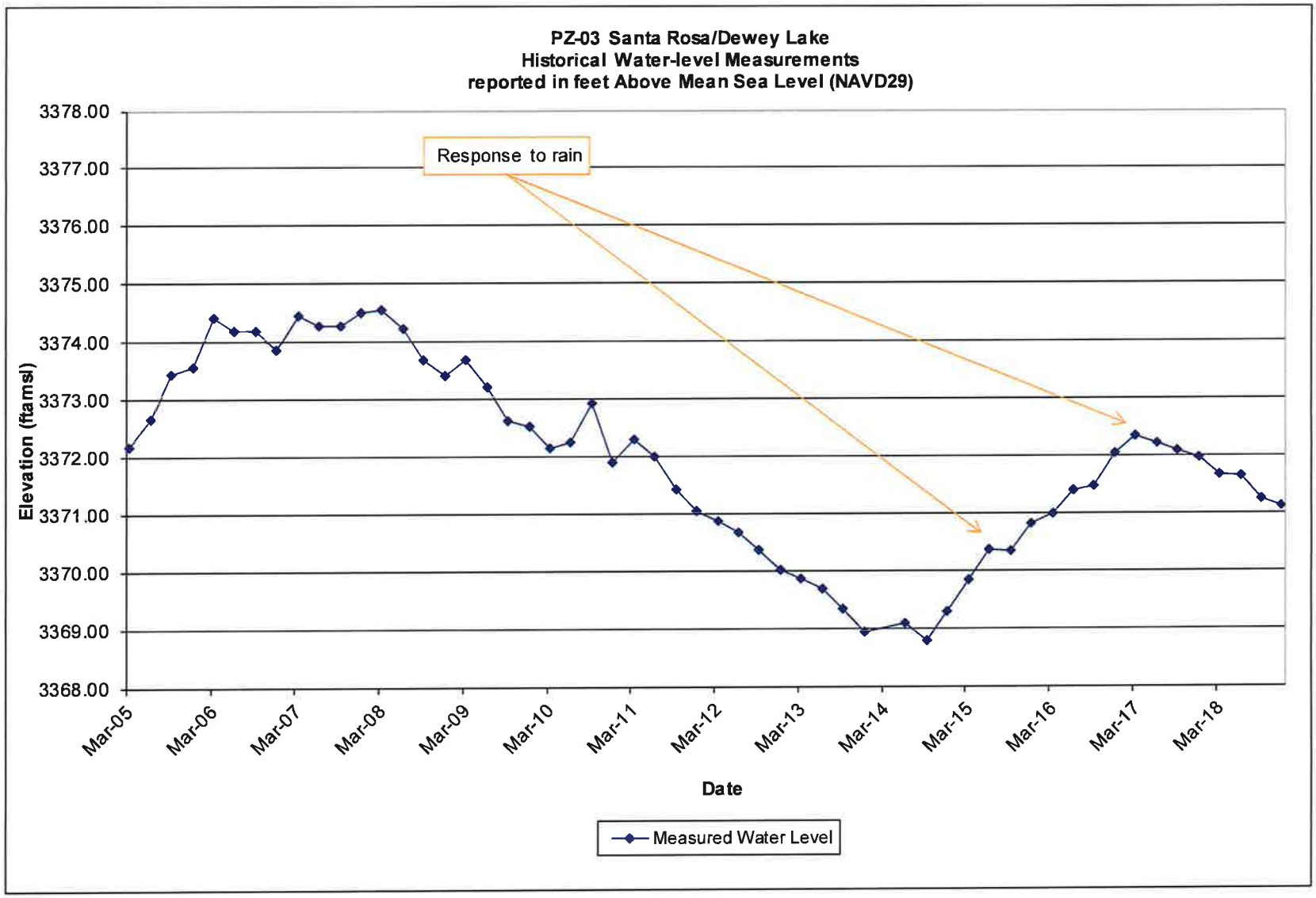
Figure 2 – 2018 Potentiometric Surface Map



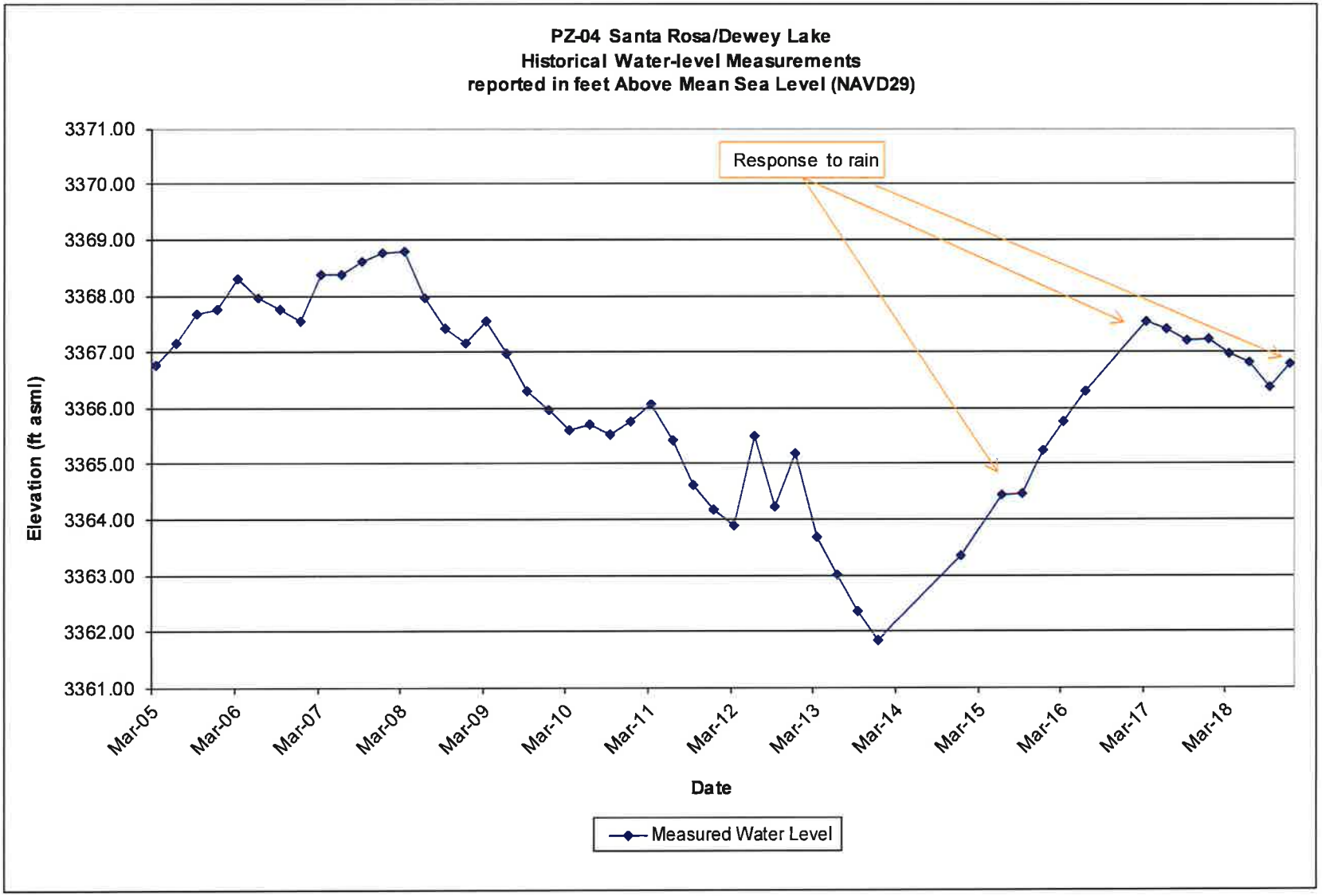

PZ-01, Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Response to rain
Elevation (ft amsl)
3378.00
3377.00
3376.00
3375.00
3374.00
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
Aug-02
Aug-03
Aug-04
Aug-05
Aug-06
Aug-07
Aug-08
Aug-09
Aug-10
Aug-11
Aug-12
Aug-13
Aug-14
Aug-15
Aug-16
Aug-17
Aug-18
Date
Measured Water Level

05091

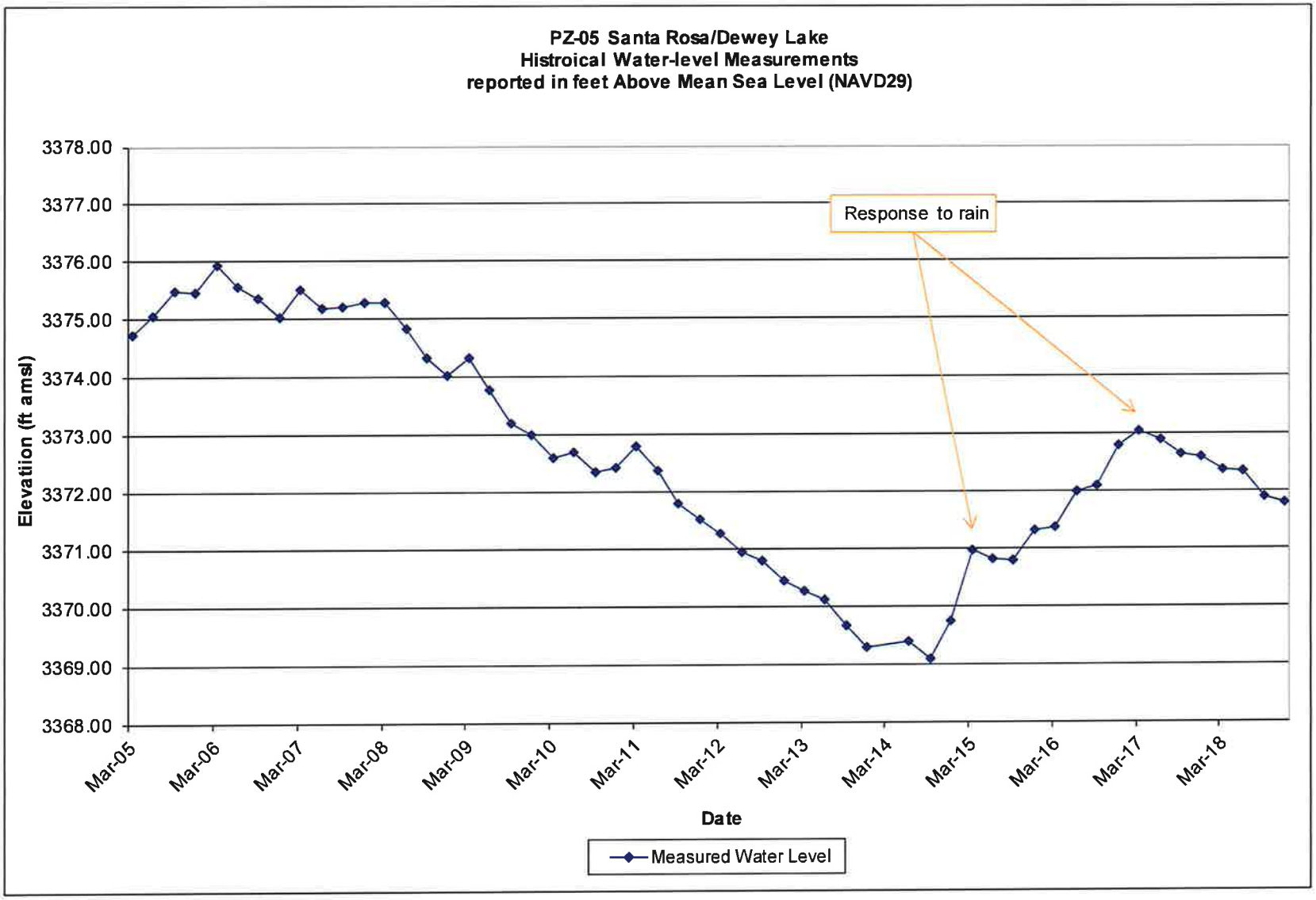

PZ-02, Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Response to rain
Elevation (ft amsl)
3376.00
3375.00
3374.00
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
Mar-05
Mar-06
Mar-07
Mar-08
Mar-09
Mar-10
Mar-11
Mar-12
Mar-13
Mar-14
Mar-15
Mar-16
Mar-17
Mar-18
Date
Measured Water Level


PZ-03 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Response to rain
Elevation (ftamsl)
3378.00
3377.00
3376.00
3375.00
3374.00
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
Mar-05
Mar-06
Mar-07
Mar-08
Mar-09
Mar-10
Mar-11
Mar-12
Mar-13
Mar-14
Mar-15
Mar-16
Mar-17
Mar-18
Date
Measured Water Level

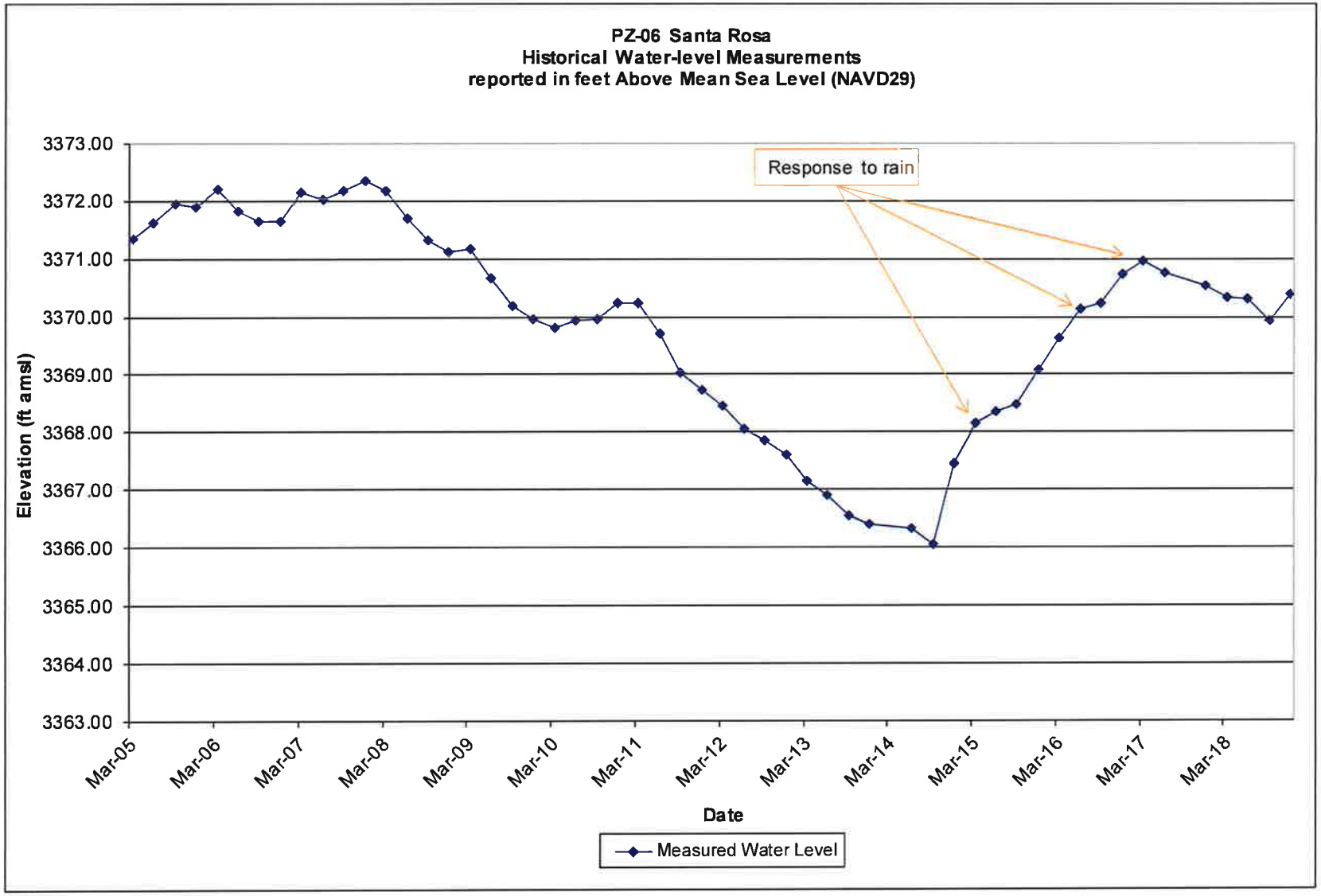
05093


PZ-04 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Response to rain
Elevation (ft asml)
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
3362.00
3361.00
Mar-05
Mar-06
Mar-07
Mar-08
Mar-09
Mar-10
Mar-11
Mar-12
Mar-13
Mar-14
Mar-15
Mar-16
Mar-17
Mar-18
Date
Measured Water Level

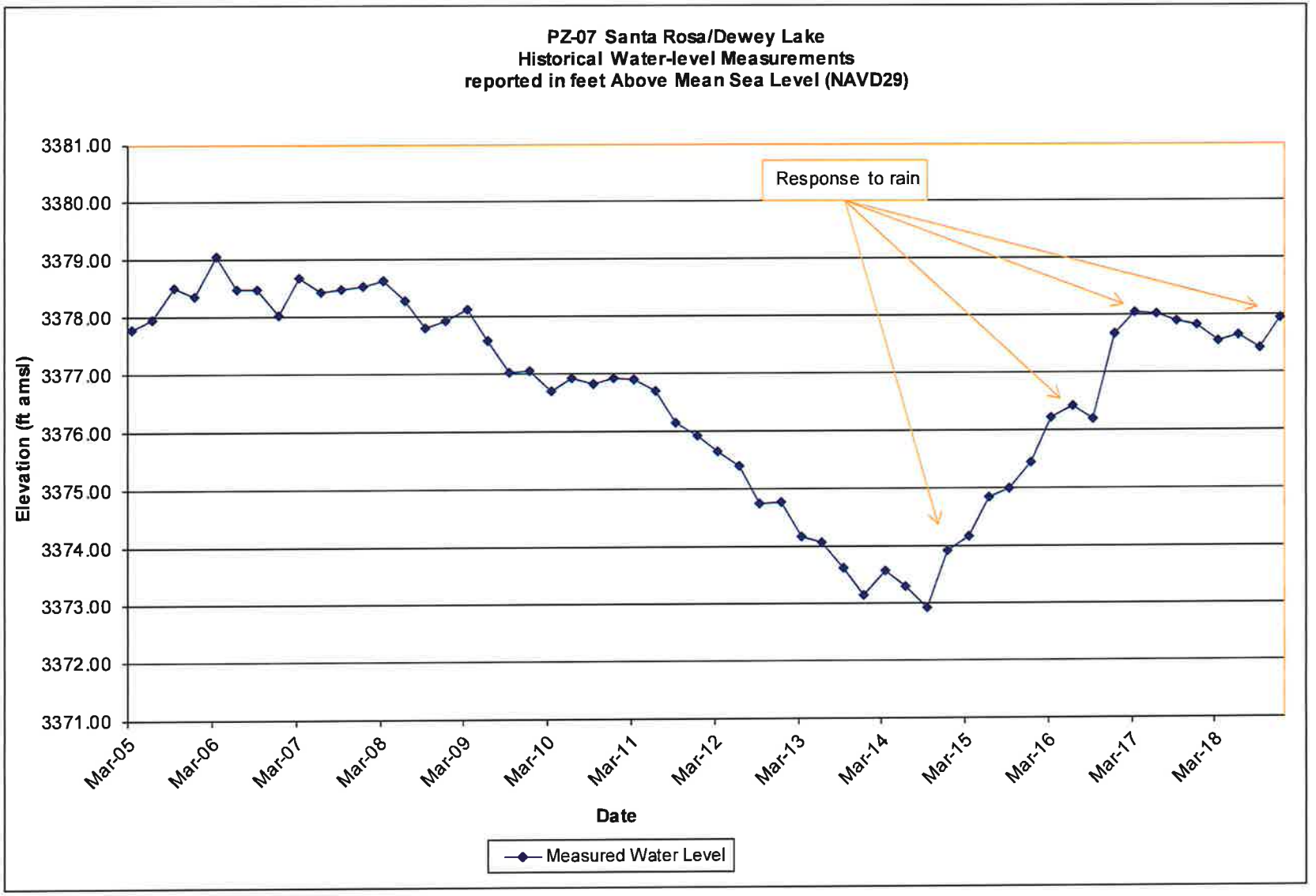
05094


PZ-05 Santa Rosa/Dewey Lake
Histroical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Response to rain
Elevation (ft amsl)
3378.00
3377.00
3376.00
3375.00
3374.00
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
Mar-05
Mar-06
Mar-07
Mar-08
Mar-09
Mar-10
Mar-11
Mar-12
Mar-13
Mar-14
Mar-15
Mar-16
Mar-17
Mar-18
Date
Measured Water Level

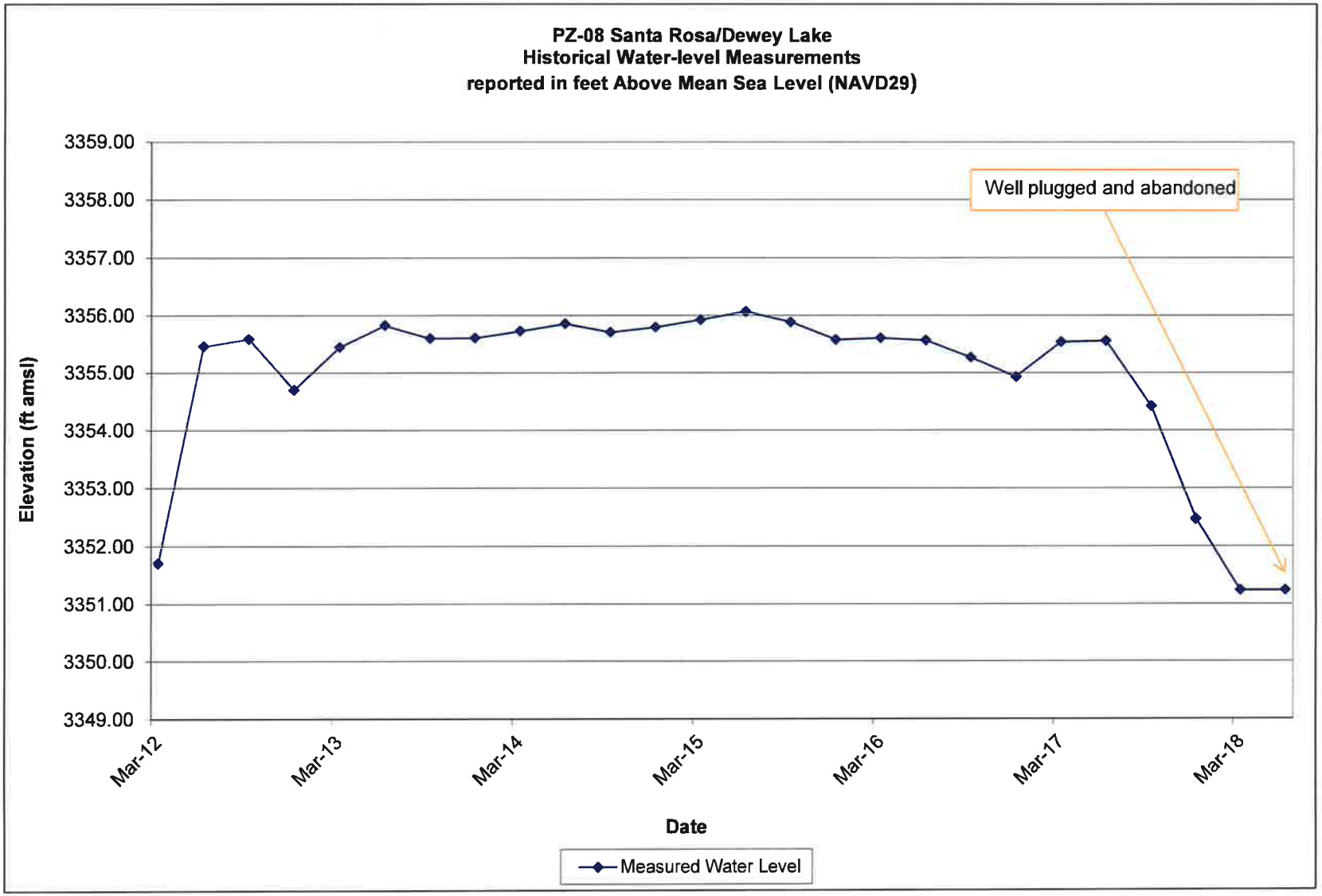
05095


PZ-06 Santa Rosa
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Response to rain
Elevation (ft amsl)
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
Mar-05
Mar-06
Mar-07
Mar-08
Mar-09
Mar-10
Mar-11
Mar-12
Mar-13
Mar-14
Mar-15
Mar-16
Mar-17
Mar-18
Date
Measured Water Level

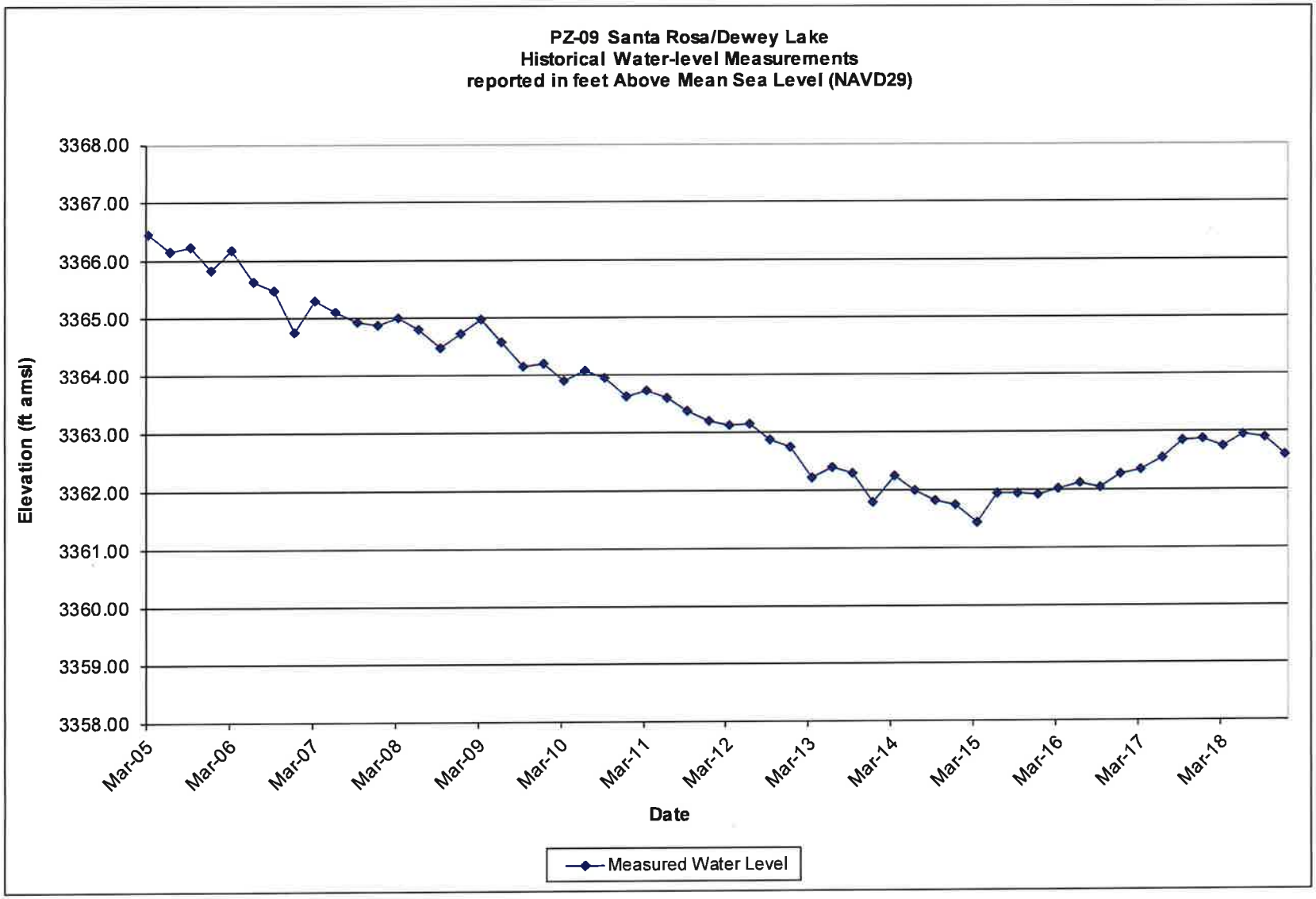
050096


PZ-07 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Response to rain
Elevation (ft amsl)
3381.00
3380.00
3379.00
3378.00
3377.00
3376.00
3375.00
3374.00
3373.00
3372.00
3371.00
Mar-05
Mar-06
Mar-07
Mar-08
Mar-09
Mar-10
Mar-11
Mar-12
Mar-13
Mar-14
Mar-15
Mar-16
Mar-17
Mar-18
Date
Measured Water Level

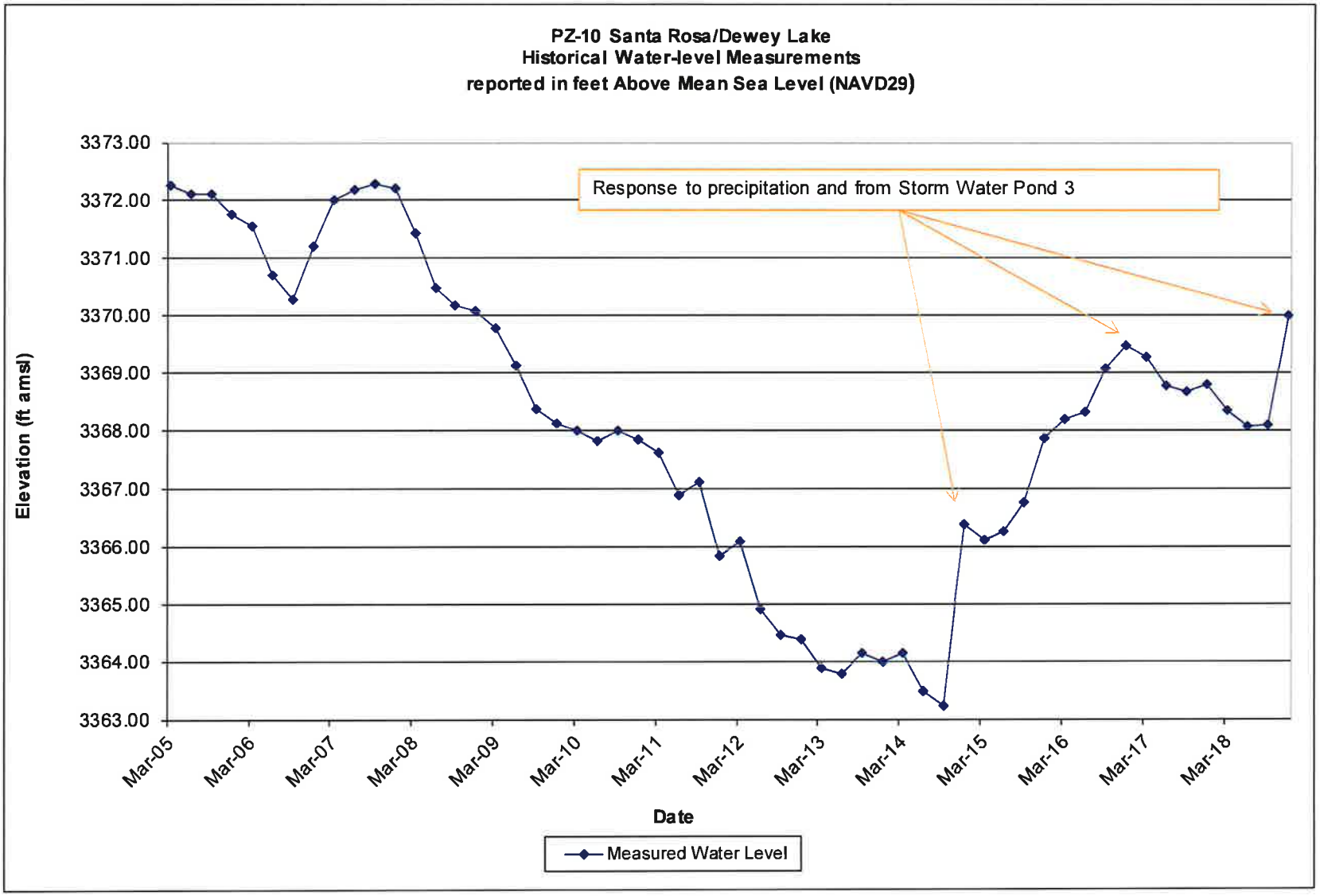
050097

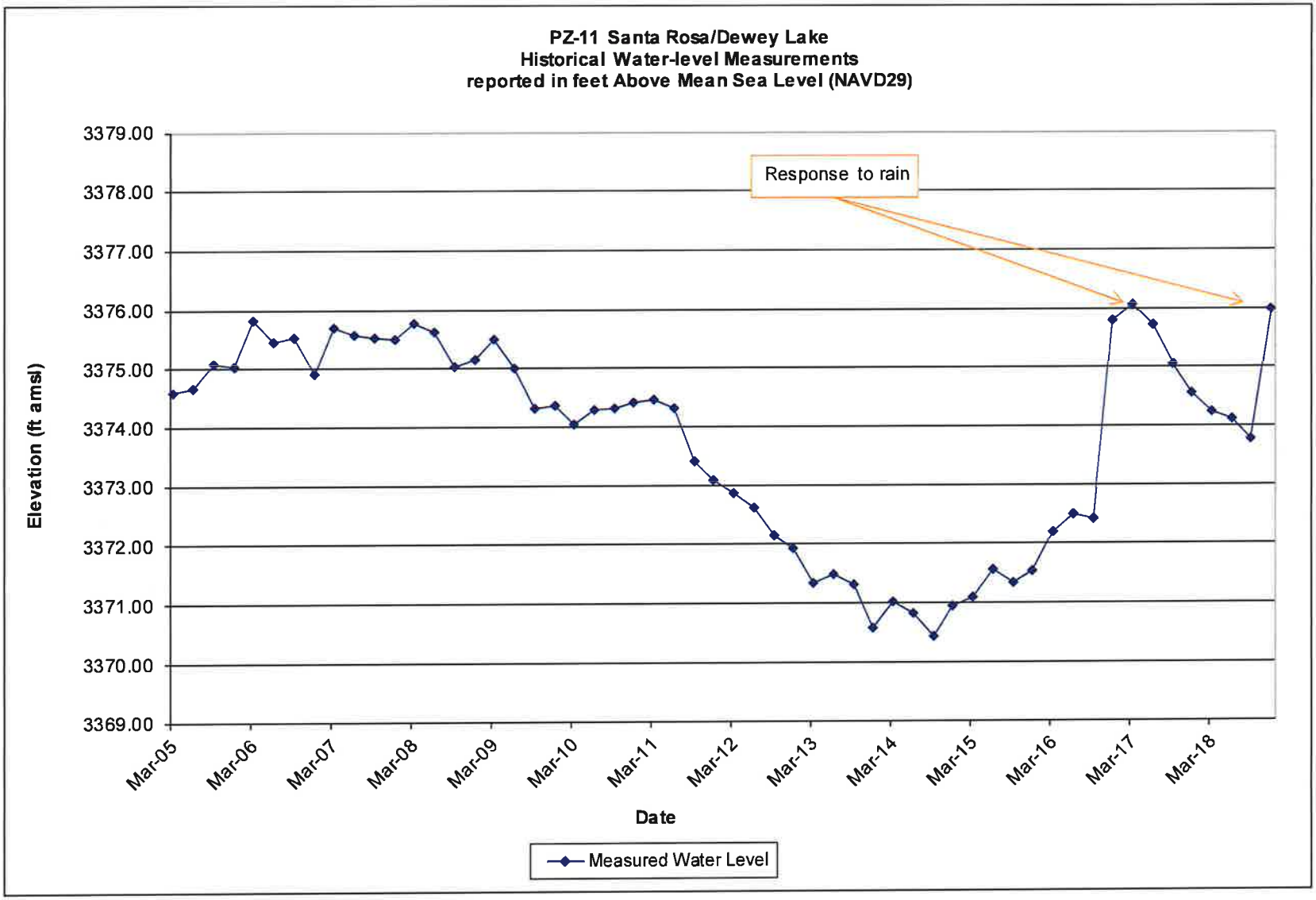

PZ-08 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3359.00
3358.00
3357.00
3356.00
3355.00
3354.00
3353.00
3352.00
3351.00
3350.00
3349.00
Well plugged and abandoned
Mar-12
Mar-13
Mar-14
Mar-15
Mar-16
Mar-17
Mar-18
Date
Measured Water Level

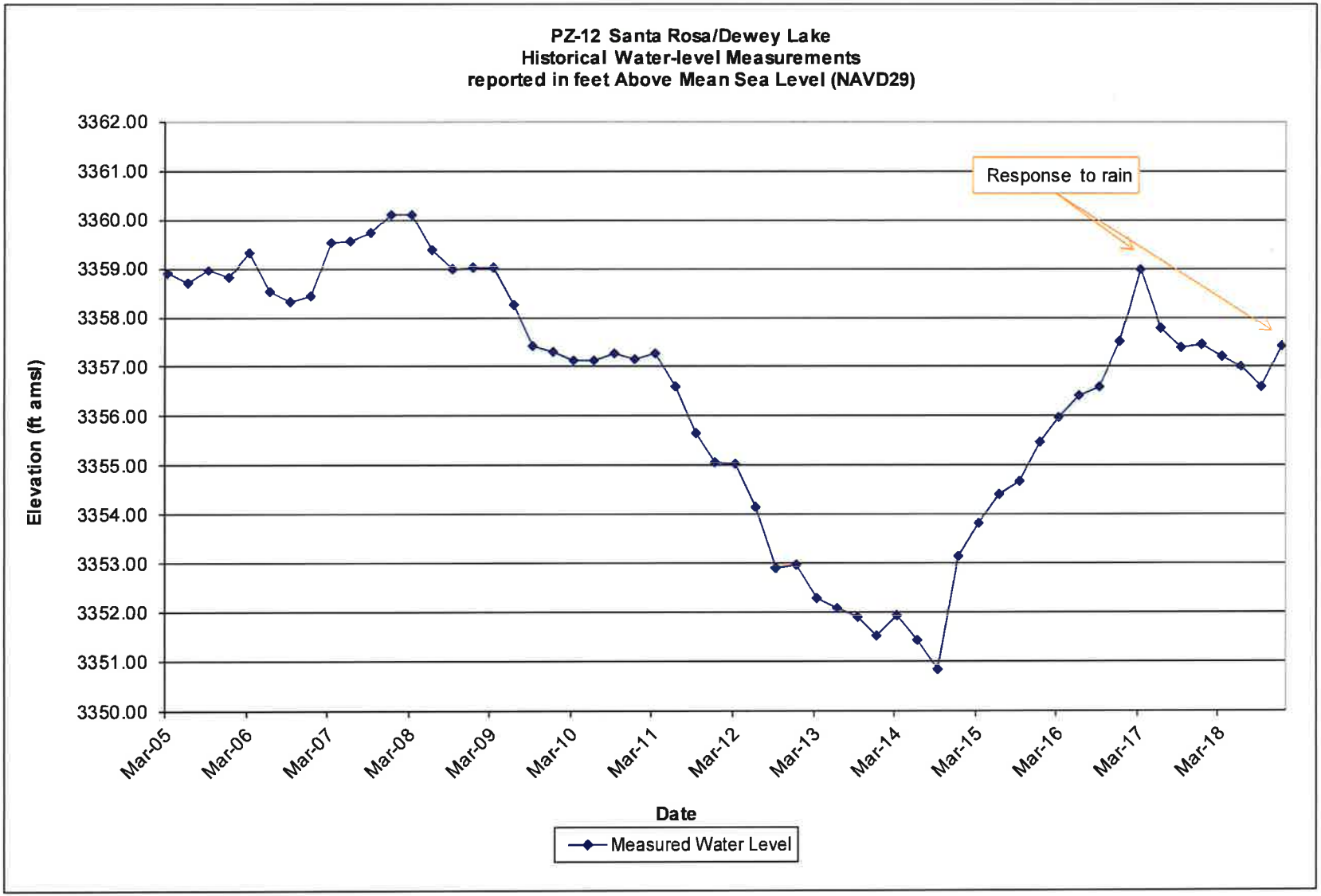
050098

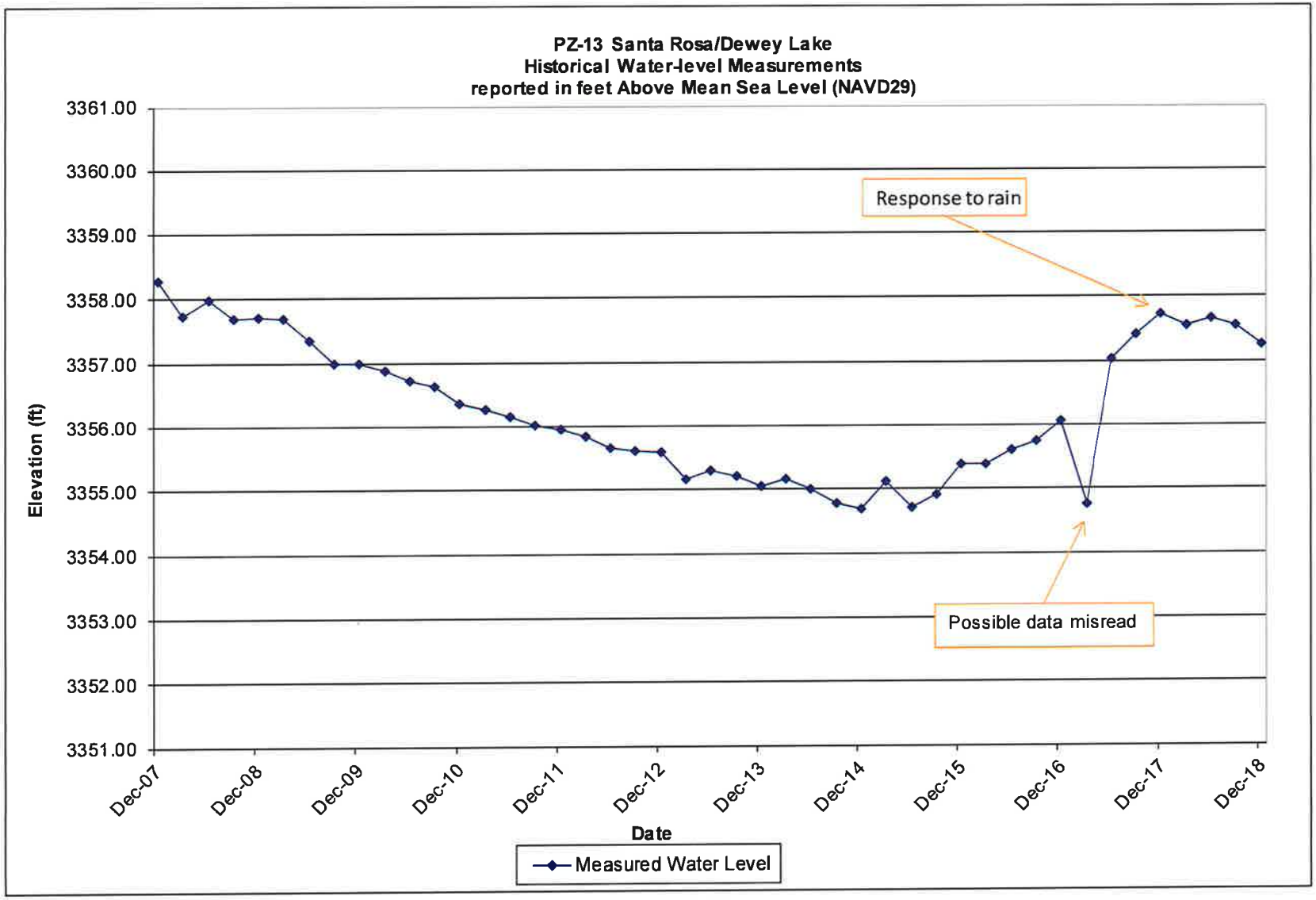

PZ-09 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
3362.00
3361.00
3360.00
3359.00
3358.00
Mar-05
Mar-06
Mar-07
Mar-08
Mar-09
Mar-10
Mar-11
Mar-12
Mar-13
Mar-14
Mar-15
Mar-16
Mar-17
Mar-18
Date
Measured Water Level

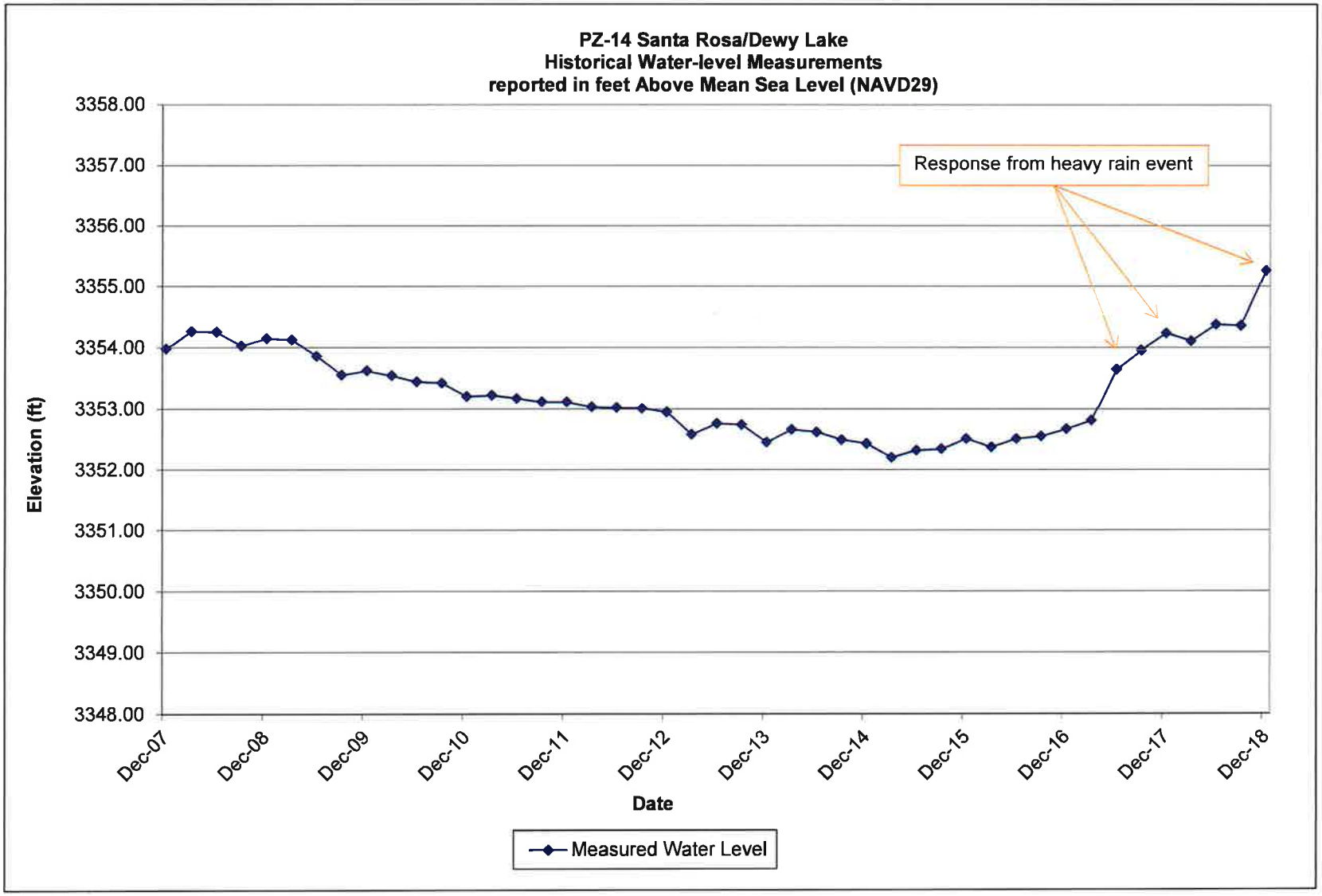
050099

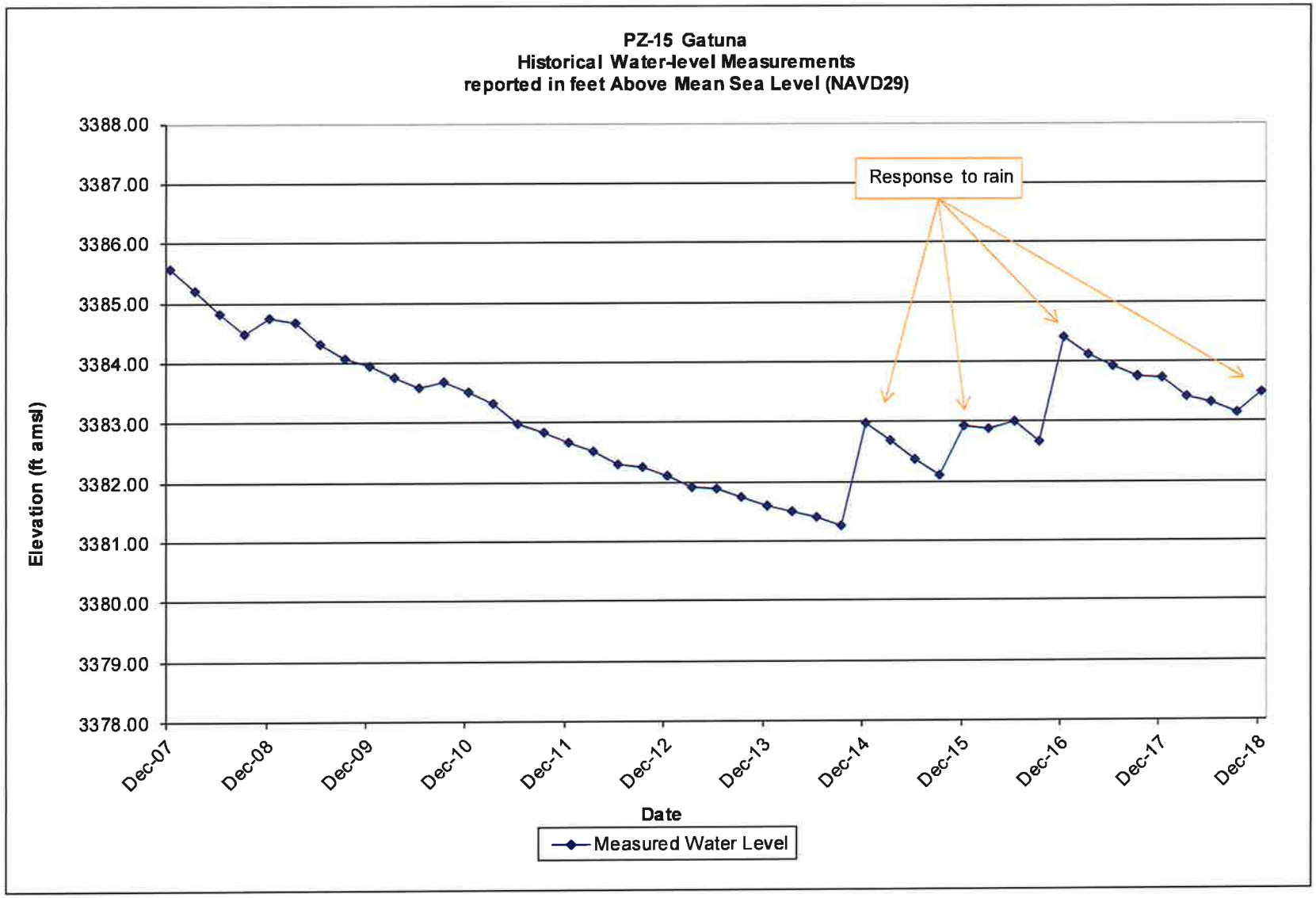

PZ-10 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Response to precipitation and from Storm Water Pond 3
Elevation (ft amsl)
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
Mar-05
Mar-06
Mar-07
Mar-08
Mar-09
Mar-10
Mar-11
Mar-12
Mar-13
Mar-14
Mar-15
Mar-16
Mar-17
Mar-18
Date
Measured Water Level

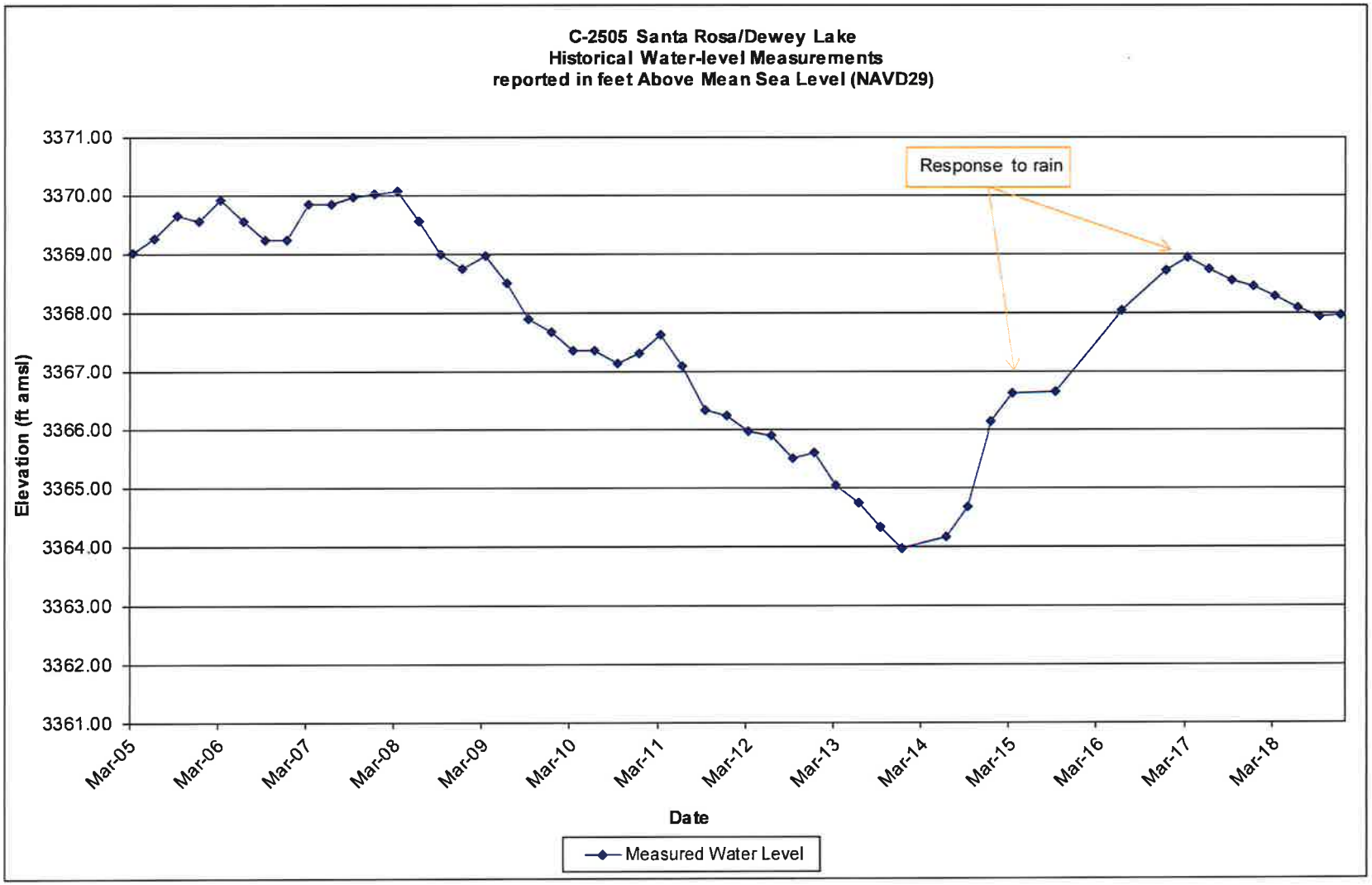

PZ-11 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Response to rain
Elevation (ft amsl)
3379.00
3378.00
3377.00
3376.00
3375.00
3374.00
3373.00
3372.00
3371.00
3370.00
3369.00
Mar-05
Mar-06
Mar-07
Mar-08
Mar-09
Mar-10
Mar-11
Mar-12
Mar-13
Mar-14
Mar-15
Mar-16
Mar-17
Mar-18
Date
Measured Water Level

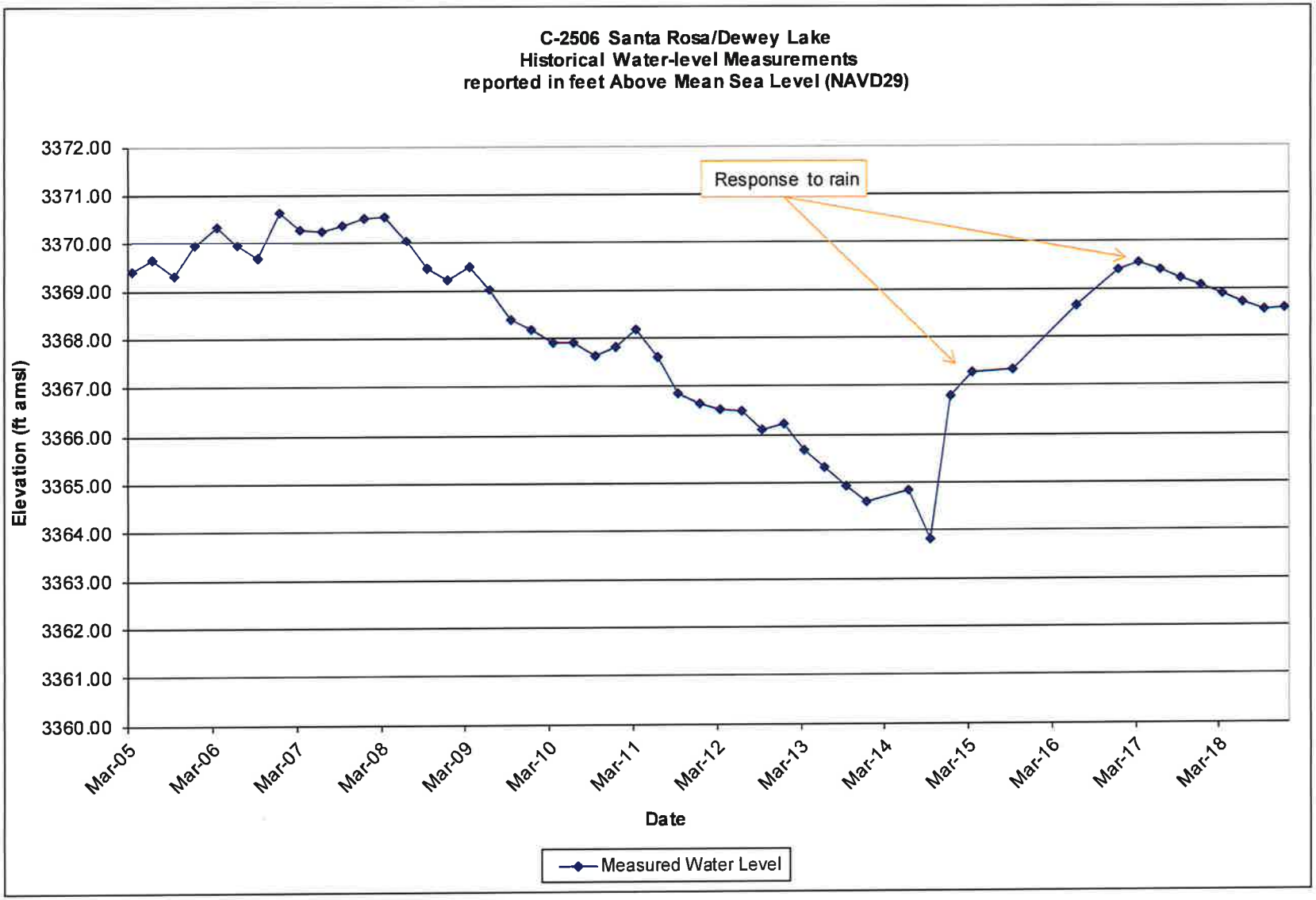

PZ-12 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Response to rain
Elevation (ft amsl)
3362.00
3361.00
3360.00
3359.00
3358.00
3357.00
3356.00
3355.00
3354.00
3353.00
3352.00
3351.00
3350.00
Mar-05
Mar-06
Mar-07
Mar-08
Mar-09
Mar-10
Mar-11
Mar-12
Mar-13
Mar-14
Mar-15
Mar-16
Mar-17
Mar-18
Date
Measured Water Level

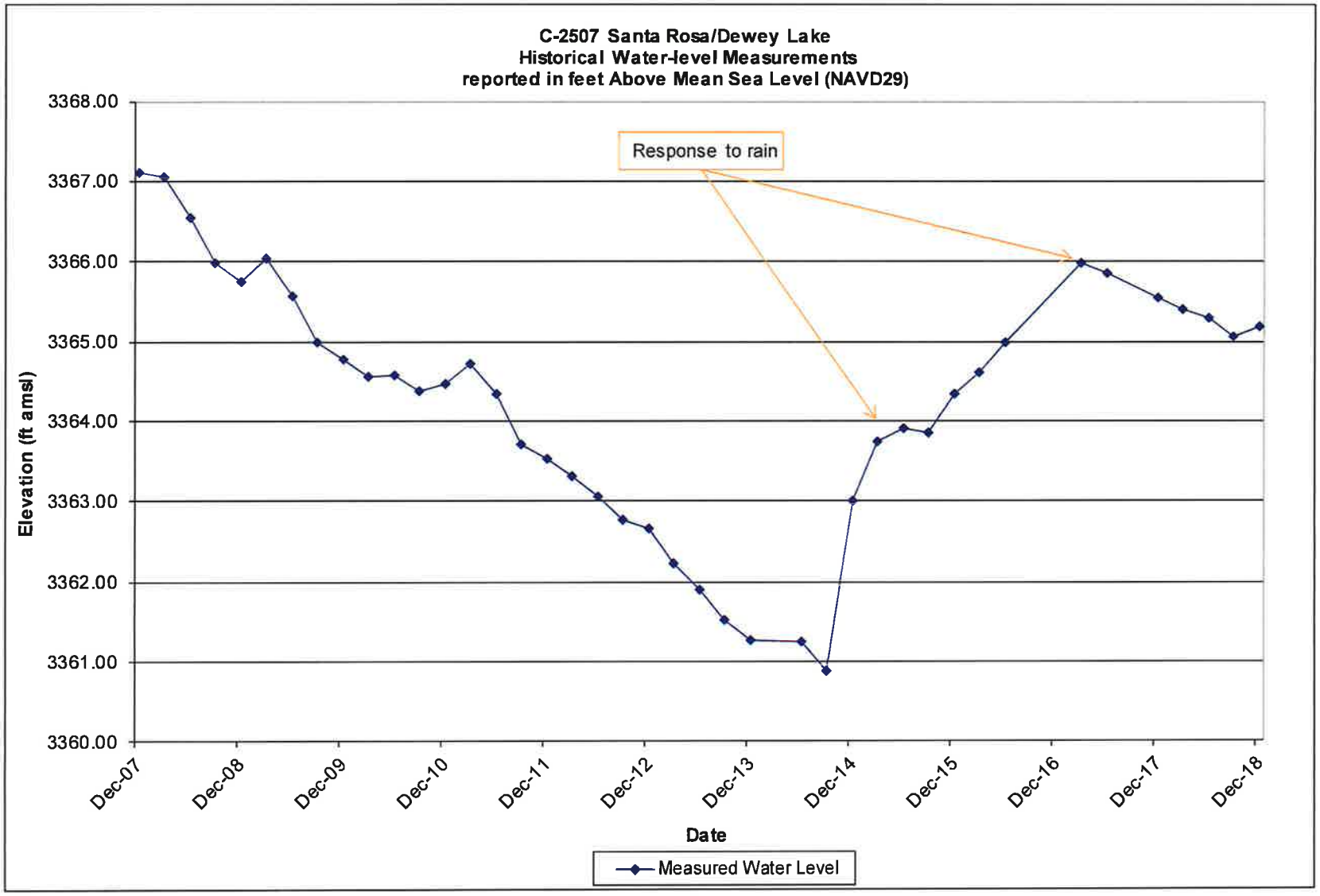

PZ-13 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft)
3361.00
3360.00
3359.00
3358.00
3357.00
3356.00
3355.00
3354.00
3353.00
3352.00
3351.00
Response to rain
Possible data misread
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Dec-18
Date
Measured Water Level

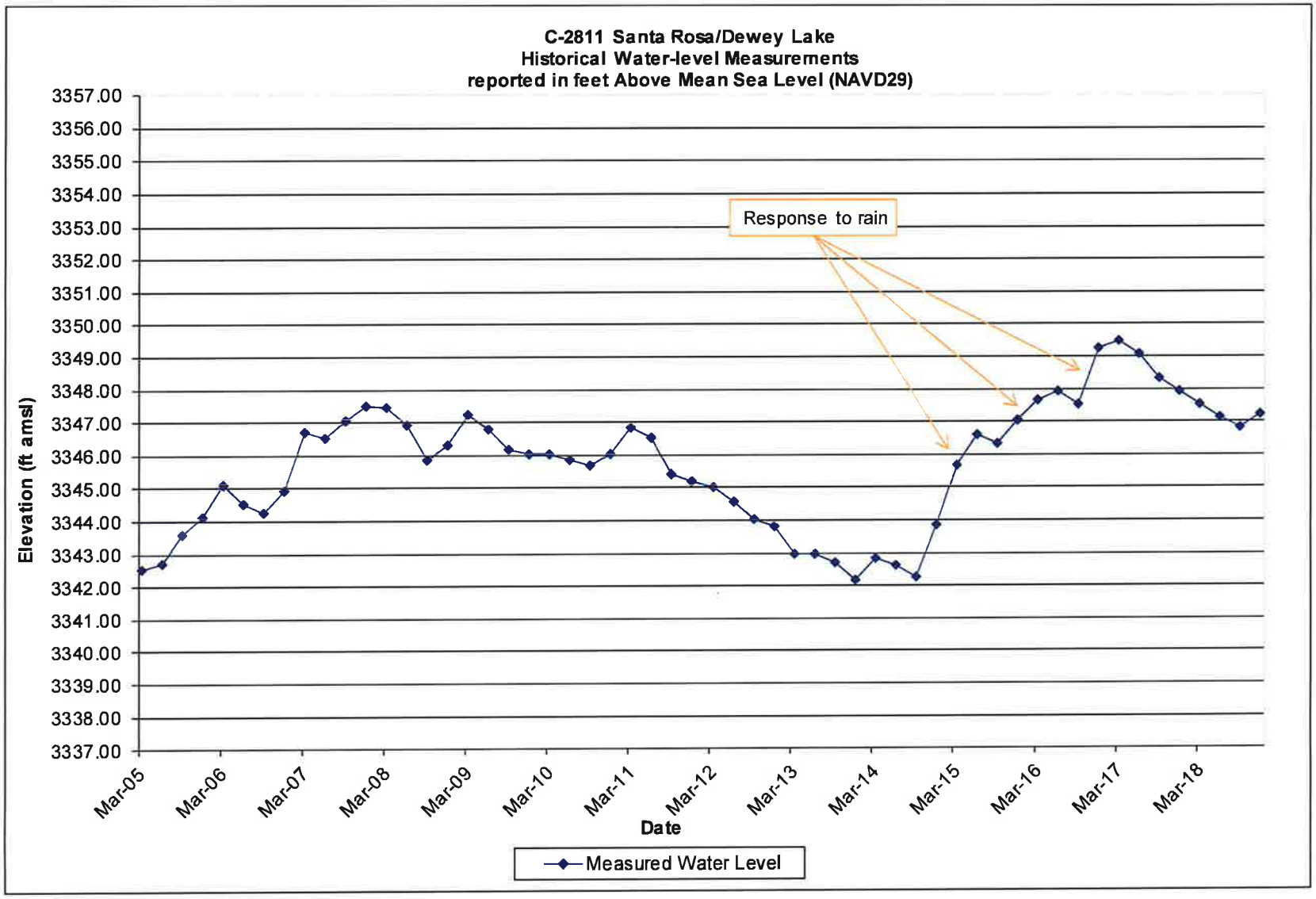

PZ-14 Santa Rosa/Dewy Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Response from heavy rain event
Elevation (ft)
3358.00
3357.00
3356.00
3355.00
3354.00
3353.00
3352.00
3351.00
3350.00
3349.00
3348.00
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Dec-18
Date
Measured Water Level

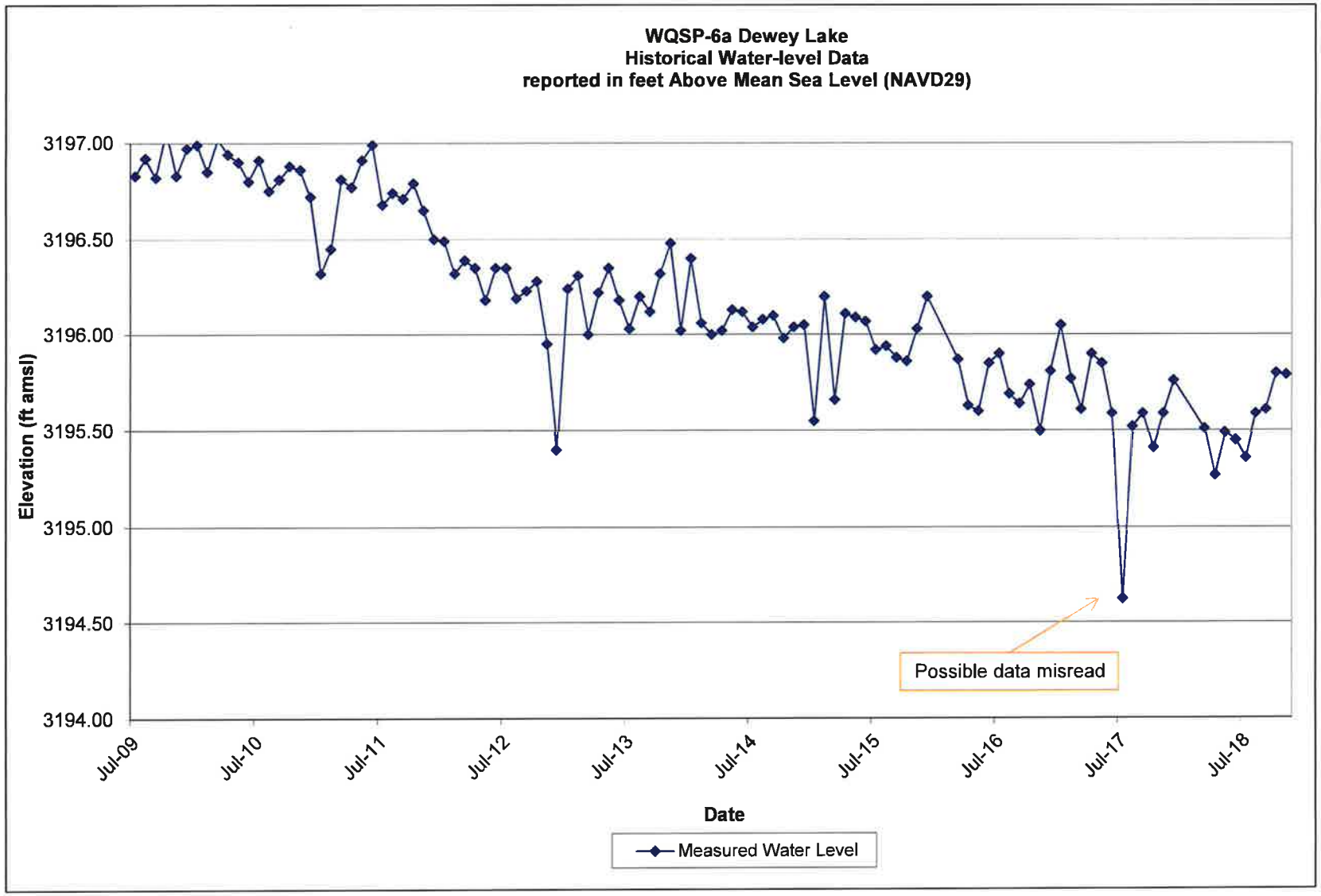

PZ-15 Gatuna
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Response to rain
Elevation (ft amsl)
3388.00
3387.00
3386.00
3385.00
3384.00
3383.00
3382.00
3381.00
3380.00
3379.00
3378.00
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Dec-18
Date
Measured Water Level


C-2505 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Response to rain
Elevation (ft amsl)
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
3362.00
3361.00
Mar-05
Mar-06
Mar-07
Mar-08
Mar-09
Mar-10
Mar-11
Mar-12
Mar-13
Mar-14
Mar-15
Mar-16
Mar-17
Mar-18
Date
Measured Water Level


C-2506 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Response to rain
Elevation (ft amsl)
3372.00
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
3362.00
3361.00
3360.00
Mar-05
Mar-06
Mar-07
Mar-08
Mar-09
Mar-10
Mar-11
Mar-12
Mar-13
Mar-14
Mar-15
Mar-16
Mar-17
Mar-18
Date
Measured Water Level


C-2507 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Response to rain
Elevation (ft amsl)
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
3362.00
3361.00
3360.00
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Dec-18
Date
Measured Water Level


C-2811 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Response to rain
Elevation (ft amsl)
3357.00
3356.00
3355.00
3354.00
3353.00
3352.00
3351.00
3350.00
3349.00
3348.00
3347.00
3346.00
3345.00
3344.00
3343.00
3342.00
3341.00
3340.00
3339.00
3338.00
3337.00
Mar-05
Mar-06
Mar-07
Mar-08
Mar-09
Mar-10
Mar-11
Mar-12
Mar-13
Mar-14
Mar-15
Mar-16
Mar-17
Mar-18
Date
Measured Water Level


WQSP-6a Dewey Lake
Historical Water-level Data
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3197.00
3196.50
3196.00
3195.50
3195.00
3194.50
3194.00
Jul-09
Jul-10
Jul-11
Jul-12
Jul-13
Jul-14
Jul-15
Jul-16
Jul-17
Jul-18
Possible data misread
Date
Measured Water Level

Discharge to Facultative Lagoon System
July Through December 2018

Date	Gallons Domestic Water	Gallons for the Month	Avg. Gal per day	Comments
7/2 - 7/8	81,912			
7/9 - 7/15*	110,971			Meter will not zero
7/16 - 7/22*	110,971			Meter will not zero
7/23 - 7/29*	110,971	414,825	14,815	Meter will not zero
7/30 - 8/5*	110,971			Meter will not zero
8/6 - 8/12	93,677			
8/13 - 8/19	94,900			
8/20 - 8/26	91,457			
8/27 - 9/2	180,971	571,976	16,342	
9/3 - 9/9	89,235			
9/10 - 9/16	82,180			
9/17 - 9/23	170,111			
9/24 - 9/30	85,237	426,763	15,242	
10/1 - 10/7	89,956			
10/8 - 10/14	183,778			
10/15 - 10/21	84,028			
10/22 - 10/28	81,719	439,481	15,696	
10/29 - 11/4	59,677			
11/5 - 11/11	63,549			
11/12 - 11/18	61,029			
11/19 - 11/25	63,980			
11/26 - 12/2	45,746	293,981	8,399	
12/3 - 12/9	69,266			
12/10 - 12/16	68,776			
12/17 - 12/23	65,240			
12/24 - 12/30	62,531	265,813	9,493	
	Total Flow	2,412,839	13,257	

*Gallons Domestic Water estimated by using the average of August and September known flows. The water flow meter would not zero during these weeks.

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 7-2-18 **End Date:** 7-8-18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		BA		BA		BA		BA		R		R		R	
				FOT	C/O	MK		DP		MK		DP		JG		JG		JG	
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		① ②	① ②		① ②		① ②		① ②		① ②		① ②		① ②	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	66	66		66		65		67		65		66		65	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		94757	89369													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		79021	81912													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	③ OOS	③ OOS		③ OOS		② OOS		② OOS		② OOS		② OOS		② OOS	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT					1.2														
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	~~1.4~~ 1.2 (R) 07/01/18			1.2		1.2		1.2		1.2		1.12		1.18	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 - IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Hydroclorinator Alarm Due to tank #2 TAGGED AR# 1736274 ② Low Level Alarm on Tank #1 AR# 1807346
③ out of Spec AR# 1729840

APPROVED FOR USE/DATE: [signature] 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 7/9/18 End Date: 7/15/18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O					JB QB		DJ		DJ	mc 7/13/18			ET.	
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①②	②		①②		①②		①②		①②		①②		①②	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	65	67		67		67		67		67		67		68	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		89369	6619.78 ④													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		81912	4685.71 ④													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS ③	OOS ③		OOS ③		OOS ③		OOS ③		OOS ③		OOS ③		OOS ③	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	1.18	1.1		1.03		.93		.72		1.03		1.10		.91	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
① HYDROCHLORINATOR ALARM #2 TANK TAGGED AR# 1736274
② LOW LEVEL ALARM TANK #1 AR 1807346
③ OUT OF SPEC AR# 1629840
④ METER WILL NOT ZERO AR# 1808800

APPROVED FOR USE/DATE: [signature] 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 7/16/18 **End Date:** 7/22/18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
			DAY	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
			SHIFT		(2)		(2)		(2)		AC		BT		BT		BT	
			REVIEWER	C/O	JG BB		JG		JG		JG		JG EC		N/A		MC	
			FOT															
ITEM	**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]	MK 7/15/18	✓	(1)(2)		(1)(2)		(1)(2)		(1)(2)		(1)(2)		(1)(2)		(1)(2)	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	(1)(2)	68		68		68		65		68		67		66	
456-FIY-010-001 WATER FLOW METER				(6)(7)	MK 7/15/18													
RAW WATER GALLONS (gal)		RESET MONDAY [A] 6680		OOS (5)	6679 (4)													
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A] 4600 (4)		↓	4605 (5)													
456-FM-045-001 SEWAGE FLOW METER				MK 7/15/18														
($) SEWAGE FLOW READING	N/A	[B]	230	OOS (3)	OOS (3)		OOS (3)		OOS (3)		OOS (3)		OOS (3)		OOS (3)		OOS (3)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.91	.88		.75		.72		.91		.91		.80		.74	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
(1) Hypochlorinator Alarm Tank #2 Tagged AR 1736274
(2) Low level Alarm #1 AR 1807346
(3) Out of Spec AR # 1629840
(4) Meter won't zero AR 1808800
(5) Can't turn on lights by door Lights AR# 1809173

APPROVED FOR USE/DATE: 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 07/23/18 **End Date:** 07/29/18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		NJ		NJ		NJ		NJ		P1P		AJA		AJA	
				FOT	C/O	DJ		DJ JB		DJ		DJ		JB		JB		JB	
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓ SAFF DJ 7-23-18		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]			① ②	① ②		① ②		① ②		① ②		① ②		① ②		① ②
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70		66	67		65		66		66		64		67		67
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]			6679 ④	6679 ④												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]			4605 ④	4605 ④												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230		OOS ③ ↓	OOS ③ ↓		OOS ③ ↓		OOS ③ ↓		OOS ③ ↓		OOS ③ ↓		OOS ③ ↓		OOS ③ ↓
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2		.74	1.07		1.20		1.20		.96		.73		1.17		.94

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
① Hypochlorinator Alarm Tank #2 Tagged AR# 17362 74
② Low level alarm #1 AR # 1807346
③ Out of spec, AR# 1629840
④ Meter won't zero AR # 1808800

APPROVED FOR USE/DATE: — 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 7-30-18 **End Date:** 8-5-18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		BY		BY		BY		BY		e		e		e	
				FOT	C/O	EC				DP				JG		JG			
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		0 ②	① ②		① ②		① ②		① ②		① ②		① ②		① ②	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	67	67		67		67		67		67		67		67	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		662990	667900													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		46050	46050													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS ③	OOS ③		OOS ③		OOS ③		OOS ③		OOS ③		OOS ③		OOS ③	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.94	1.0		1.0 ④		.85		.98		.89		1.1		.97	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Hypochlorinator Alarm tank #2 tagged AR# 1732274 ② Low level alarm #1 AR# 1807346
③ out of spec AR# 1629840
④ Meter won't zero out AR# 1808800
⑤ AR 1809603 For broken valve handle on chlorine line, behind Tank 1

APPROVED FOR USE/DATE: [signature] 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 8-5-18 (8-6-18) End Date: 8-12-18

Location: 458, GUARD & SECURITY BUILDING / 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		A		PHO		A		Ae		J		J		J	
				FOT	C/O	JB		JB		JB		JB		DJ		DJ		R.T.	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		① ②	① ②		① ②		① ②		① ②		① ②		① ②		① ②	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	67	65		67		67		67		67		67		68	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			6679 ④	95574													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			4605 ④	93677													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	005 ③ ↓	005 ③ ↓		005 ③ ↓		005 ③ ↓		005 ③ ↓		005 ③ ↓		005 ③ ↓		005 ③ ↓	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.97	.97		.75		.87		1.17		.78		1.15		1.05	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
1) Hypochlorinter Alarm tank #2 tagged AR# 1206274
2) low level alarm #1 AR# 1807346
3) out of spec AR # 1629840
4) meter wont zero out AR # 1808800 / AR# 1808800 Complete
5) AR 1809663 for broken value handle on Chlorine line behind tank

APPROVED FOR USE/DATE: [signature] 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 8-13-18 **End Date:** 8-19-18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		R		R		R		R		R		R		R	
				FOT	C/O	JP JT		JP JT		JP JT		JP JT		JP		JP		JP	
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		① ②	① ②		① ②		(1) (2)		① ②		① ②		① ②		① ②	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	68	68		68		65		68		67		67		67	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		95574	125272													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		93677	94900													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	005 ③	005 ③		005 ③		005 ③		005 ③		005 ③		005 ③		005 ③	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	1.05	1.01		0.86		0.87		1.2		1.10		1.02		1.09	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
1) HYPOCHLORINATOR ALARM TANK #2 TAGGED AR # 126274
2) LOW LEVEL ALARM #1 AR # 1807346
3) OUT OF SPEC AR # 1629840
NOTE: AR # 1809663 FOR BROKEN VALVE HANDLE ON CHLORINE LINE BEHIND TANK

APPROVED FOR USE/DATE: [signature] — 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 8-20-18 **End Date:** 8-26-18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
			DAY															
			SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
			REVIEWER		NJ		AE		NJ		mc							
			FOT	C/O	KT		DJ		KT		DJ		JB		JB		AM	
ITEM	**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		① ②	① ②		① ②		① ②		① ②		① ②		① ②		① ②	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	67	67		68		66		67		67		67		67	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		125272	230041													
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		94900	91457													
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	005 ③	005 ③		005 ③		005 ③		005 ③		005 ③		005 ③		005 ③	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	1.09	.93		.83		.76		1.15		.84		.89		.91	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
1) Hypochlorinator tank #2 tagged AR# 126274
2) Low level alarm #1 AR# 1807346
3) Out of spec AR# 1629840

APPROVED FOR USE/DATE: — 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 8/27/18 End Date: 9/2/18

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

		SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
DAY		2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
SHIFT			BA		BS		BS		BA		R		R		R	
REVIEWER																
FOT		C/O			EC		Q7		Q7		Q7		Q7			

ITEM	MIN	NORM	MAX	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]																
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70		67	68	67		61		66		68		68		65	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)	RESET MONDAY [A]			230041	458249													
DOMESTIC WATER GALLONS (gal)	RESET MONDAY [A]			91457	18097													
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230															
[NMED, DP-831] **Max 23,000 gal** (Reading × 100)			23,000															
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2		0.87	1.01	.99		.75		.66 Q7 8-30-18		0.67		0.66		1.20	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
① Hypochlorinator tank #2 tagged AR # 126274
② Low level alarm #1 AR # 1307346
③ Out of Spec AR # 1629840
④ DOMESTIC WATER KILL VALVE IS BROKE - CHLORINE CAN NOT BE ADDED cleared 9-2-18

APPROVED FOR USE/DATE: 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 9-3-18 End Date: 9-9-18

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

				SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
			DAY	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
			SHIFT															
			REVIEWER															
			FOT	C/O	JB 28		JB						ET.					
ITEM	**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]																
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	68	68		64		65		66		67		66		68	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		456249	195774													
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		180971	89235													
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	OOS(3)	OOS(3)		OOS(3)		OOS(3)		OOS(3)		OOS(3)		OOS(3)		OOS(3)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	1.20	1.18		1.10		1.16		1.09		1.03		.93		.88	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
1) Hypochlorinator tank #2 tagged AR# 1262774
2) Low level alarm #1 AR # 1807346
3) out of spec AR# 1629840

APPROVED FOR USE/DATE: 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 9-10-18 End Date: 9-16-18

Location: 458, GUARD & SECURITY BUILDING 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		(B)		(B)		(B)		(B)		BT		BT		BT	
				FOT	C/O	✓		✓		✓		✓		✓		DP		✓	
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		(1)(2)	(1)(2)		(1)(2)		(1)(2)		(1)(2)		(1)(2)		(1)(2)		(1)(2)	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	68	65		68		68		68		68		67		68	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		195774	151526													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		89235	82180													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS(3)	OOS(3)		OOS(3)		OOS(3)		OOS(3)		OOS(3)		OOS(3)		OOS(3)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.88	.89		.80		.79		.81		1.2		1.24		1.21	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: 1. Hypochlorinator tank #2 AR submitted AR# 1262744
2. Low level alarm #1 AR# 1807346
3. Out of spec AR # 1629845

APPROVED FOR USE/DATE: [signature] 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 9-17-18 End Date: 9-23-18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		NJ		NJ		NJ		NJ		PJP		PJP		PJP	
				FOT	C/O DT					ET.						JB		JB	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		① ②	① ②		① ②		① ②		① ②		②		②		②	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	68	67		67		66		66		67		69		69	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			151326	337170													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			82180	170111													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS ③ ↓	OOS ③ ↓		OOS ③ ↓		OOS ③ ↓		OOS ③ ↓		OOS ③ ↓		OOS ③ ↓		OOS ③ ↓	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	1.2	1.16		1.05		.99		.92		.89		.70		.83	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: 1) Hydrochlor water tank 2 AR# 1726794 TANK REPLACED 9/19/18.
2) Low level Alarm AR# 1807346 on tank #1 only.
3) out of Spec AR# 1629840

APPROVED FOR USE/DATE: [signature] 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 09/24/18 End Date 9/30/18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		BA		BA		BA		BA		CB		NJ		CB	
				FOT	C/O	EC		EC		97		97		RT		RT		RT	
ITEM	MIN	NORM	MAX																
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓ ✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS [F]		SAT [G]			①	①		①		①		①		①		① ①		①	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70		68	68		67		69		69		68		68		68	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS (gal)	RESET MONDAY [A]				337170	194966													
DOMESTIC WATER GALLONS (gal)	RESET MONDAY [A]				170 111	8837													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING	N/A	[B]	230		OOS ②	OOS ②		OOS ②		OOS ②		OOS ②		OOS ②		OOS ② OOS ②		OOS ②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000		↓	↓		↓		↓		↓		↓		↓ ↓		↓	
HACH TEST KIT																Lt. 9-25-18			
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2		0.83	1.3 ③		1.3 ③		1.3 ③		1.1		1.09		0.92		1.02	

NOTES:
- [A] - RESET meter after taking the reading on Monday
- [B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 - IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
- [C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications
- [D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
- [E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
- [F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
- [G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
① Low level ala on ~~tank 2 AR# 126274~~ R7 9-23-18 AR # 1807346
② Out of Spec AR # 16 9840
③ OUT OF SPEC FSM NOTIFIED

APPROVED FOR USE/DATE [signature] 9/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 10-1-18 **End Date:** 10-7-18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		PIA		AC		PIA		AC		JK		JK		JK	
				FOT	C/O	JB		JB		JB		JB		JK		JK		JK	
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①	①		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	69	69		69		68		69		68		69		69	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		194966	295653													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		35237	89956													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS②	OOS②		OOS②		OOS②		OOS②		OOS②		OOS②		OOS②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	1.02	.70		1.14		1.15		.96		1.04		0.87		0.98	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Low level alarm AR# 1807346
② Out of Spec. AR# 1629840

APPROVED FOR USE/DATE: — 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 10-8-18 **End Date:** 10-14-18

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
	REVIEWER		G		B		B		ME		M		M		M	
	FOT	C/O	✓		✓		✓ AT 10-9-18		✓		97		97		97	

ITEM	MIN	NORM	MAX	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]																
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	① 69	① 68		① 67		① 67 AT 10-9-18		① 69		① 63		① 69		① 68	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		295653	57828.9													
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		89956	183778													
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	OOS ②	OOS ②		OOS ②		OOS ②		OOS ②		OOS ②		OOS ②		OOS ②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000															
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	0.98	.83		.79		1.2		1.07		1.09		.97		.99	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① LOW LEVEL ALARM AR # 1807346
② OUT OF SPEC. AR # 1629840

APPROVED FOR USE/DATE: [signature] 4/16/18

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 10/15/18 End Date: 10/21/18

Location: 458, GUARD & SECURITY BUILDING 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O	R.T.		R.T.				R.T.							
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		(1)	(1)		(1)		(1)		(1)		(1)		(1) (3)		(1) (3)	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	68	67		68		68		68		65		(3)		(3)	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		57828.9	308124													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		183778	84028													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS (2)	OOS (2)		OOS (3)		OOS (3)		OOS (2)		OOS (2)		OOS (2)		OOS (2)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.99	.87		.85		.82		.72		.73		(3)		(3)	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
(1) Low level alarm AR# 1807346
(2) out of spec AR# 1629840
(3) SYSTEMS TAGGED FOR WATER LEVEL INDICATOR REPLACEMENT

APPROVED FOR USE/DATE: 4/16/18

EA04AD3008-11-0
Rev. 6

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 10/22/18 End Date: 10/28/18

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

DAY / SHIFT / REVIEWER / FOT

ITEM	MIN	NORM	MAX	SUN	MON 1	MON 2	TUES 1	TUES 2	WED 1	WED 2	THURS 1	THURS 2	FRI 1	FRI 2	SAT 1	SAT 2	SUN 1	SUN 2
C/O					BA DP		BA DP		BA QT		BA JH		CB JH		CB		CB ET-JH 10-27-18	
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					UNSAT (4)		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]			(1) ✓		✓		✓		(1)		(1)		(1)		(1)	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70		68	69	68		69		65		68		68		65	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]			308124	29778.4												
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]			84028	80119.2												
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230		005 (2)	005 (2)	005 (2)		005 (2)		005 (2)		005 (2)		005 (2)		005 (2)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000		↓r	↓	↓		↓		↓		↓		↓		↓	
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2		(3)	1.1	1.2		1.2		0.95		0.97		.95		.81	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
1 Low level Alarm Ant# 180 7346
2 Out of spec AR # 162 9840
3 Systems TAGGED for water Level- Indicator Replacement — Cleared Domestic water Back IN service 10-21-18
4: FSM Notify

APPROVED FOR USE/DATE: [signature] — 4/16/18

EA04AD3008-11-0
Rev. 6

January 19, 2018
Page 1 of 1

05128

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 10/29/18 End Date: 11/4/18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		BJP		BJP		AL		K		M		M		M	
				FOT	C/O	JB		✓		JB		JB		Q		L.T.		Q	
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	65	68		64		68		67		69		69		69	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		~~OOS~~	1923761													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		80719	59677.0													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS ②	OOS ②		OOS ②		OOS ②		OOS ②		OOS ②		OOS ②		OOS ②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.81	.71		1.2		1.15		1.08		1.17		.98		1.01	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① LOW LEVEL ALARM AR 180 7346 / NO alarms 10-29-18
② OOS AR # 1629840

APPROVED FOR USE/DATE: — 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 11/05/2018 **End Date:** 11/11/2018

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		B		B		B		B		B		B		B	
				FOT	C/O	90		JG		JG		JG 11/7/18		D		MC		D	
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		(1)		(2)	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	69	67		67		65		67		66		65		66	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		192376.6	638851.1													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		59677.0	63549.1													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS (1)	OOS (1)		OOS (1)		OOS (1)		OOS (1)		OOS (1)		OOS (1)		OOS (1)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	1.01	.95		.93		.89		JG 11-2-18 .99 .77		1.0		.93		.79	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) OOS AR # 1629840
(2) The back-up battery (UPS #2) constantly alarms because it won't hold charge. System is shut down because of annoyance factor. "Hector" told S.C. that a new one is ordered.

APPROVED FOR USE/DATE: — 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 11/2/18 End Date: 11/8/18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		MC		MC				MC		PJP		PJP		PJP	
				FOT	C/O			RT				RT				JB			
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓ (2)		(2)		(2)		(2)		(2)		(2)	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	67	67		67		67		68		67		68		67	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			258254	91238													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			63549.1	61025													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS (1)	OOS		OOS (1)		OOS		OOS (1)		OOS (1)		OOS (1)		OOS (1)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.79	.99		.81		.83		.73 (3)		.98		.72 (3)		1.0	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) OOS AR# 1629840
(2) UPS needs battery replacement on CMS Computer - Deputy Fac Ops Manager notified.
(3) Added Chlorine

APPROVED FOR USE/DATE: [signature] — 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 11/19/18 End Date: 11/25/18

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
DAY	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
SHIFT															
REVIEWER	C/O	EC		mc		mc		97		JG		22		22	
FOT															

ITEM	MIN	NORM	MAX	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D] -																		
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]			✓		—		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70		67	66		68		68		68		65		68		68
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]			91238	53,292												
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]			61029	63,980												
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230		OOS ②	OOS ②		OOS		OOS		OOS ②		OOS ②		OOS ②		OOS ②
[NMED, DP-831] **Max 23,000 gal** (Reading × 100)			23,000		↓	↓		↓		↓		↓		↓		↓		↓
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2		1.0	1.02		0.98		1.00		.98		.81		0.98		1.07

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① UPS NEEDS BATTERY REPLACEMENT ON CMS COMPUTER - DEPUTY FAC OPS MANAGER NOTIFIED
② O.O.S. - AR# 1629840

APPROVED FOR USE/DATE: — 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 11-26-2018 End Date: 12-02-2018

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
DAY	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
SHIFT															
REVIEWER				PJA											
FOT C/O		JB		~		RV JB		RV ~		RV DJ		RT.		RT.	

ITEM	MIN	NORM	MAX	SUN 2	MON 1	MON 2	TUES 1	TUES 2	WED 1	WED 2	THURS 1	THURS 2	FRI 1	FRI 2	SAT 1	SAT 2	SUN 1	SUN 2
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]				①	①		①		①		①		①		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		✓	✓		✓		✓		✓		~		✓		✓	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	68	66		67		66		65		66		68		67	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		53,292	54,529													
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		63,980	45 746													
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	OOS ②	OOS ②		OOS ②		OOS ②		OOS ②		OOS ②		OOS ②		OOS ②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000															
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	1.07	1.10		1.22 1.10		1.00		.99		.95		.84		.74 ③	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
① UPS NEEDS BATTERY REPLACEMENT ON CMS COMPUTER - DEPUTY FAC OPS MANAGER NOTIFIED (Cleared 12-1-18)
② OOS AR#1629840
③ Tried to add chlorine with both pumps, Both are deadheaded, Appears chlorine line is clogged AR# 1815096

APPROVED FOR USE/DATE: 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 12-3-18 End Date: 12-9-18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		RJG		RJG		RT		JG							
				FOT	C/O					RT. 12-4-18									
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	67	67		65		67		65		66		67		67	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			54,529	66,950													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			45,746	69,266													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	005 ③	005 ②		005 ②		005 ②		005 ②		005 ②		005 ②		005 ②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.74 ③	.80		.73		1.2		1.2		1.2		1.2		1.2	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:

② 005 AR # 1629840

③ TRIED TO ADD CHLORINE WITH BOTH PUMPS, BOTH ARE DEADHEADED, APPEARS CHLORINE LINE IS CLOGGED. FSM NOTIFIED AR # 1815096

APPROVED FOR USE/DATE: [signature] — 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 121018 End Date: 121618

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O	RN RT.		RN Xm				AB		JB		GB			
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						(1)		(1)		(1)		(1)		(1)		(1)		(1)	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	67	67		67		68		66		66		66		66	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		66950	50334													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		69266	68776													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS (2) ↓	OOS (2) ↓		OOS (2) ↓		OOS (2) ↓		OOS (2) ↓		OOS (2) ↓		OOS (2) ↓		OOS (2) ↓	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	1.2	1.24		1.06		1.05		.80		.66 (3)		.92		.83	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (2) OOS AR # 1629840
(1) UPS BATTERY NEEDS REPLACEMENT
(3) ADDED CHLORINE

APPROVED FOR USE/DATE: [signature] — 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 12/17/18 **End Date:** 12/23/18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O	MC				EC				JG		JG		27	
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	66	67		65.6		69		68		67		67		68	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		50334	66411													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		68776	65240													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS (2)	OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		6	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.83	.86		1.12		1.2		1.15		1.02		1.11		1.05	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) UPS BATTERY NEEDS REPLACEMENT
(2) OOS AR 162 9840

APPROVED FOR USE/DATE: [signature] 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 12/24/18 **End Date:** 12/30/18

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		PJP JB		PJP		PJP		PJP							
				FOT	C/O			~		RV		RV				07		RT	
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	68	68		68		66		67		68		68		67	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		66411	75700													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		65240	62531													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS①	OOS①		OOS①		OOS①		OOS①		OOS①		OOS①		OOS①	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	1.05	.90		1.00		.92		1.00		1.01		1.09		1.11	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:

① OOS AR 1629840

APPROVED FOR USE/DATE: G — 4/16/18

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 16, 2018

Hnin Khaing
Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8966
FAX

RE: ENVIRONMENTAL OrderNo.: 1811011

Dear Hnin Khaing:

Hall Environmental Analysis Laboratory received 8 sample(s) on 11/1/2018 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued November 13, 2018.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1811011**
Date Reported: **11/16/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL
Lab ID: 1811011-001 **Matrix:** AQUEOUS

Client Sample ID: EC-SL2-20181031-1.3
Collection Date: 10/31/2018 8:48:00 AM
Received Date: 11/1/2018 8:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Nitrogen, Nitrate (As N)	ND	0.0655	0.500		mg/L	5	11/1/2018 1:12:53 PM	R55354

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-SL2-20181031-2.3
Project: ENVIRONMENTAL
Collection Date: 10/31/2018 8:52:00 AM
Lab ID: 1811011-002 **Matrix:** AQUEOUS **Received Date:** 11/1/2018 8:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
SM 4500 NORG C: TKN							Analyst: **CJS**	
Nitrogen, Kjeldahl, Total	130	5.68	10.0	D	mg/L	1	11/6/2018 9:20:00 AM	41370

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-SL2-20181031-3.3
Project: ENVIRONMENTAL
Collection Date: 10/31/2018 8:56:00 AM
Lab ID: 1811011-003 **Matrix:** AQUEOUS **Received Date:** 11/1/2018 8:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	104	1.82	5.00		mg/L	10	11/1/2018 1:37:43 PM	R55354
Sulfate	44.5	1.25	5.00		mg/L	10	11/1/2018 1:37:43 PM	R55354
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	700	200	200	*D	mg/L	1	11/8/2018 11:19:00 AM	41398

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-ELB-20181031-1.2
Project: ENVIRONMENTAL
Collection Date: 10/31/2018 8:30:00 AM
Lab ID: 1811011-004 **Matrix:** AQUEOUS **Received Date:** 11/1/2018 8:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	52700	2500	2500		mg/L	5E+	11/9/2018 1:59:36 PM	R55567
Sulfate	16900	627	2500		mg/L	5E+	11/9/2018 1:59:36 PM	R55567
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	108000	2000	2000	*D	mg/L	1	11/8/2018 11:19:00 AM	41398

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL
Lab ID: 1811011-005 **Matrix:** AQUEOUS

Client Sample ID: EC-ELB-20181031-2.2
Collection Date: 10/31/2018 8:30:00 AM
Received Date: 11/1/2018 8:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	60600	2500	2500		mg/L	5E+	11/9/2018 2:12:28 PM	R55567
Sulfate	19900	627	2500		mg/L	5E+	11/9/2018 2:12:28 PM	R55567
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	93600	2000	2000	*D	mg/L	1	11/8/2018 11:19:00 AM	41398

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL
Lab ID: 1811011-006 **Matrix:** AQUEOUS

Client Sample ID: EC-ELC-20181031-1.1
Collection Date: 10/31/2018 8:36:00 AM
Received Date: 11/1/2018 8:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	101000	5000	5000		mg/L	1E+	11/9/2018 2:25:21 PM	R55567
Sulfate	20500	1250	5000		mg/L	1E+	11/9/2018 2:25:21 PM	R55567
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	173000	2000	2000	*D	mg/L	1	11/8/2018 11:19:00 AM	41398

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-H19-20181031-1.1
Project: ENVIRONMENTAL
Collection Date: 10/31/2018 8:10:00 AM
Lab ID: 1811011-007 **Matrix:** AQUEOUS **Received Date:** 11/1/2018 8:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	90700	5000	5000		mg/L	1E+	11/9/2018 2:38:14 PM	R55567
Sulfate	522	12.5	50.0		mg/L	100	11/1/2018 3:54:11 PM	R55354
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	174000	2000	2000	*D	mg/L	1	11/8/2018 11:19:00 AM	41398

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL
Lab ID: 1811011-008 **Matrix:** AQUEOUS

Client Sample ID: EC-Blk-20181031-1.1
Collection Date: 10/31/2018 8:57:00 AM
Received Date: 11/1/2018 8:00:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	0.305	0.182	0.500	J	mg/L	1	11/1/2018 4:06:36 PM	R55354
Sulfate	ND	0.125	0.500		mg/L	1	11/1/2018 4:06:36 PM	R55354
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	ND	20.0	20.0		mg/L	1	11/8/2018 11:19:00 AM	41398

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1811011**

16-Nov-18

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R55354**	RunNo: **55354**
Prep Date:	Analysis Date: **11/1/2018**	SeqNo: **1842322** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.73	0.500	5.000	0	94.6	90	110			
Nitrogen, Nitrate (As N)	3.05	0.100	3.000	0	102	90	110			
Sulfate	11.7	0.500	12.50	0	93.3	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R55354**	RunNo: **55354**
Prep Date:	Analysis Date: **11/1/2018**	SeqNo: **1842324** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.500								
Nitrogen, Nitrate (As N)	ND	0.100								
Sulfate	ND	0.500								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R55354**	RunNo: **55354**
Prep Date:	Analysis Date: **11/1/2018**	SeqNo: **1842325** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.00	0.500	5.000	0	100	90	110			
Nitrogen, Nitrate (As N)	2.66	0.100	2.500	0	106	90	110			
Sulfate	9.92	0.500	10.00	0	99.2	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R55354**	RunNo: **55354**
Prep Date:	Analysis Date: **11/1/2018**	SeqNo: **1842334** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	8.12	0.500	8.000	0	102	90	110			
Nitrogen, Nitrate (As N)	5.10	0.100	4.800	0	106	90	110			
Sulfate	19.3	0.500	20.00	0	96.4	90	110			

Sample ID **1811011-008AMS**	SampType: **ms**	TestCode: **EPA Method 300.0: Anions**
Client ID: **EC-Blk-20181031-1.**	Batch ID: **R55354**	RunNo: **55354**
Prep Date:	Analysis Date: **11/1/2018**	SeqNo: **1842341** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.61	0.500	5.000	0.3047	86.2	77.5	116			
Sulfate	9.04	0.500	10.00	0	90.4	74.9	123			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1811011**

16-Nov-18

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL

Sample ID **1811011-008AMSD** SampType: **msd** TestCode: **EPA Method 300.0: Anions**
Client ID: **EC-Blk-20181031-1.** Batch ID: **R55354** RunNo: **55354**
Prep Date: Analysis Date: **11/1/2018** SeqNo: **1842342** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.59	0.500	5.000	0.3047	85.7	77.5	116	0.516	20	
Sulfate	9.06	0.500	10.00	0	90.6	74.9	123	0.244	20	

Sample ID **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R55354** RunNo: **55354**
Prep Date: Analysis Date: **11/1/2018** SeqNo: **1842346** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.9	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	101	90	110			
Sulfate	12	0.50	12.50	0	93.1	90	110			

Sample ID **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R55354** RunNo: **55354**
Prep Date: Analysis Date: **11/1/2018** SeqNo: **1842358** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.9	0.50	8.000	0	98.4	90	110			
Nitrogen, Nitrate (As N)	5.1	0.10	4.800	0	106	90	110			
Sulfate	19	0.50	20.00	0	96.2	90	110			

Sample ID **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R55354** RunNo: **55354**
Prep Date: Analysis Date: **11/1/2018** SeqNo: **1842370** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.6	90	110			
Nitrogen, Nitrate (As N)	3.1	0.10	3.000	0	102	90	110			
Sulfate	12	0.50	12.50	0	93.2	90	110			

Sample ID **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R55354** RunNo: **55354**
Prep Date: Analysis Date: **11/1/2018** SeqNo: **1842376** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.9	0.50	8.000	0	98.5	90	110			
Nitrogen, Nitrate (As N)	5.1	0.10	4.800	0	106	90	110			
Sulfate	19	0.50	20.00	0	96.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1811011**

16-Nov-18

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R55567**	RunNo: **55567**
Prep Date:	Analysis Date: **11/9/2018**	SeqNo: **1850508** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.8	90	110			
Sulfate	12	0.50	12.50	0	92.8	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R55567**	RunNo: **55567**
Prep Date:	Analysis Date: **11/9/2018**	SeqNo: **1850510** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R55567**	RunNo: **55567**
Prep Date:	Analysis Date: **11/9/2018**	SeqNo: **1850511** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	97.4	90	110			
Sulfate	9.6	0.50	10.00	0	96.2	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R55567**	RunNo: **55567**
Prep Date:	Analysis Date: **11/9/2018**	SeqNo: **1850520** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.4	90	110			
Sulfate	19	0.50	20.00	0	94.7	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R55567**	RunNo: **55567**
Prep Date:	Analysis Date: **11/9/2018**	SeqNo: **1850532** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.8	90	110			
Sulfate	11	0.50	12.50	0	91.1	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R55567**	RunNo: **55567**
Prep Date:	Analysis Date: **11/9/2018**	SeqNo: **1850548** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1811011**

16-Nov-18

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R55567**	RunNo: **55567**
Prep Date:	Analysis Date: **11/9/2018**	SeqNo: **1850548** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.4	90	110			
Sulfate	19	0.50	20.00	0	94.8	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R55567**	RunNo: **55567**
Prep Date:	Analysis Date: **11/9/2018**	SeqNo: **1850565** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.0	90	110			
Sulfate	11	0.50	12.50	0	91.3	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R55567**	RunNo: **55567**
Prep Date:	Analysis Date: **11/10/2018**	SeqNo: **1850577** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	96.9	90	110			
Sulfate	19	0.50	20.00	0	95.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1811011**

16-Nov-18

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL

Sample ID	**MB-41398**	SampType:	**MBLK**		TestCode:	**SM2540C MOD: Total Dissolved Solids**				
Client ID:	**PBW**	Batch ID:	**41398**		RunNo:	**55496**				
Prep Date:	**11/6/2018**	Analysis Date:	**11/8/2018**		SeqNo:	**1847858**	Units:	**mg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	**LCS-41398**	SampType:	**LCS**		TestCode:	**SM2540C MOD: Total Dissolved Solids**				
Client ID:	**LCSW**	Batch ID:	**41398**		RunNo:	**55496**				
Prep Date:	**11/6/2018**	Analysis Date:	**11/8/2018**		SeqNo:	**1847859**	Units:	**mg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1811011**

16-Nov-18

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL

Sample ID	**MB-41370**	SampType:	**MBLK**	TestCode:	**SM 4500 Norg C: TKN**					
Client ID:	**PBW**	Batch ID:	**41370**	RunNo:	**55422**					
Prep Date:	**11/5/2018**	Analysis Date:	**11/6/2018**	SeqNo:	**1844174**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	1.00								

Sample ID	**LCS-41370**	SampType:	**LCS**	TestCode:	**SM 4500 Norg C: TKN**					
Client ID:	**LCSW**	Batch ID:	**41370**	RunNo:	**55422**					
Prep Date:	**11/5/2018**	Analysis Date:	**11/6/2018**	SeqNo:	**1844175**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	9.66	1.00	10.00	0	96.6	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: WIPP | Work Order Number: 1811011 | RcptNo: 1

Received By: **Victoria Zellar** 11/1/2018 8:00:00 AM Victoria Zellar

Completed By: **Anne Thorne** 11/1/2018 10:10:04 AM Anne Thorne

Reviewed By: ENM 11/1/18

Labeled by: 11/01/18

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	FedEx		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 4 (<2 or >12 unless noted)

Adjusted? —

Checked by: AT 11/01/18

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: ____ Date ____

By Whom: ____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: ____

Client Instructions: ____

16. Additional remarks:

CUSTODY SEALS ON ALL SAMPLE BOTTLES/at 11/01/18

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.4	Good	Yes			

ENVIRONMENTAL CHAIN-OF-CUSTODY / REQUEST FOR ANALYSIS RECORD

Date Samples Shipped 10-31-18
Lab Contact Andy Freeman
Project Contact HNIN Ktains
Project Contact Phone (575)234-8972

CofC/RFA Control No. 10445
Carrier/Waybill Number Fed Ex
Lab PO Number 502542-4

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

Lab Report Delivery to:
PO Box 2078 Mail Stop 452-09
Carlsbad, NM 88221-2078

HEAL # 1811011

Sample Number	Date/Time Collected	Sample Type	Sample Quantity	Container Type	Preservative	Requested Analysis
EC-SL2-20181031-1.3	10-31-18 0848	Sewage	1 Liter	Plastic	≤4°C	Nitrate -001
2.3	0852		500 mL		H_2SO_4 to pH ≤2, ≤4°C	TKN -002
3.3	0856				≤4°C	Sulfate, Chloride, TDS
EC-ELB-20181031-1.2	0830					-004
2.2	0830					-005
EC-ELC-20181031-1.1	0836					-006
H19	0810					-007
Blk	0857					-008

Special Instruction Comments: Do Nitrate (1 liter setting Lagoon 2) within 48 hrs of collected time (10-31-18@ 0848)

Possible Hazards Nonhazard ____ Radiological ____ Sewage X Other ____ Sample Disposal: Return To Client ____ Disposal By Lab X

Signatures: (Name, Signature, Date and Time) **Laboratory Note Any Sample Discrepancies on "Special Instruction/Comment Line"

1. Relinquished By: Jerome Hernandez 10-31-18 1210
   Received By: Victoria V Gallan 11/1/18 8:00 FEDEX TEMP: 0.4 + (CF) 1.0 = 1.4 8:00 11/1/18
2. Relinquished By: ____
   Received By: ____
3. Relinquished By: ____
   Received By: ____
4. Relinquished By: ____
   Received By: ____

WP 02-EM3001- Environmental Monitoring | WHITE - Original to accompany samples | PINK - Field copy

05154

Water Level Measurement Field Data Sheet

From July to December Year 2018

Pond Name	Date	Time	Water Depth (ft)	Initials	Comments
Salt Storage Pond 2	07/11/18	0955	34.72	JT	
Salt Storage Pond 3	07/11/18	1001	37.28	JT	
Salt Storage Pond 2	08/08/18	1251	34.98	JT	
Salt Storage Pond 3	08/08/18	1257	37.25	JT	
Salt Storage Pond 2	09/12/18	1442	32.43	JT	
Salt Storage Pond 3	09/12/18	1447	35.13	JT	
Salt Storage Pond 2	10/11/18	1115	32.28	JT	
Salt Storage Pond 3	10/11/18	1120	34.53	JT	
Salt Storage Pond 2	11/13/18	1259	32.12	JT	
Salt Storage Pond 3	11/13/18	1306	34.33	JT	
Salt Storage Pond 2	12/5/18	1336	36.45	RJ	
Salt Storage Pond 3	12/5/18	1342	30.68	RJ	

Performer: Print Name: John Thurston Signature:

Performer: Print Name: Richard Jimenez Signature:

Performer: Print Name: Signature:

05155

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

July 31, 2018

Greg Jungclaus
Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8966
FAX

RE: ENVIRONMENTAL OrderNo.: 1807732

Dear Greg Jungclaus:

Hall Environmental Analysis Laboratory received 8 sample(s) on 7/13/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1807732**
Date: **7/31/2018**

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL

All analytes reported are associated with passing CCVs.

METHOD: 300.0

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: none
Analysis: 300.0

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Calibration: All acceptance criteria were met.
2. Blanks: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Spikes: All acceptance criteria were met.
5. Samples: All acceptance criteria were met.

METHOD: SM2540C

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: SM2540C
Analysis: SM2540C

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Blanks: All acceptance criteria were met.
2. Spikes: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Samples: All acceptance criteria were met.

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: WR-SSP1-20180711-1.1
Project: ENVIRONMENTAL
Collection Date: 7/11/2018 8:03:00 AM
Lab ID: 1807732-001
Matrix: Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Chloride	143000	586	10000		mg/L	2E+	7/24/2018 9:17:25 PM	A52936
Sulfate	1910	20.6	50.0		mg/L	100	7/13/2018 8:24:01 PM	R52713
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	250000	2000	2000	*D	mg/L	1	7/19/2018 7:23:00 PM	39288

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: WR-SSP2-20180711-1.1
Project: ENVIRONMENTAL
Collection Date: 7/11/2018 8:14:00 AM
Lab ID: 1807732-002
Matrix: Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Chloride	188000	293	5000		mg/L	1E+	7/26/2018 12:52:18 AM	R52968
Sulfate	12000	103	250		mg/L	500	7/24/2018 9:29:50 PM	A52936
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	334000	2000	2000	*D	mg/L	1	7/19/2018 7:23:00 PM	39288

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: WR-SSP3-20180711-1.1
Project: ENVIRONMENTAL
Collection Date: 7/11/2018 8:32:00 AM
Lab ID: 1807732-003
Matrix: Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **JRR**	
Chloride	190000	590	10000		mg/L	2E+	7/28/2018 3:16:19 PM	R53055
Sulfate	27000	2060	5000		mg/L	1E+	7/26/2018 1:04:42 AM	R52968
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	377000	2000	2000	*D	mg/L	1	7/19/2018 7:23:00 PM	39288

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: WR-SWP1-20180711-1.1
Project: ENVIRONMENTAL
Collection Date: 7/11/2018 8:52:00 AM
Lab ID: 1807732-004
Matrix: Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Chloride	145	0.293	5.00		mg/L	10	7/13/2018 9:28:18 PM	R52713
Sulfate	38.0	2.06	5.00		mg/L	10	7/13/2018 9:28:18 PM	R52713
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	400	20.0	20.0		mg/L	1	7/19/2018 7:23:00 PM	39288

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: WR-SWP2-20180711-1.1
Project: ENVIRONMENTAL
Collection Date: 7/11/2018 9:02:00 AM
Lab ID: 1807732-005
Matrix: Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Chloride	100	0.293	5.00		mg/L	10	7/13/2018 9:54:01 PM	R52713
Sulfate	8.47	2.06	5.00		mg/L	10	7/13/2018 9:54:01 PM	R52713
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	244	20.0	20.0		mg/L	1	7/19/2018 7:23:00 PM	39288

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: WR-SWP3-20180711-1.2
Project: ENVIRONMENTAL
Collection Date: 7/11/2018 9:13:00 AM
Lab ID: 1807732-006
Matrix: Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Chloride	137	0.293	5.00		mg/L	10	7/13/2018 10:45:28 PM	R52713
Sulfate	28.2	2.06	5.00		mg/L	10	7/13/2018 10:45:28 PM	R52713
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	437	20.0	20.0		mg/L	1	7/19/2018 7:23:00 PM	39288

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: WR-SWP3-20180711-2.2
Project: ENVIRONMENTAL
Collection Date: 7/11/2018 9:13:00 AM
Lab ID: 1807732-007
Matrix: Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Chloride	139	0.293	5.00		mg/L	10	7/13/2018 11:11:10 PM	R52713
Sulfate	28.8	2.06	5.00		mg/L	10	7/13/2018 11:11:10 PM	R52713
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	436	20.0	20.0		mg/L	1	7/19/2018 7:23:00 PM	39288

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: WR-Blk-20180711-1.1
Project: ENVIRONMENTAL
Collection Date: 7/11/2018 9:16:00 AM
Lab ID: 1807732-008
Matrix: Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Chloride	0.131	0.0293	0.500	J	mg/L	1	7/13/2018 11:36:53 PM	R52713
Sulfate	ND	0.206	0.500		mg/L	1	7/13/2018 11:36:53 PM	R52713
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	ND	20.0	20.0		mg/L	1	7/19/2018 7:23:00 PM	39288

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1807732**

01-Aug-18

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R52713**	RunNo: **52713**
Prep Date:	Analysis Date: **7/13/2018**	SeqNo: **1730867** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	8.3	0.50	8.000	0	103	90	110			
Sulfate	21	0.50	20.00	0	105	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R52713**	RunNo: **52713**
Prep Date:	Analysis Date: **7/13/2018**	SeqNo: **1730869** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	0.10	0.50								J
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R52713**	RunNo: **52713**
Prep Date:	Analysis Date: **7/13/2018**	SeqNo: **1730870** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.2	0.50	5.000	0	104	90	110			
Sulfate	10	0.50	10.00	0	103	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R52713**	RunNo: **52713**
Prep Date:	Analysis Date: **7/13/2018**	SeqNo: **1730878** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.0	0.50	5.000	0	100	90	110			
Sulfate	13	0.50	12.50	0	102	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R52713**	RunNo: **52713**
Prep Date:	Analysis Date: **7/13/2018**	SeqNo: **1730890** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	8.4	0.50	8.000	0	104	90	110			
Sulfate	21	0.50	20.00	0	106	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R52713**	RunNo: **52713**
Prep Date:	Analysis Date: **7/13/2018**	SeqNo: **1730902** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1807732**

01-Aug-18

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R52713**	RunNo: **52713**
Prep Date:	Analysis Date: **7/13/2018**	SeqNo: **1730902** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.06	0.500	5.000	0	101	90	110			
Sulfate	12.7	0.500	12.50	0	101	90	110			

Sample ID **1807732-008AMS**	SampType: **ms**	TestCode: **EPA Method 300.0: Anions**
Client ID: **WR-Blk-20180711-1.**	Batch ID: **R52713**	RunNo: **52713**
Prep Date:	Analysis Date: **7/13/2018**	SeqNo: **1730909** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.15	0.500	5.000	0.1307	100	85.9	109			
Sulfate	10.1	0.500	10.00	0	101	84.3	120			

Sample ID **1807732-008AMSD**	SampType: **msd**	TestCode: **EPA Method 300.0: Anions**
Client ID: **WR-Blk-20180711-1.**	Batch ID: **R52713**	RunNo: **52713**
Prep Date:	Analysis Date: **7/14/2018**	SeqNo: **1730910** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.16	0.500	5.000	0.1307	101	85.9	109	0.305	20	
Sulfate	10.1	0.500	10.00	0	101	84.3	120	0.461	20	

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R52713**	RunNo: **52713**
Prep Date:	Analysis Date: **7/14/2018**	SeqNo: **1730912** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	8.5	0.50	8.000	0	106	90	110			
Sulfate	21	0.50	20.00	0	106	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A52936**	RunNo: **52936**
Prep Date:	Analysis Date: **7/24/2018**	SeqNo: **1740736** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A52936**	RunNo: **52936**
Prep Date:	Analysis Date: **7/24/2018**	SeqNo: **1740737** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1807732**

01-Aug-18

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A52936**	RunNo: **52936**
Prep Date:	Analysis Date: **7/24/2018**	SeqNo: **1740737** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.8	90	110			
Sulfate	9.2	0.50	10.00	0	91.6	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R52968**	RunNo: **52968**
Prep Date:	Analysis Date: **7/25/2018**	SeqNo: **1741831** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.1	90	110			
Sulfate	20	0.50	20.00	0	98.5	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R52968**	RunNo: **52968**
Prep Date:	Analysis Date: **7/25/2018**	SeqNo: **1741843** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	101	90	110			
Sulfate	31	0.50	30.00	0	103	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R52968**	RunNo: **52968**
Prep Date:	Analysis Date: **7/25/2018**	SeqNo: **1741855** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.7	90	110			
Sulfate	12	0.50	12.50	0	95.4	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R52968**	RunNo: **52968**
Prep Date:	Analysis Date: **7/25/2018**	SeqNo: **1741867** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.4	90	110			
Sulfate	20	0.50	20.00	0	98.4	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R52968**	RunNo: **52968**
Prep Date:	Analysis Date: **7/25/2018**	SeqNo: **1741869** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1807732**

01-Aug-18

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R52968**	RunNo: **52968**
Prep Date:	Analysis Date: **7/25/2018**	SeqNo: **1741869** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R52968**	RunNo: **52968**
Prep Date:	Analysis Date: **7/25/2018**	SeqNo: **1741870** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.8	90	110			
Sulfate	9.3	0.50	10.00	0	93.3	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R52968**	RunNo: **52968**
Prep Date:	Analysis Date: **7/25/2018**	SeqNo: **1741880** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	101	90	110			
Sulfate	31	0.50	30.00	0	102	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R52968**	RunNo: **52968**
Prep Date:	Analysis Date: **7/25/2018**	SeqNo: **1741892** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.8	90	110			
Sulfate	12	0.50	12.50	0	96.1	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R52968**	RunNo: **52968**
Prep Date:	Analysis Date: **7/26/2018**	SeqNo: **1741904** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.5	90	110			
Sulfate	20	0.50	20.00	0	98.3	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R52968**	RunNo: **52968**
Prep Date:	Analysis Date: **7/26/2018**	SeqNo: **1741911** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1807732**

01-Aug-18

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R52968**	RunNo: **52968**
Prep Date:	Analysis Date: **7/26/2018**	SeqNo: **1741911** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	101	90	110			
Sulfate	31	0.50	30.00	0	103	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R53055**	RunNo: **53055**
Prep Date:	Analysis Date: **7/28/2018**	SeqNo: **1745168** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	97.3	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R53055**	RunNo: **53055**
Prep Date:	Analysis Date: **7/28/2018**	SeqNo: **1745170** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R53055**	RunNo: **53055**
Prep Date:	Analysis Date: **7/28/2018**	SeqNo: **1745171** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.4	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R53055**	RunNo: **53055**
Prep Date:	Analysis Date: **7/28/2018**	SeqNo: **1745180** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.5	0.50	8.000	0	93.9	90	110			

Sample ID **A6**	SampType: **ccv_6**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R53055**	RunNo: **53055**
Prep Date:	Analysis Date: **7/28/2018**	SeqNo: **1745192** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	98.1	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1807732**

01-Aug-18

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R53055**	RunNo: **53055**
Prep Date:	Analysis Date: **7/28/2018**	SeqNo: **1745204** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.6	0.50	8.000	0	94.4	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R53055**	RunNo: **53055**
Prep Date:	Analysis Date: **7/28/2018**	SeqNo: **1745211** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	91.6	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1807732**

01-Aug-18

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL

Sample ID **MB-39288**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **39288**	RunNo: **52840**
Prep Date: **7/18/2018**	Analysis Date: **7/19/2018**	SeqNo: **1736147** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID **LCS-39288**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **39288**	RunNo: **52840**
Prep Date: **7/18/2018**	Analysis Date: **7/19/2018**	SeqNo: **1736148** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Sample ID **LCSD-39288**	SampType: **LCSR**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **BatchQC**	Batch ID: **39288**	RunNo: **52840**
Prep Date: **7/18/2018**	Analysis Date: **7/19/2018**	SeqNo: **1736149** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Sample ID **1807732-005AMS**	SampType: **MS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **WR-SWP2-20180711**	Batch ID: **39288**	RunNo: **52840**
Prep Date: **7/18/2018**	Analysis Date: **7/19/2018**	SeqNo: **1736155** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1260	20.0	1000	244.0	101	80	120			

Sample ID **1807732-005AMSD**	SampType: **MSD**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **WR-SWP2-20180711**	Batch ID: **39288**	RunNo: **52840**
Prep Date: **7/18/2018**	Analysis Date: **7/19/2018**	SeqNo: **1736156** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1260	20.0	1000	244.0	101	80	120	0.0795	5	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: WIPP | Work Order Number: 1807732 | RcptNo: 1

Received By: **Isaiah Ortiz** 7/13/2018 8:45:00 AM

Completed By: **Anne Thorne** 7/13/2018 12:49:40 PM

Reviewed By: 07/13/18

Labeled by: AT 07/13/18 @ 1405

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	FedEx		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

CUSTODY SEALS INTACT ON SAMPLE BOTTLES/at 7/13/18

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.4	Good	Yes			

05173

CHAIN-OF-CUSTODY RECORD

C of C Control № 1033

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

RFA Control № 1033

SAMPLING PROGRAM ENVIRONMENTAL

LAB DESTINATION Hall Environment (HEAL)

SAMPLE TEAM MEMBERS Jerome Hernandez, S. Britain

CARRIER/WAYBILL NO. Fed Ex # 8739-5711-7488

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receip (Name and Date)
WRSSP1-20180711-1.1	Salt storage Pond 1	7-11-18 0803	Run-off	500 mL	1807732-1
SSP2	2	0814	water		202
SSP3	3	0832			203
WR-SWP1-20180711-1.1	Storm Water Pond 1	0852			204
SWP2	2	0902			205
SWP3	1.2	0913			206
SWP3	2.2	0913			207
Blk	1.1 Blank	0916			208

Special Instructions: USE (Storm Water Pond 2) For MS/MSD QC Sample

Possible Sample Hazards: ☐ Radiological ☐ Bio-Hazard N/A

Temp: 3.4 - 1.0 (CF) 2.4 °C 7/13/18

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Jerome Hernandez NWP 7-12-18 1235
   Received By: I. Ord FedEx 7/13/18 845
2. Relinquished By: _____
   Received By: _____
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: _____

WP 02-EM3001- Environmental Monitoring | WHITE - Original to accompany samples | YELLOW - Field copy | PINK - Other

05174

REQUEST FOR ANALYSIS

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

DATE SAMPLES SHIPPED 7-12-18 RFA Control Nº 1033

LAB DESTINATION Hall Env

LABORATORY CONTACT Andy Freeman

SEND LAB REPORT TO NWP

P.O. Box 2078 m/s 452-09

Carlsbad, New Mexico 88221

C of C Control Nº 1033

DATE REPORT REQUIRED Per S.O.W

PROJECT CONTACT c/o Greg Jungclause

PROJECT CONTACT PHONE NO (575) 234-8615

SAMPLING PROGRAM ENVIRONMENTAL

PURCHASE ORDER NO. 502542-4

Sample Number	Sample Type	Sample Quantity	Preservative	Req't. Testing Program	Special Instructions HEAL #
WR-SSP1-20180711-1.1	Water Run-off	500 mL	≤4°C	Sulfate, Chloride, TDS	180737-00 1 day hold time
SSP2	↓	↓	↓	↓	-002
SSP3	↓	↓	↓	↓	-003
WR-SWP1-20180711-1.1	↓	↓	↓	↓	-004
SWP2	↓	↓	↓	↓	ms/msD ac. sample
SWP3 1.2	↓	↓	↓	↓	7 day hold time
SWP3 2.2	↓	↓	↓	↓	-006
BLK 1.1	Blank	↓	↓	↓	-007

N/A

TURNAROUND TIME REQUIRED: (Rush must be approved by appropriate Manager) NORMAL X RUSH _____ (Subject in rush surcharg

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

NONHAZARD X RADIOLOGICAL _____ FLAMMABLE _____ SKIN IRRITANT _____ HIGHLY TOXIC _____ BIOLOGICAL _____ OTHER _____ (Specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis.) RETURN TO CLIENT _____ DISPOSAL BY LAB X

FOR LAB USE ONLY

Temp: 3.4-1.0(CF) 2.4 RECEIVED BY Isaiah Ortiz I. Ort Fedex DATE/TIME 07/13/2018 @ 8:45

JO 7/13/18

WP 02-EM3001- Environmental Monitoring WHITE - Original to accompany samples YELLOW - Field copy PINK - Oth

05175

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 05, 2018

Brett Seal

Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8966
FAX

RE: SSW Sampling R30 OrderNo.: 1810991

Dear Brett Seal:

Hall Environmental Analysis Laboratory received 16 sample(s) on 10/18/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1810991**
Date Reported: **11/5/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWC2811R30N1
Project: SSW Sampling R30
Collection Date: 10/15/2018 8:32:00 AM
Lab ID: 1810991-001
Matrix: AQUEOUS
Received Date: 10/18/2018 8:35:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **smb**	
Chloride	864	36.4	100		mg/L	200	10/18/2018 5:53:36 PM	R55003
Sulfate	291	2.51	10.0		mg/L	20	10/18/2018 5:41:12 PM	R55003
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	2370	20.0	20.0	*	mg/L	1	10/23/2018 5:00:00 PM	41116

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ12R30N1
Project: SSW Sampling R30
Collection Date: 10/15/2018 10:16:00 AM
Lab ID: 1810991-002
Matrix: AQUEOUS
Received Date: 10/18/2018 8:35:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **smb**	
Chloride	3270	182	500		mg/L	1E+	10/18/2018 6:18:24 PM	R55003
Sulfate	542	12.5	50.0		mg/L	100	10/18/2018 6:06:00 PM	R55003
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	7600	40.0	40.0	*D	mg/L	1	10/23/2018 5:00:00 PM	41116

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ10R30N1
Project: SSW Sampling R30
Collection Date: 10/15/2018 11:45:00 AM
Lab ID: 1810991-003
Matrix: AQUEOUS
Received Date: 10/18/2018 8:35:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **smb**	
Chloride	92.8	1.82	5.00		mg/L	10	10/18/2018 6:30:49 PM	R55003
Sulfate	105	1.25	5.00		mg/L	10	10/18/2018 6:30:49 PM	R55003
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	734	20.0	20.0	*	mg/L	1	10/23/2018 5:00:00 PM	41116

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ7R30N1
Project: SSW Sampling R30
Collection Date: 10/15/2018 12:55:00 PM
Lab ID: 1810991-004
Matrix: AQUEOUS
Received Date: 10/18/2018 8:35:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **smb**	
Chloride	50900	1820	5000		mg/L	1E+	10/18/2018 7:08:03 PM	R55003
Sulfate	2600	125	500		mg/L	1E+	10/18/2018 6:55:38 PM	R55003
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	108000	2000	2000	*D	mg/L	1	10/23/2018 5:00:00 PM	41116

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ11R30N1
Project: SSW Sampling R30
Collection Date: 10/15/2018 2:20:00 PM
Lab ID: 1810991-005
Matrix: AQUEOUS
Received Date: 10/18/2018 8:35:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **smb**	
Chloride	39000	1820	5000		mg/L	1E+	10/18/2018 7:32:53 PM	R55003
Sulfate	1920	125	500		mg/L	1E+	10/18/2018 7:20:28 PM	R55003
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	82000	2000	2000	*D	mg/L	1	10/23/2018 5:00:00 PM	41116

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ11R30EB
Project: SSW Sampling R30
Collection Date: 10/15/2018 2:23:00 PM
Lab ID: 1810991-006
Matrix: AQUEOUS
Received Date: 10/18/2018 8:35:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **smb**	
Chloride	41.8	3.64	10.0		mg/L	20	10/18/2018 8:22:32 PM	R55003
Sulfate	2.47	0.125	0.500		mg/L	1	10/18/2018 8:10:07 PM	R55003
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	102	40.0	40.0	D	mg/L	1	10/23/2018 5:00:00 PM	41116

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ13R30N1
Project: SSW Sampling R30
Collection Date: 10/17/2018 7:12:00 AM
Lab ID: 1810991-007
Matrix: AQUEOUS
Received Date: 10/18/2018 8:35:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **smb**	
Chloride	152000	1820	5000		mg/L	1E+	10/18/2018 8:47:21 PM	R55003
Sulfate	2650	125	500		mg/L	1E+	10/18/2018 8:34:56 PM	R55003
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	263000	2000	2000	*D	mg/L	1	10/23/2018 5:00:00 PM	41116

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ9R30N1
Project: SSW Sampling R30
Collection Date: 10/16/2018 8:04:00 AM
Lab ID: 1810991-008
Matrix: AQUEOUS
Received Date: 10/18/2018 8:35:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **smb**	
Chloride	100000	1820	5000		mg/L	1E+	10/18/2018 9:12:11 PM	R55003
Sulfate	4540	125	500		mg/L	1E+	10/18/2018 8:59:46 PM	R55003
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	171000	2000	2000	*D	mg/L	1	10/23/2018 5:00:00 PM	41116

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWC2507R30N1
Project: SSW Sampling R30
Collection Date: 10/16/2018 10:41:00 AM
Lab ID: 1810991-009
Matrix: AQUEOUS
Received Date: 10/18/2018 8:35:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **smb**	
Chloride	3440	182	500		mg/L	1E+	10/18/2018 9:37:01 PM	R55003
Sulfate	638	12.5	50.0		mg/L	100	10/18/2018 9:24:36 PM	R55003
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	7870	40.0	40.0	*D	mg/L	1	10/23/2018 5:00:00 PM	41116

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ1R30N1
Project: SSW Sampling R30
Collection Date: 10/16/2018 12:13:00 PM
Lab ID: 1810991-010
Matrix: AQUEOUS
Received Date: 10/18/2018 8:35:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	35800	910	2500		mg/L	5E+	10/23/2018 7:09:34 PM	R55111
Sulfate	1980	12.5	50.0		mg/L	100	10/18/2018 9:49:25 PM	R55003
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	72000	2000	2000	*D	mg/L	1	10/23/2018 5:00:00 PM	41116

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ6R30N1
Project: SSW Sampling R30
Collection Date: 10/16/2018 1:08:00 PM
Lab ID: 1810991-011
Matrix: AQUEOUS
Received Date: 10/18/2018 8:35:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **smb**	
Chloride	19900	182	500		mg/L	1E+	10/18/2018 10:51:29 P	R55003
Sulfate	1140	12.5	50.0		mg/L	100	10/18/2018 10:39:05 P	R55003
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	36100	2000	2000	*D	mg/L	1	10/23/2018 5:00:00 PM	41116

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ5R30N1D
Project: SSW Sampling R30
Collection Date: 10/16/2018 2:19:00 PM
Lab ID: 1810991-012
Matrix: AQUEOUS
Received Date: 10/18/2018 8:35:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **smb**	
Chloride	6310	182	500		mg/L	1E+	10/18/2018 11:16:18 P	R55003
Sulfate	521	12.5	50.0		mg/L	100	10/18/2018 11:03:54 P	R55003
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	13400	200	200	*D	mg/L	1	10/23/2018 5:00:00 PM	41116

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ5R30N1EB
Project: SSW Sampling R30
Collection Date: 10/16/2018 2:31:00 PM
Lab ID: 1810991-013
Matrix: AQUEOUS
Received Date: 10/18/2018 8:35:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **smb**	
Chloride	0.856	0.182	0.500		mg/L	1	10/18/2018 11:28:43 P	R55003
Sulfate	ND	0.125	0.500		mg/L	1	10/18/2018 11:28:43 P	R55003
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	ND	20.0	20.0		mg/L	1	10/23/2018 5:00:00 PM	41116

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ5R30N1
Project: SSW Sampling R30
Collection Date: 10/16/2018 2:18:00 PM
Lab ID: 1810991-014
Matrix: AQUEOUS
Received Date: 10/18/2018 8:35:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **smb**	
Chloride	5870	182	500		mg/L	1E+	10/19/2018 12:05:57 A	R55003
Sulfate	482	12.5	50.0		mg/L	100	10/18/2018 11:53:32 P	R55003
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	14400	200	200	*D	mg/L	1	10/23/2018 5:00:00 PM	41116

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWWQSP6AR30N1
Project: SSW Sampling R30
Collection Date: 10/17/2018 9:16:00 AM
Lab ID: 1810991-015
Matrix: AQUEOUS
Received Date: 10/18/2018 8:35:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **smb**	
Chloride	300	3.64	10.0		mg/L	20	10/18/2018 5:03:58 PM	R55003
Nitrogen, Nitrate (As N)	4.54	0.0131	0.100		mg/L	1	10/18/2018 4:26:43 PM	R55003
Sulfate	1970	6.27	25.0		mg/L	50	10/23/2018 7:22:25 PM	R55111
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	3340	40.0	40.0	*D	mg/L	1	10/23/2018 5:00:00 PM	41116

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWWQSP6AR30N2
Project: SSW Sampling R30
Collection Date: 10/17/2018 9:08:00 AM
Lab ID: 1810991-016
Matrix: AQUEOUS
Received Date: 10/18/2018 8:35:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Nitrate+Nitrite as N	4.46	0.0790	1.00		mg/L	5	10/23/2018 7:35:17 PM	R55111
SM 4500 NORG C: TKN							Analyst: **CJS**	
Nitrogen, Kjeldahl, Total	ND	0.57	1.0		mg/L	1	10/31/2018 9:33:00 AM	41244

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1810991**

05-Nov-18

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R30

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R55003**	RunNo: **55003**							
Prep Date:	Analysis Date: **10/18/2018**	SeqNo: **1828707**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.3	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	103	90	110			
Sulfate	20	0.50	20.00	0	98.6	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R55003**	RunNo: **55003**							
Prep Date:	Analysis Date: **10/18/2018**	SeqNo: **1828709**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R55003**	RunNo: **55003**							
Prep Date:	Analysis Date: **10/18/2018**	SeqNo: **1828710**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.9	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.1	90	110			
Sulfate	9.4	0.50	10.00	0	94.3	90	110			

Sample ID **1810991-015AMS**	SampType: **ms**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **SSWWQSP6AR30N**	Batch ID: **R55003**	RunNo: **55003**							
Prep Date:	Analysis Date: **10/18/2018**	SeqNo: **1828716**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	7.1	0.10	2.500	4.542	101	79.1	116			

Sample ID **1810991-015AMSD**	SampType: **msd**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **SSWWQSP6AR30N**	Batch ID: **R55003**	RunNo: **55003**							
Prep Date:	Analysis Date: **10/18/2018**	SeqNo: **1828717**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	7.1	0.10	2.500	4.542	102	79.1	116	0.513	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1810991**

05-Nov-18

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R30

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R55003**	RunNo: **55003**
Prep Date:	Analysis Date: **10/18/2018**	SeqNo: **1828719** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.5	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	98.8	90	110			
Sulfate	12	0.50	12.50	0	96.1	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R55003**	RunNo: **55003**
Prep Date:	Analysis Date: **10/18/2018**	SeqNo: **1828731** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.9	90	110			
Nitrogen, Nitrate (As N)	5.0	0.10	4.800	0	104	90	110			
Sulfate	20	0.50	20.00	0	99.4	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R55003**	RunNo: **55003**
Prep Date:	Analysis Date: **10/18/2018**	SeqNo: **1828743** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.0	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	99.0	90	110			
Sulfate	12	0.50	12.50	0	96.1	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R55003**	RunNo: **55003**
Prep Date:	Analysis Date: **10/19/2018**	SeqNo: **1828755** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.8	90	110			
Nitrogen, Nitrate (As N)	5.0	0.10	4.800	0	104	90	110			
Sulfate	20	0.50	20.00	0	99.1	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R55003**	RunNo: **55003**
Prep Date:	Analysis Date: **10/19/2018**	SeqNo: **1828767** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.2	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	99.2	90	110			
Sulfate	12	0.50	12.50	0	95.8	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1810991**

05-Nov-18

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R30

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R55003**	RunNo: **55003**							
Prep Date:	Analysis Date: **10/19/2018**	SeqNo: **1828771**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	98.0	90	110			
Nitrogen, Nitrate (As N)	5.0	0.10	4.800	0	104	90	110			
Sulfate	20	0.50	20.00	0	99.1	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R55111**	RunNo: **55111**							
Prep Date:	Analysis Date: **10/23/2018**	SeqNo: **1831986**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	95.9	90	110			
Sulfate	20	0.50	20.00	0	97.6	90	110			
Nitrate+Nitrite as N	8.1	0.20	8.000	0	101	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R55111**	RunNo: **55111**							
Prep Date:	Analysis Date: **10/23/2018**	SeqNo: **1831988**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R55111**	RunNo: **55111**							
Prep Date:	Analysis Date: **10/23/2018**	SeqNo: **1831989**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.1	90	110			
Sulfate	9.5	0.50	10.00	0	95.4	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	101	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R55111**	RunNo: **55111**							
Prep Date:	Analysis Date: **10/23/2018**	SeqNo: **1831997**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.0	90	110			
Sulfate	11	0.50	12.50	0	90.5	90	110			
Nitrate+Nitrite as N	4.9	0.20	5.000	0	97.5	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1810991**

05-Nov-18

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R30

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R55111**	RunNo: **55111**							
Prep Date:	Analysis Date: **10/23/2018**	SeqNo: **1832009**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.2	90	110			
Sulfate	20	0.50	20.00	0	99.0	90	110			
Nitrate+Nitrite as N	8.2	0.20	8.000	0	102	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R55111**	RunNo: **55111**							
Prep Date:	Analysis Date: **10/23/2018**	SeqNo: **1832021**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.2	90	110			
Sulfate	11	0.50	12.50	0	91.1	90	110			
Nitrate+Nitrite as N	4.9	0.20	5.000	0	97.9	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R55111**	RunNo: **55111**							
Prep Date:	Analysis Date: **10/23/2018**	SeqNo: **1832033**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.1	90	110			
Sulfate	19	0.50	20.00	0	94.4	90	110			
Nitrate+Nitrite as N	8.2	0.20	8.000	0	103	90	110			

Sample ID **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R55111**	RunNo: **55111**							
Prep Date:	Analysis Date: **10/23/2018**	SeqNo: **1832045**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.9	90	110			
Sulfate	11	0.50	12.50	0	91.3	90	110			
Nitrate+Nitrite as N	4.9	0.20	5.000	0	98.5	90	110			

Sample ID **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R55111**	RunNo: **55111**							
Prep Date:	Analysis Date: **10/24/2018**	SeqNo: **1832050**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.0	90	110			
Sulfate	19	0.50	20.00	0	94.4	90	110			
Nitrate+Nitrite as N	8.2	0.20	8.000	0	103	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1810991**

05-Nov-18

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R30

Sample ID	**MB-41116**	SampType:	**MBLK**		TestCode:	**SM2540C MOD: Total Dissolved Solids**				
Client ID:	**PBW**	Batch ID:	**41116**		RunNo:	**55101**				
Prep Date:	**10/22/2018**	Analysis Date:	**10/23/2018**		SeqNo:	**1831507**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	**LCS-41116**	SampType:	**LCS**		TestCode:	**SM2540C MOD: Total Dissolved Solids**				
Client ID:	**LCSW**	Batch ID:	**41116**		RunNo:	**55101**				
Prep Date:	**10/22/2018**	Analysis Date:	**10/23/2018**		SeqNo:	**1831508**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Sample ID	**1810991-015ADUP**	SampType:	**DUP**		TestCode:	**SM2540C MOD: Total Dissolved Solids**				
Client ID:	**SSWWQSP6AR30N**	Batch ID:	**41116**		RunNo:	**55101**				
Prep Date:	**10/22/2018**	Analysis Date:	**10/23/2018**		SeqNo:	**1831530**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	3350	40.0						0.239	5	*D

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1810991**

05-Nov-18

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R30

Sample ID	**MB-41244**	SampType:	**MBLK**		TestCode:	**SM 4500 Norg C: TKN**				
Client ID:	**PBW**	Batch ID:	**41244**		RunNo:	**55291**				
Prep Date:	**10/29/2018**	Analysis Date:	**10/31/2018**		SeqNo:	**1839599**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	1.0								

Sample ID	**LCS-41244**	SampType:	**LCS**		TestCode:	**SM 4500 Norg C: TKN**				
Client ID:	**LCSW**	Batch ID:	**41244**		RunNo:	**55291**				
Prep Date:	**10/29/2018**	Analysis Date:	**10/31/2018**		SeqNo:	**1839600**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10	1.0	10.00	0	102	80	120			

Sample ID	**1810991-016AMS**	SampType:	**MS**		TestCode:	**SM 4500 Norg C: TKN**				
Client ID:	**SSWWQSP6AR30N**	Batch ID:	**41244**		RunNo:	**55291**				
Prep Date:	**10/29/2018**	Analysis Date:	**10/31/2018**		SeqNo:	**1839605**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	9.8	1.0	10.00	0	98.0	75	125			

Sample ID	**1810991-016AMSD**	SampType:	**MSD**		TestCode:	**SM 4500 Norg C: TKN**				
Client ID:	**SSWWQSP6AR30N**	Batch ID:	**41244**		RunNo:	**55291**				
Prep Date:	**10/29/2018**	Analysis Date:	**10/31/2018**		SeqNo:	**1839606**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10	1.0	10.00	0	101	75	125	2.82	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: WIPP | Work Order Number: 1810991 | RcptNo: 1

Received By: Victoria Zellar 10/18/2018 8:35:00 AM Victoria Zellar

Completed By: Anne Thorne 10/18/2018 11:13:00 AM Anne Thorne

Reviewed By: ENM 10/18/18

Labeled by: IO 10/18/18

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	FedEx		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 1 (2) (<2 or >12 unless noted)

Adjusted? no

Checked by: IO 10/18/18

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: ____ Date: ____

By Whom: ____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: ____

Client Instructions: ____

16. Additional remarks:

CUSTODY SEALS INTACT ON SAMPLE BOTTLES/at 10/18/18

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.8	Good	Yes			

CHAIN OF CUSTODY RECORD

No. 1351

Page 1 of 2

Project Number:	Project Name:
TO502542-2	SSW Sampling R30

Sampler(s): Brett Seal, Allen Hall

Sample Date	Sample Time	Matrix	Sample Number	Total Number of Containers	TDS	Chloride	Sulfate	Analytical Laboratory / Comments	
					Requested Analyses			HEAL Albuquerque, NM	
10/15/18	0832 0838 AH	SSW	SSWC2811R30NI	1	x	x	x	Comments HEAL #	1810991-001
10/15/18	1016		SSWPZ12R30NI		x	x	x		002
10/15/18	1140 1145 AH 10/17/18		SSWPZ10R30NI		x	x	x		003
10/15/18	1253 1250 AH 10/17/18		SSWPZ7R30NI		x	x	x		004
10/15/18	1420 1415 AH 10/17/18		SSWPZ11R30NI		x	x	x		005
10/15/18	1423		SSWPZ11R30EB		x	x	x	Equip Blank	006
10/17/18	0712		SSWPZ13R30NI		x	x	x		007
10/16/18	0804		SSWPZ9R30NI		x	x	x		008
10/16/18	1041		SSWC2507R30NI		x	x	x		009
10/16/18	1213		SSWPZ1R30NI		x	x	x		010
10/16/18	1308		SSWPZ6R30NI		x	x	x		011
10/16/18	1419 1419 AH 10/17/18		SSWPZ5R30NID		x	x	x		012
10/16/18	1431		SSWPZ5R30EB		x	x	x	Equip Blank	013
10/16/18	1418		SSWPZ5R30NI		x	x	x		014

Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)
Allen Hall 10/17/18 1200			
Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received at Laboratory: (Signature, Date/Time) FEDEX 1018/18 8:35

Requested Turnaround Time: 30 Days

☒ Routine ☐ Rush _____

Sample Disposal:

☐ Return to Client ☒ Disposal by Lab

Carrier / Airbill No.: 8075 2092 4817

Sample Receipt Remarks: Temp: 1.8 VV2 10/18/18

Results To:

Brett Seal
RES
PO Box 2078, MS 452-09
Carlsbad, NM 88221-2078
Phone: 575-234-8866 FAX: 575-234-6003
EDD: Brett.Seal@WIPP.WS

Special Instructions:

High TDS: PZ7, PZ11, PZ9, PZ6, PZ5, PZ13, PZ1
Report all data to 3 sig figs, including QC data
LCS + LCSD be analyzed for all analytes, chlorides, sulfate, TDS & TKN

WHITE – Analytical Laboratory
DI – Deionized Water
GW – Groundwater

YELLOW – Field Copy
AF – Air Filter(s)
AN – Animal(s)

PINK – Record Copy
SE – Sediment
SO – Soil

SW – Surface Water
VG – Vegetation

05200

CHAIN OF CUSTODY RECORD

No. 1352

Page 2 of 2

Project Number:	Project Name:
TO502542-2	SSW Sampling R30

Sampler(s): Brett Seal, Allen Hall

Sample Date	Sample Time	Matrix	Sample Number	Total Number of Containers	TDS	Chloride	Sulfate	Nitrate	TKN					Analytical Laboratory / Comments
10/17/18	0916	SSW	SSWWQSP6AR30N1	1	x	x	x	x						Use for MS/MSD TDS
10/17/18	0908	SSW	SSWWQSP6AR30N2	1				x	x					TKN
					NA	NA								

Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)
Allen J. Hall 10/17/18			
Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received at Laboratory: (Signature, Date/Time) FEDEX VV2
			Victoria Gallon 10/18/18 8:35

Requested Turnaround Time: 30 Days

☒ Routine ☐ Rush _____

Sample Disposal:

☐ Return to Client ☒ Disposal by Lab

Carrier / Airbill No.: 8075 2092 4817

Sample Receipt Remarks:

Special Instructions:

Results To:

Brett Seal
RES
PO Box 2078, MS 452-09
Carlsbad, NM 88221-2078

Phone: 575-234-8866 FAX: 575-234-6003

EDD: Brett.Seal@WIPP.WS

WHITE – Analytical Laboratory
DI – Deionized Water
GW – Groundwater

YELLOW – Field Copy
AF – Air Filter(s)
AN – Animal(s)

PINK – Record Copy
SE – Sediment
SO – Soil

SW – Surface Water
VG – Vegetation

05201

Table 8 - Monitoring Well Water Levels and Chemical Analyses											
	Field and General Chemistry Parameters								Other	Water Level Monitoring (Ft AMSL)	
Monitoring Site	Sample Date	pH (SU)	Temp. (^{0}C)	Specific Conductivity @25 ^{0}C (µS/cm)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)	9/12/18-9/13/18	12/04/18-12/06/18
PZ-1	10/16/2018	6.42	20.09	100,500	NA	**1,980**	**35,800**	**72,000**	NA	3371.20	3371.18
PZ-2	NS	NS	NS	NS	NS	NS	NS	NS	NS	3370.62	3370.47
PZ-3	NS	NS	NS	NS	NS	NS	NS	NS	NS	3371.24	3371.11
PZ-4	NS	NS	NS	NS	NS	NS	NS	NS	NS	3366.39	3366.81
PZ-5	10/16/2018	7.16	19.57	73,970	NA	482	**5,870**	**14,400**	NA	3371.89	3371.79
PZ-6	10/16/2018	6.92	19.74	101,200	NA	**1,140**	**19,900**	**36,100**	NA	3369.94	3370.39
PZ-7	10/15/2018	6.41	19.12	105,300	NA	**2,600**	**50,900**	**108,000**	NA	3377.43	3377.95
PZ-9	10/16/2018	6.22	18.65	103,700	NA	**4,540**	**100,000**	**171,000**	NA	3362.89	3362.60
PZ-10	10/15/2018	7.25	16.75	4,221	NA	105	92.8	734	NA	3368.09	3370.00
PZ-11	10/15/2018	6.48	19.17	105,100	NA	**1,920**	**39,000**	**82,000**	NA	3373.77	3376.00
PZ-12	10/15/2018	6.85	19.13	44,570	NA	542	**3,270**	**7,600**	NA	3356.59	3357.43
PZ-13	10/17/2018	Bailed			NA	**2,650**	**152,000**	**263,000**	NA	3357.56	3357.26
PZ-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	3354.36	3355.26
PZ-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	3383.15	3383.50
C-2811	10/15/2018	7.18	16.98	13,810	NA	291	**864**	**2,370**	NA	3346.84	3347.22
C-2505	NS	NS	NS	NS	NS	NS	NS	NS	NS	3367.94	3367.97
C-2506	NS	NS	NS	NS	NS	NS	NS	NS	NS	3368.57	3368.60
C-2507	10/16/2018	7.10	17.83	40,600	NA	**638**	**3,440**	**7,870**	NA	3365.06	3365.20
WQSP-6A	10/17/2018	6.58	21.35	14,300	4.46	**1,970**	**300**	**3,340**	ND	3195.79	3195.46
Explanation:	NA: Not Analyzed, parameter not required, per permit conditions.										
	NS: Not Sampled, not required per permit conditions										
	PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty using Low-Flow pumps										
	"**Bold**" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply										
	PZ-8 was plugged and abandoned in 2018.										
	ND: Non-detect										
	AMSL: Above Mean Sea Level										

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

JUL 3 0 2019

Ms. Michelle Hunter, Bureau Chief
New Mexico Environment Department
Ground Water Quality Bureau
Harold Runnels Building
1190 Saint Francis Drive
P.O. Box 5469
Santa Fe, NM 87502

Subject: Semi-Annual Discharge Monitoring Report for January 1 - June 30, 2019, Discharge Permit 831

Dear Ms. Hunter:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Discharge Monitoring Report, including the required attachments on compact disc, for the period of January 1 through June 30, 2019. This report is required by Discharge Permit 831.

If you have any questions about this report or require any additional information, please contact me at (575) 234-7476.

Sincerely,

for Mike Brown

Michael R. Brown, Director
Environmental Protection Division

Enclosure

cc: w/enclosure
R. Maestas, NMED, HWB *ED
A. Young, NMED, GWQB ED
CBFO M&RC
*ED denotes electronic distribution

05203

CBFO:OEP:MRB:SA:19-0239:UFC 5486.00

Waste Isolation Pilot Plant Semi-Annual Discharge Monitoring Report for Discharge Permit DP-831 for Reporting Period January 1, 2019 through June 30, 2019

U.S. Department of Energy

July 2019

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR
DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JANUARY 1, 2019 THROUGH JUNE 30, 2019

REPORTING REQUIREMENTS OF DP-831 OPERATIONAL PLAN

Part B. Applicable to the Facultative Lagoon System

Condition 8. *– The permittee shall measure the thickness of the sludge blanket in each pond of the Facultative Lagoon System once within the effective term of this Discharge Permit, but before the end of 2018. When sludge accumulation exceeds 1/3 of the total depth of any pond, the permittee shall remove the sludge in a manner, which is protective of the pond liner. Removed solids shall be contained, transported, and disposed of in accordance with all local, state, and federal regulations. The permittee shall maintain solids blanket measurements and solids disposal manifests for solids transported from the facility for off-site disposal. The permittee shall submit all measurements and manifests to NMED in the semi-annual monitoring report immediately following the solids thickness measurement.*

Sludge measurements were performed on the Facultative Lagoon System ponds in 2017. The measurements were submitted to the NMED in the second semi-annual report for 2017. This completes the requirement to sample the sludge once within the effective term of this discharge permit.

Part D. Applicable to the Storm Water Runoff Impoundments in Contact with Salt Stockpiles (Salt Storage Ponds 1, 2, and 3) and Salt Stockpiles (Salt Cells 1, 2, and 3).

Condition 9. *– The permittee shall measure the thickness of the solids blanket in each impoundment once within the effective term of this Discharge Permit, but before the end of 2018. Removed solids shall be contained, transported, and disposed of in accordance with all local, state, and federal regulations. The permittee shall maintain solids blanket measurements and solids disposal manifests for solids transported from the facility for off-site disposal. The permittee shall submit all measurements and manifests to NMED in the semi-annual monitoring report immediately following the solids thickness measurement.*

Sludge measurements were performed on Salt Storage Ponds 1, 2 and 3 in 2018. The sludge levels were as follows:

Salt Storage Pond 1 – 0.25 ft
Salt Storage Pond 2 – 4.63 ft
Salt Storage Pond 3 – 5.14 ft

The measurement results were submitted to the NMED in the first semi-annual report for 2018. Removal of sludge from Salt Storage Pond 2 will commence when a contract has been awarded.

Condition 10. *– The permittee shall inspect the leak detection systems for Salt Storage Ponds 2 and 3 on a monthly basis for the presence of liquid. The permittee shall keep a log of the inspection findings and repairs made. The inspection log, including a statement whether or not liquids were observed in the leak detection systems, shall be submitted to NMED in the semi-annual monitoring reports.*

Monthly inspections of the Salt Storage Pond 2 and 3 leak detection systems were performed during the reporting period. Water was observed in both of the leak detection systems. The

sumps of Salt Storage Ponds 2 and 3 were pumped in January, February, and May. A total of 22,800 gallons was pumped from the Salt Storage Pond 2 sump, whereas a total of 43,400 gallons was pumped from the Salt Storage Pond 3 sump. The average leakage rate was calculated to be 150 gallons per day from Salt Storage Pond 2, and 287 gallons per day from Salt Storage Pond 3 since the last time the sumps were pumped in December 2018. The Action Leakage Rate for Salt Storage Pond 2 is 706 gallons per day, and 1,880 gallons per day for Salt Storage Pond 3. Both of the leakage rates were well below the Action Leakage Rate using EPA Standard EPA 530-R-92-004, NTIS #PB 92-128 214. Therefore, no excessive leakage rates were determined. The inspection log can be found on the accompanying compact disc (CD) as a portable document format (pdf) file named "Salt Pond Sump Inspection 1st Half 2019.pdf."

There were no repairs required to the leak detection system during this reporting period.

Condition 11. *– The permittee shall conduct regular maintenance of the earthen cover on the Salt Cell 1, and SPDV material pile. Inspections shall be conducted monthly and after storm events of 2 inches or greater in a 24-hour period to evaluate potential erosion and vegetation success of the cover. In the event of significant erosion or failure of vegetative success, the permittee shall provide a plan and schedule for repair within 90 days of discovery. General observations and cover repair shall be reported to NMED.*

The monthly inspections of the earthen cover of the Salt Cell 1 and the Site and Preliminary Design Validation (SPDV) material pile resulted in the following observations. The soil cover overlying the synthetic liner on both piles was noted as needing repair. An Action Request was written. Repair of the Salt Cell 1 liner began on July 8, 2019.

An actual start date for the SPDV Pile repair work has not been established as of this report. Preliminary corrective measures are being finalized. If work on the pile has not commenced by the issuance of the next semi-annual report, a start date for this project should be established and will be included in that report.

There were no rain events of 2 inches or greater in a 24-hour period in this reporting period.

REQUIREMENTS OF DP-831 MONITORING AND REPORTING SECTION

Part B. Applicable to the Facultative Sewage Lagoon System

Condition 15. *– The volume of domestic influent discharged to the Facultative lagoon System shall be measured monthly using a totalizing flow meter on the influent line to the system or the totalizing meter that measures total domestic water usage. Volumes of other authorized discharges to the Facultative Lagoon System shall be calculated by a time/volume method or volumetric measurement of the transport container(s). NMED may require comprehensive laboratory analyses of such wastewater prior to discharge when NMED determines that additional information is needed. Monthly meter readings, the units of measurement, monthly discharge volumes and other volumetric calculations for the previous 6-month period shall be submitted to NMED semi-annually in the monitoring reports.*

Table 1 shows the volume of water discharged to the Facultative Lagoon System for this reporting period. Discharged water volume is based on total raw water use. No miscellaneous non-hazardous water was discharged to Evaporation Lagoons B or C.

Table 1 – Discharge to Facultative Lagoon System

Month (2019)	Volume (gallons)
January	250,960
February	320,102
March	241,041
April	239,336
May	306,368
June	228,445
Total	**1,586,252**

Weekly meter readings of the domestic water meter are found on the accompanying CD as a pdf file named "Water Discharge to Facultative System 1st Half of 2019.pdf."

Condition 16. *– The permittee shall collect a wastewater sample on a semi-annual basis (once every six months) from the influent to the Facultative Lagoon System. The grab sample shall be analyzed for TKN, NO_3-N, SO_4, TDS, and Cl. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.*

Samples were collected from the Settling Lagoon 2 influent, which is the influent to the Facultative Lagoon System. Analytical Results are shown in Table 2.

Table 2 – Facultative Lagoon System Influent Analytical Data

Analyte	Sample Date	Settling Lagoon 2 Concentration (mg/L)
TKN	04/11/19	150
NO_3-N	04/11/19	ND
SO_4	04/11/19	57.0
TDS	04/11/19	590
Cl	04/11/19	126

TKN: Total Kjeldahl nitrogen
TDS: Total dissolved solids
ND: Not detected, analyte below the method detection limit

Laboratory analytical results and QA/QC Summary Report for the Facultative Lagoon System are found as a pdf file on the accompanying CD named "Facultative Lagoon and H-19 Analytical and QA-QC.pdf."

Part C. Applicable to the Evaporation Pond H-19 and Storm Water Impoundments Not in Contact with Salt Stockpiles (Storm Water Ponds 1, 2, and 3)

Condition 17. *– The volume and origin of all wastewater discharged to the Evaporation Pond H-19 that is derived from miscellaneous non-hazardous sources shall be measured monthly and reported to NMED. Discharge volumes to the Evaporation Pond H-19 shall be calculated by a time/volume method or volumetric measurement of the transport container(s). NMED may require comprehensive laboratory analyses of such wastewater prior to discharge when NMED determines that additional information is needed. Monthly discharge volumes and other volumetric calculations for the previous 6-month period shall be submitted to NMED semi-annually in the monitoring reports.*

Table 3 shows the volume of miscellaneous non-hazardous water discharged to Evaporation Pond H-19 for this reporting period. This water is from groundwater well pumping (GW), condensate from the Exhaust Shaft ductwork (ES), and Waste Shaft sump water (WS).

Table 3 – Discharge to H-19 Evaporation Pond

Month (2019)	Volume (gallons)	Water Origin
January	0	-
February	980	GW & WS
March	0	-
April	3.200	GW, ES, & WS
May	4,032	GW & WS
June	1,540	WS
Total	**9,752**	

Condition 18. *– A sample shall be collected semi-annually from the Evaporation Pond H-19 and analyzed for SO_4, Cl, and TDS. Samples shall be collected annually after a significant storm event from each of the storm water ponds, Storm Water Ponds 1, 2, and 3 and analyzed for SO_4, Cl, and TDS. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring report.*

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

Evaporation Pond H-19 was not sampled during this reporting period because there was not enough water in the pond during the sampling event.

No significant storm events occurred during this reporting period. Therefore, samples from the Storm Water Ponds could not be taken, as shown in Table 4. Samples from Evaporation Pond H-19 and Storm Water Ponds 1, 2, and 3 will be attempted in the second half of 2019, and reported in the second semi-annual report which is due February 1, 2020.

Table 4 – Storm Water Ponds and Evaporation Pond H-19 Analytical Data (January to June 2019)

Analyte	Sample Date	Evaporation Pond H-19	Storm Water Pond 1	Storm Water Pond 2	Storm Water Pond 3
SO_4 (mg/L)	NS	NS	NS	NS	NS
Cl (mg/L)	NS	NS	NS	NS	NS
TDS (mg/L)	NS	NS	NS	NS	NS

NS – not sampled during this reporting period.

Condition 19. *– The water depth shall be measured monthly to the nearest tenth of a foot (0.1 ft) in the Storm Water ponds 1, 2, and 3. The approximate volume of storm water shall be calculated and submitted to NMED in the semi-annual monitoring reports.*

Table 5 summarizes the water depths and volumes in the three storm water ponds for the reporting period.

Table 5 – Storm Water Ponds Depths and Volumes

	January 01/21/19	February 02/21/19	March 03/18/19	April 04/15/19	May 05/09/19	June 06/11/19
Storm Water Pond 1						
Water Depth (ft)	3.8	3.5	3.3	2.8	2.4	2.1
Water Volume (gal)	528,686	486,948	459,122	389,588	333,907	292,169
Storm Water Pond 2						
Water Depth (ft)	5.4	5.0	4.8	4.4	3.9	3.3
Water Volume (gal)	1,855,906	1,718,432	1,649,694	1,512,220	1,340,377	1,134,165
Storm Water Pond 3						
Water Depth (ft)	4.4	4.2	4.0	3.6	3.2	2.6
Water Volume (gal)	6,346,531	6,058,052	5,769,573	5,192,616	4,615,659	3,750,223

Storm water has been pumped from the Storm Water Ponds to be used in construction projects for the WIPP facility. Pumping of the storm water began in mid-May. A Notice of Intent to discharge and the analytical results of the storm water were sent to the Ground Water Quality Bureau (GWQB). The GWQB agreed to the request to use the uncontaminated storm water for construction and dust control purposes.

Part D. Applicable to the Storm Water Runoff Impoundments in Contact with Salt Stockpiles (Salt Storage Ponds 1, 2, and 3) and Salt Stockpiles (Salt Cells 1, 2, and 3)

Condition 20. *– A sample shall be collected annually after a significant storm event from each of the Salt Storage Cells 1, 2, and 3 and analyzed for SO_4, Cl, and TDS. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.*

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

There were no significant storm events for this reporting period.

Condition 21. *The water depth shall be measured monthly to the nearest tenth of a foot (0.1 ft) in the Salt Storage Ponds 1, 2, and 3. The approximate volume of storm water shall be calculated and submitted to NMED in the semi-annual monitoring reports.*

Table 6 summarizes the water depths and volumes in the three Salt Storage Ponds for the reporting period.

Table 6 – Salt Storage Ponds Depths and Volumes

	January 01/21/19	February 02/21/19	March 03/18/19	April 04/15/19	May 05/09/19	June 06/12/2019
Salt Storage Pond 1						
Water Depth (ft)	0.6	0.3	0.1	0.0	0.0	0.3
Water Volume (gal)	683,097	341,548	113,849	0	0	341,548
Salt Storage Pond 2						
Water Depth (ft)	6.1	6.1	5.8	5.6	5.6	5.1
Water Volume (gal)	2,184,929	2,184,929	2,077,474	2,005,837	2,005,837	1,826,744
Salt Storage Pond 3						
Water Depth (ft)	12.8	12.8	12.7	12,5	12.2	11.7
Water Volume (gal)	14,644,045	14,644,045	14,529,638	14,300,825	13,957,605	13,385,572

Ground Water Monitoring and Reports

Condition 22. *– Depth to the water table shall be measured to the nearest hundredth of a foot (0.01 ft) quarterly in the piezometers/monitoring wells:*

- *PZ-1, PZ-2, PZ-3, PZ-4, PZ-5, PZ-6, PZ-7, PZ-8, PZ-9, PZ-10, PZ-11, PZ-12, PZ-13, PZ-14 and PZ-15*
- *C-2505, C-2506, C-2507, C-2811, and WQSP-6A*

For depth to the water in the piezometers and monitoring wells, see Table 7 – Monitoring Well Water Levels and Chemical Analyses.

Condition 23. *– The permittee shall perform semi-annual ground water sampling in the following piezometers/monitoring wells and analyze the samples for temperature, pH, specific conductance, SO4, TDS, and Cl:*

- *Piezometers: PZ-1, PZ-5, PZ-6, PZ-7, PZ-9, PZ-10, PZ-11, PZ-12, and PZ-13*
- *Monitoring Wells: C-2507, C-2811, and WQSP-6A*

Ground water sample collection, preservation, transport and analysis shall be performed according to the following procedure:

a) Measure the depth-to-most-shallow ground water from the top of the well casing to the nearest hundredth of a foot.
b) Purge three well volumes of water from the well prior to sample collection.
c) Obtain samples from the well for analysis.
d) Properly prepare, preserve and transport samples.
e) Analyze samples in accordance with the methods authorized in this Discharge Permit.

Depth-to-most-shallow ground water measurements, analytical results, including the laboratory QA/QC summary report, and a facility layout map showing the location and number of each well shall be submitted to NMED in the semi-annual monitoring reports.

Water levels in the shallow wells (PZ-1 through PZ-7, PZ-9-PZ-15, C-2811, C-2505, C-2506, and C-2507) were obtained in quarterly events, March 5 through 7, 2019, and June 4 through June 6, 2019. Water levels are included in Table 7 – Monitoring Well Water Levels and Chemical Analyses. These were taken in accordance with quarterly milestones outlined in the Ground Water Monitoring Schedule specified in the Discharge Permit renewal, DP-831, dated July 29, 2014. During the reporting period, the water levels at the shallow subsurface water (SSW) monitoring points showed an average decrease in elevation of 0.18 feet.

The SSW piezometers, required to be sampled according to Condition 23, were sampled for field and general chemistry parameters in April 29 through May 2 2019. Results for the field sampling parameters and laboratory analyses are presented in Table 7.

Laboratory analytical results and QA/QC Summary Report are found on the accompanying CD as a pdf file named “Shallow Surface Water Analytical and QA-QC – A.pdf” and “Shallow Surface Water Analytical and QA-QC – B.pdf”.

Condition 24. *– The permittee shall perform semi-annual ground water sampling from monitoring well WQSP-6A and analyzed for TKN and NO3. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.*

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

WQSP-6A was sampled on April 30, 2019. Sulfate, chloride, and total dissolved solids were detected in WQSP-6A samples at concentrations above standards of 20.6.2.3103 NMAC,

Standards for Ground Water of 1,000 mg/L TDS concentration or less for Human Health and Domestic Water Supply. Although the concentrations were higher than the standards, they are less than background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285). Nitrate was also detected, but did not exceed the standards. Total Kjeldahl Nitrogen was below the detection limit of 1 mg/L. The SSW identified at the WIPP facility has not impacted the Dewey Lake Redbeds Formation groundwater in WQSP-6A based on the consistency of analyzed parameters in this well.

For WQSP-6A analytical results, see Table 7 – Monitoring Well Water Levels and Chemical Analyses.

Laboratory analytical results and QA/QC Summary Report for WQSP-6A samples are found on the accompanying CD as a pdf file named "Shallow Surface Water Analytical and QA-QC – A.pdf".

Condition 25. *– Hydrographs shall be submitted annually for all monitoring wells and piezometers covered under Condition 22 of this Discharge Permit. At a minimum, graphs shall include the previous five years of water level data, or for recently installed wells, all data since the well was installed. Data for several wells may be included on one graph.*

The hydrographs of all monitoring wells and piezometers will be included in the second 2019 semi-annual report which is due February 1, 2020.

Condition 26. *– A potentiometric map for facility area shall be submitted annually. The map shall incorporate the most recent water level data for all monitoring wells and piezometers installed in the shallow subsurface water (SSW).*

The potentiometric map that incorporates the most recent water level data for all monitoring wells and piezometers installed in the shallow subsurface water will be included in the second 2019 semi-annual report which is due February 1, 2020.

Condition 27. *– A single table in a paper and electronic format (EXCEL spreadsheet) of water level measurements and water quality data with only those constituents analyzed and water levels measured during a single event shown in columns. Tabulated field measurements to include temperature, pH, and electrical conductivity corrected to 25 degrees Celsius. Monitoring sites shall be shown in rows. The second column shall contain the date of the sampling event. Values exceeding standards shall be bolded. Any constituent not analyzed for a particular site shall be shown as "NA", any site not sampled shall be shown as "NS" with an associated reason, and any site not measured for water levels shall be shown as "NM" with an associated reason.*

Table 7 – Monitoring Well Water Levels and Chemical Analyses is included in paper form in this report and in electronic Excel format on the accompanying CD. The file name on the CD is "Table 7 – Monitoring Well Water Levels and Chemical Analyses." Electrical conductivity is listed as specific conductivity in this table.

Condition 28. *– A single table that includes all available ground water data to date shall be submitted annually. For each monitoring well, the name of the well shall be entered in the far left column in a row by itself. Sampling events, beginning with the earliest event first, shall be entered in subsequent rows with the sampling date in the second column and the corresponding analytical data in columns further to the right. Each new sampling event shall be added as an additional row to the existing spreadsheet with the corresponding date of the sampling event noted in the second column next to the monitoring well name.*

The table that includes all available ground water data to date will be included in the second 2019 semi-annual report which is due February 1, 2020.

Condition 45. *– In the event the permittee implements changes to the wastewater system authorized by this Discharge Permit which result in only a minor effect on the character of the discharge, the permittee shall report such changes (including submission of record drawings, where applicable) as of January 1 and June 30 of each year to the NMED.*

There were no changes to the wastewater system authorized by this Discharge Permit during this reporting period

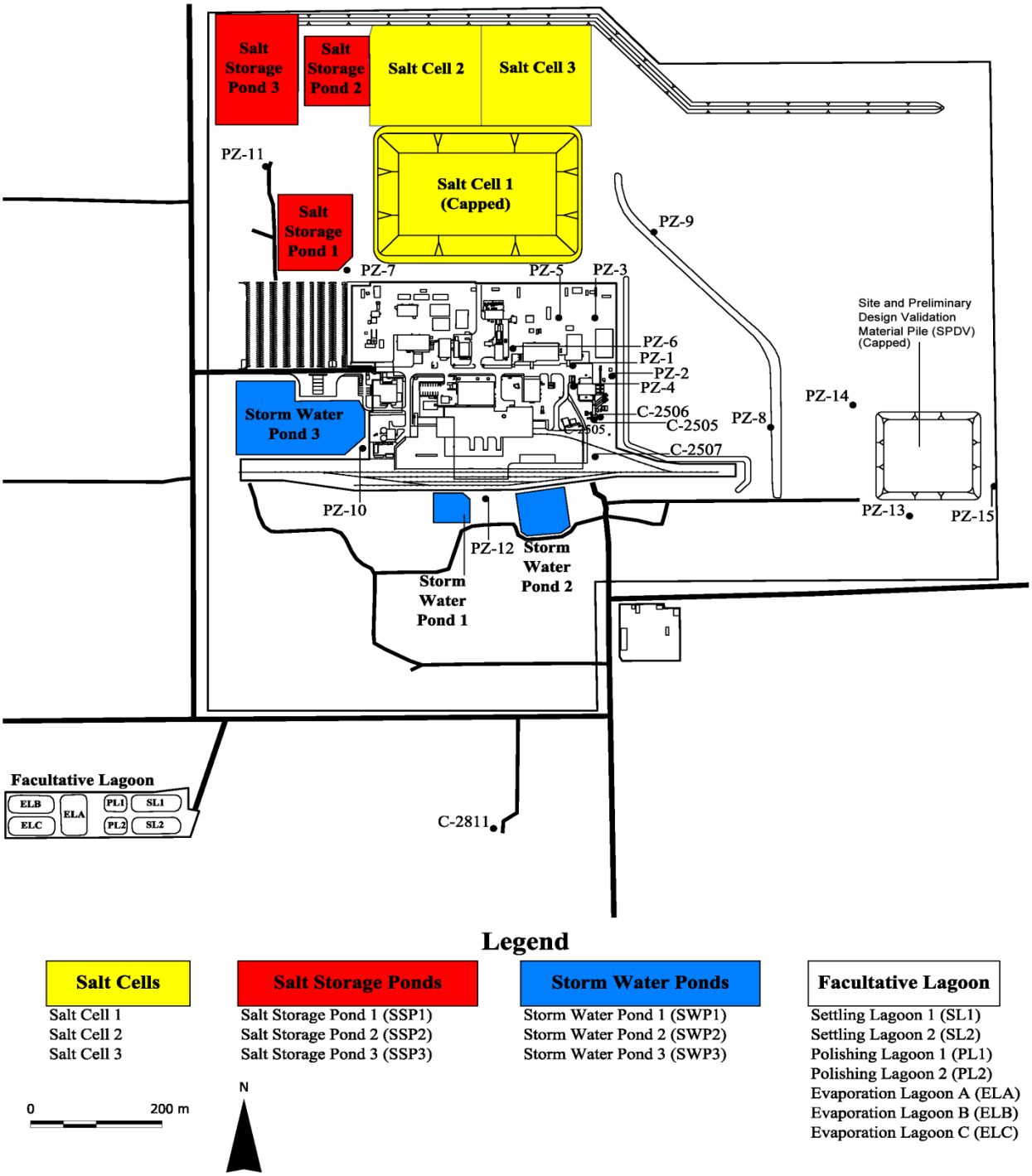


Figure 1 – Well and Pond Locations

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JANUARY 1, 2019 THROUGH JUNE 30, 2019

Table 7 – Monitoring Well Water Levels and Chemical Analyses

	Field and General Chemistry Parameters								Other	Water Level Monitoring (Ft AMSL1)	
Monitoring Site	Sample Date	pH (SU)	Temp. (ºC)	Specific Conductivity @25 ºC (µS/cm)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)	03/05/2019-03/07/19	06/04/19-06/06/19
PZ-1	5/2/2019	6.4	24.03	93,090	NA	**2,160**	**37,100**	**63,600**	NA	3,371.72	3,371.60
PZ-2	NS	NS	NS	NS	NS	NS	NS	NS	NS	3,371.12	3,370.99
PZ-3	NS	NS	NS	NS	NS	NS	NS	NS	NS	3,371.63	3,371.52
PZ-4	NS	NS	NS	NS	NS	NS	NS	NS	NS	3,367.53	3,367.29
PZ-5	5/2/2019	7.08	22.03	72,500	NA	**617**	**7,170**	**14,500**	NA	3,372.41	3,372.25
PZ-6	5/2/2019	6.84	23.09	94,800	NA	**1,160**	**19,100**	**32,100**	NA	3,370.92	3,370.60
PZ-7	4/29/2019	6.23	23.25	95	NA	**2,650**	**60,300**	**106,000**	NA	3,378.68	3,378.45
PZ-9	5/2/2019	6.18	20.05	101,200	NA	**5,830**	**126,000**	**204,000**	NA	3,362.87	3,362.97
PZ-10	4/29/2019	7.22	23.22	4,990	NA	179	146	874	NA	3,369.72	3,369.04
PZ-11	4/29/2019	6.75	22.52	96,080	NA	**744**	**15,900**	**26,300**	NA	3,377.42	3,376.98
PZ-12	4/29/2019	6.83	22.34	32,390	NA	521	**2,310**	**5,340**	NA	3,358.03	3,357.73
PZ-13	4/30/2019	Bailed			NA	**2,850**	**156,000**	**265,000**	NA	3,357.39	3,357.27
PZ-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	3,354.47	3,354.33
PZ-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	3,383.65	3,383.21
C-2811	4/29/2019	7.05	21.24	14,580	NA	348	**1,020**	**2,680**	NA	3,347.53	3,347.67
C-2505	NS	NS	NS	NS	NS	NS	NS	NS	NS	3,368.53	3,368.40
C-2506	NS	NS	NS	NS	NS	NS	NS	NS	NS	3,369.11	3,369.01
C-2507	5/2/2019	7.02	21.66	44,770	NA	**748**	**4,210**	**8,770**	NA	3,365.76	3,365.64
WQSP-6A	4/30/2019	6.73	23.19	13,220	4.14	**1,940**	**309**	**3,230**	ND	3,195.37	3,195.54
Explanation:	NA: Not Analyzed, parameter not required, per permit conditions.										
	NS: Not Sampled, not required per permit conditions										
	ND: Non-detect										
	PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty using Low-Flow pumps										
	"**Bold**" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply										

[1] AMSL = above mean sea level

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

April 30, 2019

Hnin Khaing
Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8966
FAX

RE: ENVIRONMENTAL 502542-4 OrderNo.: 1904665

Dear Hnin Khaing:

Hall Environmental Analysis Laboratory received 7 sample(s) on 4/12/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-SL2-20190411-1.3
Project: ENVIRONMENTAL 502542-4
Collection Date: 4/11/2019 9:25:00 AM
Lab ID: 1904665-001 **Matrix:** AQUEOUS **Received Date:** 4/12/2019 6:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Nitrogen, Nitrate (As N)	ND	0.143	0.500		mg/L	5	4/12/2019 2:37:29 PM	R59131

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-SL2-20190411-2.3
Project: ENVIRONMENTAL 502542-4
Collection Date: 4/11/2019 9:17:00 AM
Lab ID: 1904665-002 **Matrix:** AQUEOUS **Received Date:** 4/12/2019 6:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM 4500 NORG C: TKN							Analyst: **OG**	
Nitrogen, Kjeldahl, Total	150	5.68	10.0	D	mg/L	1	4/19/2019 2:00:00 PM	44435

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-SL2-20190411-3.3
Project: ENVIRONMENTAL 502542-4
Collection Date: 4/11/2019 9:08:00 AM
Lab ID: 1904665-003 **Matrix:** AQUEOUS **Received Date:** 4/12/2019 6:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	126	5.00	5.00		mg/L	10	4/12/2019 3:02:18 PM	R59131
Sulfate	57.0	0.640	5.00		mg/L	10	4/12/2019 3:02:18 PM	R59131
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	590	200	200	*D	mg/L	1	4/18/2019 6:55:00 PM	44387

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-ELB-20190411-1.1
Project: ENVIRONMENTAL 502542-4
Collection Date: 4/11/2019 8:55:00 AM
Lab ID: 1904665-004
Matrix: AQUEOUS
Received Date: 4/12/2019 6:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	26200	1000	1000		mg/L	2E+	4/19/2019 7:36:47 PM	R59303
Sulfate	19100	32.0	250		mg/L	500	4/18/2019 7:10:08 PM	R59249
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	68500	2000	2000	*D	mg/L	1	4/18/2019 6:55:00 PM	44387

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-ELC-20190411-1.2
Project: ENVIRONMENTAL 502542-4
Collection Date: 4/11/2019 8:44:00 AM
Lab ID: 1904665-005 **Matrix:** AQUEOUS **Received Date:** 4/12/2019 6:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	106000	5000	5000		mg/L	1E+	4/18/2019 7:22:32 PM	R59249
Sulfate	32000	640	5000		mg/L	1E+	4/18/2019 7:22:32 PM	R59249
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	200000	2000	2000	*D	mg/L	1	4/18/2019 6:55:00 PM	44387

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-ELC-20190411-2.2
Project: ENVIRONMENTAL 502542-4
Collection Date: 4/11/2019 8:44:00 AM
Lab ID: 1904665-006 **Matrix:** AQUEOUS **Received Date:** 4/12/2019 6:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	113000	5000	5000		mg/L	1E+	4/18/2019 7:34:56 PM	R59249
Sulfate	33400	640	5000		mg/L	1E+	4/18/2019 7:34:56 PM	R59249
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	200000	2000	2000	*D	mg/L	1	4/18/2019 6:55:00 PM	44387

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-BLK-20190411-1.1
Project: ENVIRONMENTAL 502542-4
Collection Date: 4/11/2019 9:29:00 AM
Lab ID: 1904665-007 **Matrix:** AQUEOUS **Received Date:** 4/12/2019 6:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	ND	0.500	0.500		mg/L	1	4/12/2019 5:06:23 PM	R59131
Sulfate	0.184	0.0640	0.500	J	mg/L	1	4/12/2019 5:06:23 PM	R59131
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	ND	20.0	20.0		mg/L	1	4/18/2019 6:55:00 PM	44387

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1904665**

30-Apr-19

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL 502542-4

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R59131**	RunNo: **59131**
Prep Date:	Analysis Date: **4/12/2019**	SeqNo: **1990508** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R59131**	RunNo: **59131**
Prep Date:	Analysis Date: **4/12/2019**	SeqNo: **1990509** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.0	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			
Sulfate	9.8	0.50	10.00	0	98.4	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R59131**	RunNo: **59131**
Prep Date:	Analysis Date: **4/12/2019**	SeqNo: **1990518** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.1	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	98.9	90	110			
Sulfate	12	0.50	12.50	0	94.9	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R59131**	RunNo: **59131**
Prep Date:	Analysis Date: **4/12/2019**	SeqNo: **1990530** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	8.1	0.50	8.000	0	101	90	110			
Nitrogen, Nitrate (As N)	5.0	0.10	4.800	0	104	90	110			
Sulfate	20	0.50	20.00	0	98.3	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R59131**	RunNo: **59131**
Prep Date:	Analysis Date: **4/12/2019**	SeqNo: **1990542** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.1	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	99.0	90	110			
Sulfate	12	0.50	12.50	0	94.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1904665**

30-Apr-19

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL 502542-4

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R59131**	RunNo: **59131**
Prep Date:	Analysis Date: **4/12/2019**	SeqNo: **1990554** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.1	90	110			
Nitrogen, Nitrate (As N)	5.0	0.10	4.800	0	104	90	110			
Sulfate	20	0.50	20.00	0	98.0	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R59131**	RunNo: **59131**
Prep Date:	Analysis Date: **4/12/2019**	SeqNo: **1990558** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.5	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	98.9	90	110			
Sulfate	12	0.50	12.50	0	94.6	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R59249**	RunNo: **59249**
Prep Date:	Analysis Date: **4/18/2019**	SeqNo: **1995724** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.6	0.50	8.000	0	94.8	90	110			
Sulfate	20	0.50	20.00	0	98.1	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R59249**	RunNo: **59249**
Prep Date:	Analysis Date: **4/18/2019**	SeqNo: **1995736** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.4	90	110			
Sulfate	12	0.50	12.50	0	95.6	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R59249**	RunNo: **59249**
Prep Date:	Analysis Date: **4/18/2019**	SeqNo: **1995748** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	96.9	90	110			
Sulfate	20	0.50	20.00	0	98.5	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1904665**
30-Apr-19

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL 502542-4

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R59249**	RunNo: **59249**							
Prep Date:	Analysis Date: **4/18/2019**	SeqNo: **1995760**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.4	90	110			
Sulfate	12	0.50	12.50	0	96.0	90	110			

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R59249**	RunNo: **59249**							
Prep Date:	Analysis Date: **4/18/2019**	SeqNo: **1995765**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R59249**	RunNo: **59249**							
Prep Date:	Analysis Date: **4/18/2019**	SeqNo: **1995766**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.5	90	110			
Sulfate	9.8	0.50	10.00	0	98.1	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R59249**	RunNo: **59249**							
Prep Date:	Analysis Date: **4/18/2019**	SeqNo: **1995771**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.6	90	110			
Sulfate	20	0.50	20.00	0	99.8	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R59249**	RunNo: **59249**							
Prep Date:	Analysis Date: **4/18/2019**	SeqNo: **1995783**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.4	90	110			
Sulfate	12	0.50	12.50	0	96.0	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R59249**	RunNo: **59249**							
Prep Date:	Analysis Date: **4/19/2019**	SeqNo: **1995795**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1904665**
30-Apr-19

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL 502542-4

Sample ID: **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R59249** RunNo: **59249**
Prep Date: Analysis Date: **4/19/2019** SeqNo: **1995795** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.5	90	110			
Sulfate	20	0.50	20.00	0	99.5	90	110			

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R59249** RunNo: **59249**
Prep Date: Analysis Date: **4/19/2019** SeqNo: **1995806** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.8	90	110			
Sulfate	12	0.50	12.50	0	96.5	90	110			

Sample ID: **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R59249** RunNo: **59249**
Prep Date: Analysis Date: **4/19/2019** SeqNo: **1995818** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.4	90	110			
Sulfate	20	0.50	20.00	0	98.8	90	110			

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R59249** RunNo: **59249**
Prep Date: Analysis Date: **4/19/2019** SeqNo: **1995822** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.4	90	110			
Sulfate	12	0.50	12.50	0	96.4	90	110			

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R59303** RunNo: **59303**
Prep Date: Analysis Date: **4/19/2019** SeqNo: **1996850** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.5	0.50	5.000	0	90.3	90	110			

Sample ID: **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R59303** RunNo: **59303**
Prep Date: Analysis Date: **4/19/2019** SeqNo: **1996852** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1904665**
30-Apr-19

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL 502542-4

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R59303**	RunNo: **59303**
Prep Date:	Analysis Date: **4/19/2019**	SeqNo: **1996853** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	91.4	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R59303**	RunNo: **59303**
Prep Date:	Analysis Date: **4/19/2019**	SeqNo: **1996862** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.6	0.50	8.000	0	94.9	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R59303**	RunNo: **59303**
Prep Date:	Analysis Date: **4/19/2019**	SeqNo: **1996873** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	91.9	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R59303**	RunNo: **59303**
Prep Date:	Analysis Date: **4/19/2019**	SeqNo: **1996885** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.5	0.50	8.000	0	93.6	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R59303**	RunNo: **59303**
Prep Date:	Analysis Date: **4/19/2019**	SeqNo: **1996897** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.5	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1904665**
30-Apr-19

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL 502542-4

Sample ID: **MB-44387**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **44387**	RunNo: **59261**
Prep Date: **4/17/2019**	Analysis Date: **4/18/2019**	SeqNo: **1995274** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-44387**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **44387**	RunNo: **59261**
Prep Date: **4/17/2019**	Analysis Date: **4/18/2019**	SeqNo: **1995275** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1904665**
30-Apr-19

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL 502542-4

Sample ID: **MB-44435**	SampType: **MBLK**	TestCode: **SM 4500 Norg C: TKN**							
Client ID: **PBW**	Batch ID: **44435**	RunNo: **59329**							
Prep Date: **4/18/2019**	Analysis Date: **4/19/2019**	SeqNo: **1998181**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	1.00								

Sample ID: **LCS-44435**	SampType: **LCS**	TestCode: **SM 4500 Norg C: TKN**							
Client ID: **LCSW**	Batch ID: **44435**	RunNo: **59329**							
Prep Date: **4/18/2019**	Analysis Date: **4/19/2019**	SeqNo: **1998182**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10.1	1.00	10.00	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: WIPP | Work Order Number: 1904665 | RcptNo: 1

Received By: **Isaiah Ortiz** 4/12/2019 6:45:00 AM I-OX

Completed By: **Anne Thorne** 4/12/2019 8:12:04 AM Anne Thorne

Reviewed By: ENM 4/12/19

Labeled by: DAD 4/12/19

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	FedEx Tracking No.: 8116-0153-0384		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 1

(<2 or >12 unless noted)

Adjusted? NO

Checked by: DAD 4/12/19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: ____ Date ____

By Whom: ____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: ____

Client Instructions: ____

16. Additional remarks:

CUSTODY SEALS INTACT ON SAMPLE BOTTLES/at 4/12/19

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.4	Good	Yes			

05231

ENVIRONMENTAL CHAIN-OF-CUSTODY / REQUEST FOR ANALYSIS RECORD

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

Date Samples Shipped _____
Lab Contact Andy Freeman (HEAL)
Project Contact Hwin Khaing
Project Contact Phone (575) 234-8972
Lab Report Delivery to: NWP
PO Box 2078 Mail Stop 452-09
Carlsbad, NM 88221-2078

CofC/RFA Control No. 10540
Carrier/Waybill Number Fed Ex 8116-0153-0384
Lab PO Number 502542-4

HEAL #1904005

Sample Number	Date/Time Collected	Sample Type	Sample Quantity	Container Type	Preservative	Requested Analysis
EC-SL2-20190411-1.3	4-11-19 0925	Sewage	1 liter	Plastic	≤4°C	Nitrate -001
2.3	0917		500mL		H_2SO_4 to pH<2, ≤4°C	TKN -002
3.3	0908					Sulfate, Chloride, TDS -003
EC-ELB-20190411-1.1	0855					-004
ELC 1.2	0844					-005
ELC 2.2	0844					-006
BLK 1.1	0929	Blank				-007

Special Instruction Comments: Do Nitrate (1 Liter setting Lagoon 2) within 48hrs of Collection time (4-11-19 0925)
NO H19 Sample / No water

Possible Hazards Nonhazard_____ Radiological_____ Sewage X Other _____ Sample Disposal: Return To Client _____ Disposal By Lab X

Signatures: (Name, Signature, Date and Time) **Laboratory Note Any Sample Discrepancies on "Special Instruction/Comment Line"

1. Relinquished By: Jerome Hernandez 4-11-19 1050
   Received By: Isaiah Ortiz I-C 4-12-19 0645 1.4°C
2. Relinquished By: _____
   Received By: _____
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: _____

WP 02-EM3001- Environmental Monitoring

WHITE - Original to accompany samples

PINK - Field copy

NICHOLS PRINTING INC.

05232

Water Level Measurement Field Data Sheet

From January to June Year 2019

Pond Name	Date	Time	Water Depth (ft)	Initials	Comments
Salt Storage Pond 2	1/9/19	1112	44.04	RJ	
Salt Storage Pond 3	1/9/19	1120	30.42	RJ	
Salt Storage Pond 2	2/19/19	13:53	45.34	RJ	
Salt Storage Pond 3	2/19/19	1404	56.54	RJ	
Salt Storage Pond 2	3/7/19	1216	44.66	JT	
Salt Storage Pond 3	3/7/19	1223	29.55	JT	
Salt Storage Pond 2	4/3/19	1241	43.20	RJ	
Salt Storage Pond 3	4/3/19	1245	28.67	RJ	
Salt Storage Pond 2	5/8/19	1230	40.68	JT	
Salt Storage Pond 3	~~5/7~~ JT 5/9/19 5/8/19	1238	30.18	JT	
Salt Storage Pond 2	6/6/19	0931	~~44.98~~ JT 6/11/19	JT	44.90
Salt Storage Pond 3	6/6/19	0939	32.09	JT	

Performer: Print Name: Richard Jimenez Signature:

Performer: Print Name: John Thurston Signature:

Performer: Print Name: Signature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 20, 2019

Brett Seal

Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8966
FAX

RE: SSW Sampling R31 OrderNo.: 1905001

Dear Brett Seal:

Hall Environmental Analysis Laboratory received 9 sample(s) on 5/1/2019 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued May 16, 2019.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **1905001**
Date Reported: **5/20/2019**

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R31
Lab ID: 1905001-001 **Matrix:** AQUEOUS

Client Sample ID: SSWC2811R31N1
Collection Date: 4/29/2019 9:11:00 AM
Received Date: 5/1/2019 7:35:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **smb**	
Chloride	1020	12.5	100		mg/L	200	5/1/2019 1:43:26 PM	R59587
Sulfate	348	1.07	10.0		mg/L	20	5/1/2019 1:30:34 PM	R59587
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	2680	20.0	20.0	*	mg/L	1	5/7/2019 4:43:00 PM	44739

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ12R31N1
Project: SSW Sampling R31
Collection Date: 4/29/2019 10:24:00 AM
Lab ID: 1905001-002 **Matrix:** AQUEOUS **Received Date:** 5/1/2019 7:35:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **smb**	
Chloride	2310	62.5	500		mg/L	1E+	5/1/2019 2:34:52 PM	R59587
Sulfate	521	5.35	50.0		mg/L	100	5/1/2019 2:22:01 PM	R59587
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	5340	40.0	40.0	*D	mg/L	1	5/7/2019 4:43:00 PM	44739

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ10R31N1
Project: SSW Sampling R31
Collection Date: 4/29/2019 11:41:00 AM
Lab ID: 1905001-003
Matrix: AQUEOUS
Received Date: 5/1/2019 7:35:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **smb**	
Chloride	146	0.625	5.00		mg/L	10	5/1/2019 2:47:45 PM	R59587
Sulfate	179	0.535	5.00		mg/L	10	5/1/2019 2:47:45 PM	R59587
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	874	20.0	20.0	*	mg/L	1	5/7/2019 4:43:00 PM	44739

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ7R31N1
Project: SSW Sampling R31
Collection Date: 4/29/2019 12:53:00 PM
Lab ID: 1905001-004
Matrix: AQUEOUS
Received Date: 5/1/2019 7:35:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **smb**	
Chloride	60300	625	5000		mg/L	1E+	5/1/2019 3:26:21 PM	R59587
Sulfate	2650	53.5	500		mg/L	1E+	5/1/2019 3:13:28 PM	R59587
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	106000	2000	2000	*D	mg/L	1	5/7/2019 4:43:00 PM	44739

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ11R31N1
Project: SSW Sampling R31
Collection Date: 4/29/2019 2:11:00 PM
Lab ID: 1905001-005 **Matrix:** AQUEOUS **Received Date:** 5/1/2019 7:35:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **smb**	
Chloride	15900	62.5	500		mg/L	1E+	5/1/2019 3:39:13 PM	R59587
Sulfate	744	53.5	500		mg/L	1E+	5/1/2019 3:39:13 PM	R59587
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	26300	2000	2000	*D	mg/L	1	5/7/2019 4:43:00 PM	44739

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ11R31N1EB
Project: SSW Sampling R31
Collection Date: 4/29/2019 2:30:00 PM
Lab ID: 1905001-006 **Matrix:** AQUEOUS **Received Date:** 5/1/2019 7:35:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **smb**	
Chloride	0.255	0.0625	0.500	J	mg/L	1	5/1/2019 4:04:56 PM	R59587
Sulfate	0.151	0.0535	0.500	J	mg/L	1	5/1/2019 4:04:56 PM	R59587
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	ND	20.0	20.0		mg/L	1	5/7/2019 4:43:00 PM	44739

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ13R31N1
Project: SSW Sampling R31
Collection Date: 4/30/2019 7:23:00 AM
Lab ID: 1905001-007
Matrix: AQUEOUS
Received Date: 5/1/2019 7:35:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **smb**	
Chloride	156000	625	5000		mg/L	1E+	5/1/2019 5:09:15 PM	R59587
Sulfate	2850	53.5	500		mg/L	1E+	5/1/2019 4:56:23 PM	R59587
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	265000	2000	2000	*D	mg/L	1	5/7/2019 4:43:00 PM	44739

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R31
Lab ID: 1905001-008 **Matrix:** AQUEOUS

Client Sample ID: SSWWQSP6AR31N1
Collection Date: 4/30/2019 10:54:00 AM
Received Date: 5/1/2019 7:35:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **smb**	
Chloride	309	1.25	10.0		mg/L	20	5/1/2019 5:19:34 PM	R59582
Nitrogen, Nitrate (As N)	4.14	0.00540	0.100		mg/L	1	5/1/2019 4:42:21 PM	R59582
Sulfate	1940	2.68	25.0		mg/L	50	5/6/2019 6:32:59 PM	R59678
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	3230	20.0	20.0	*	mg/L	1	5/7/2019 4:43:00 PM	44739

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R31
Lab ID: 1905001-009 **Matrix:** AQUEOUS

Client Sample ID: SSWWQSP6AR31N2
Collection Date: 4/30/2019 10:57:00 AM
Received Date: 5/1/2019 7:35:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **smb**	
Nitrate+Nitrite as N	3.78	0.0475	1.00		mg/L	5	5/1/2019 5:56:48 PM	R59582
SM 4500 NORG C: TKN							Analyst: **OG**	
Nitrogen, Kjeldahl, Total	ND	0.57	1.0		mg/L	1	5/6/2019 4:30:00 PM	44711

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1905001**

20-May-19

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R31

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R59582**	RunNo: **59582**
Prep Date:	Analysis Date: **5/1/2019**	SeqNo: **2007732** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R59582**	RunNo: **59582**
Prep Date:	Analysis Date: **5/1/2019**	SeqNo: **2007733** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	95.1	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.6	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	98.3	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R59582**	RunNo: **59582**
Prep Date:	Analysis Date: **5/1/2019**	SeqNo: **2007742** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	8.7	0.50	8.000	0	109	90	110			
Nitrogen, Nitrate (As N)	5.0	0.10	4.800	0	104	90	110			
Nitrate+Nitrite as N	8.1	0.20	8.000	0	102	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R59582**	RunNo: **59582**
Prep Date:	Analysis Date: **5/1/2019**	SeqNo: **2007754** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.8	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	98.7	90	110			
Nitrate+Nitrite as N	4.9	0.20	5.000	0	97.5	90	110			

Sample ID: **1905001-008AMS**	SampType: **MS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **SSWWQSP6AR31N**	Batch ID: **R59582**	RunNo: **59582**
Prep Date:	Analysis Date: **5/1/2019**	SeqNo: **2007763** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	6.74	0.100	2.500	4.142	104	69.5	131			
Nitrate+Nitrite as N	7.63	0.200	3.500	4.142	99.5	76.5	119			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1905001**

20-May-19

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R31

Sample ID: **1905001-008AMSD** SampType: **MSD** TestCode: **EPA Method 300.0: Anions**

Client ID: **SSWWQSP6AR31N** Batch ID: **R59582** RunNo: **59582**

Prep Date: Analysis Date: **5/1/2019** SeqNo: **2007764** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	6.76	0.100	2.500	4.142	105	69.5	131	0.341	20	
Nitrate+Nitrite as N	7.68	0.200	3.500	4.142	101	76.5	119	0.699	20	

Sample ID: **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R59582** RunNo: **59582**

Prep Date: Analysis Date: **5/1/2019** SeqNo: **2007766** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.1	90	110			
Nitrogen, Nitrate (As N)	5.0	0.10	4.800	0	104	90	110			
Nitrate+Nitrite as N	8.2	0.20	8.000	0	102	90	110			

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R59582** RunNo: **59582**

Prep Date: Analysis Date: **5/1/2019** SeqNo: **2007779** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.6	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	98.5	90	110			
Nitrate+Nitrite as N	4.9	0.20	5.000	0	97.4	90	110			

Sample ID: **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R59582** RunNo: **59582**

Prep Date: Analysis Date: **5/1/2019** SeqNo: **2007791** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.4	90	110			
Nitrogen, Nitrate (As N)	5.0	0.10	4.800	0	104	90	110			
Nitrate+Nitrite as N	8.1	0.20	8.000	0	102	90	110			

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R59582** RunNo: **59582**

Prep Date: Analysis Date: **5/2/2019** SeqNo: **2007803** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.3	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	98.9	90	110			
Nitrate+Nitrite as N	4.9	0.20	5.000	0	97.8	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1905001**
20-May-19

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R31

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R59582**	RunNo: **59582**							
Prep Date:	Analysis Date: **5/2/2019**	SeqNo: **2007815**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.3	90	110			
Nitrogen, Nitrate (As N)	5.0	0.10	4.800	0	104	90	110			
Nitrate+Nitrite as N	8.2	0.20	8.000	0	102	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R59587**	RunNo: **59587**							
Prep Date:	Analysis Date: **5/1/2019**	SeqNo: **2008048**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.5	0.50	8.000	0	94.2	90	110			
Sulfate	19	0.50	20.00	0	94.5	90	110			

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R59587**	RunNo: **59587**							
Prep Date:	Analysis Date: **5/1/2019**	SeqNo: **2008050**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	0.054	0.50								J

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R59587**	RunNo: **59587**							
Prep Date:	Analysis Date: **5/1/2019**	SeqNo: **2008051**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.4	90	110			
Sulfate	9.4	0.50	10.00	0	94.1	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R59587**	RunNo: **59587**							
Prep Date:	Analysis Date: **5/1/2019**	SeqNo: **2008060**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.5	90	110			
Sulfate	12	0.50	12.50	0	92.6	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1905001**

20-May-19

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R31

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R59587**	RunNo: **59587**							
Prep Date:	Analysis Date: **5/1/2019**	SeqNo: **2008081**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.4	90	110			
Sulfate	19	0.50	20.00	0	97.3	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R59587**	RunNo: **59587**							
Prep Date:	Analysis Date: **5/1/2019**	SeqNo: **2008110**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.2	90	110			
Sulfate	12	0.50	12.50	0	93.6	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R59587**	RunNo: **59587**							
Prep Date:	Analysis Date: **5/1/2019**	SeqNo: **2008135**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.1	90	110			
Sulfate	19	0.50	20.00	0	95.2	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R59587**	RunNo: **59587**							
Prep Date:	Analysis Date: **5/1/2019**	SeqNo: **2008143**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.8	90	110			
Sulfate	12	0.50	12.50	0	93.2	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R59678**	RunNo: **59678**							
Prep Date:	Analysis Date: **5/6/2019**	SeqNo: **2012143**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	11	0.50	12.50	0	90.0	90	110			

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R59678**	RunNo: **59678**							
Prep Date:	Analysis Date: **5/6/2019**	SeqNo: **2012145**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1905001**

20-May-19

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R31

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R59678**	RunNo: **59678**
Prep Date:	Analysis Date: **5/6/2019**	SeqNo: **2012146** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.4	0.50	10.00	0	93.6	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R59678**	RunNo: **59678**
Prep Date:	Analysis Date: **5/6/2019**	SeqNo: **2012155** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	19	0.50	20.00	0	95.7	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R59678**	RunNo: **59678**
Prep Date:	Analysis Date: **5/6/2019**	SeqNo: **2012167** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	12	0.50	12.50	0	92.0	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R59678**	RunNo: **59678**
Prep Date:	Analysis Date: **5/6/2019**	SeqNo: **2012179** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	19	0.50	20.00	0	96.8	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R59678**	RunNo: **59678**
Prep Date:	Analysis Date: **5/6/2019**	SeqNo: **2012191** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	12	0.50	12.50	0	93.4	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R59678**	RunNo: **59678**
Prep Date:	Analysis Date: **5/6/2019**	SeqNo: **2012203** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	20	0.50	20.00	0	98.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1905001**
20-May-19

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R31

Sample ID: **MB-44739** SampType: **MBLK** TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW** Batch ID: **44739** RunNo: **59693**
Prep Date: **5/6/2019** Analysis Date: **5/7/2019** SeqNo: **2012639** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-44739** SampType: **LCS** TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW** Batch ID: **44739** RunNo: **59693**
Prep Date: **5/6/2019** Analysis Date: **5/7/2019** SeqNo: **2012640** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Sample ID: **1905001-001ADUP** SampType: **DUP** TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **SSWC2811R31N1** Batch ID: **44739** RunNo: **59693**
Prep Date: **5/6/2019** Analysis Date: **5/7/2019** SeqNo: **2012642** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	2550	20.0						4.93	10	*

Sample ID: **1905001-008ADUP** SampType: **DUP** TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **SSWWQSP6AR31N** Batch ID: **44739** RunNo: **59693**
Prep Date: **5/6/2019** Analysis Date: **5/7/2019** SeqNo: **2012650** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	3220	20.0						0.496	10	*

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1905001**

20-May-19

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R31

Sample ID: **MB-44711**	SampType: **MBLK**	TestCode: **SM 4500 Norg C: TKN**
Client ID: **PBW**	Batch ID: **44711**	RunNo: **59677**
Prep Date: **5/3/2019**	Analysis Date: **5/6/2019**	SeqNo: **2012122** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	1.0								

Sample ID: **LCS-44711**	SampType: **LCS**	TestCode: **SM 4500 Norg C: TKN**
Client ID: **LCSW**	Batch ID: **44711**	RunNo: **59677**
Prep Date: **5/3/2019**	Analysis Date: **5/6/2019**	SeqNo: **2012123** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10	1.0	10.00	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: WIPP | Work Order Number: 1905001 | RcptNo: 1

Received By: Isaiah Ortiz 5/1/2019 7:35:00 AM I-Ort

Completed By: Anne Thorne 5/1/2019 9:38:21 AM Anne Thorne

Reviewed By: JO 05/01/19

Labeled by: AT 05/01/19

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	FedEx		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 1 (<2 or >12 unless noted)

Adjusted? —

Checked by: AT 05/01/19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

CUSTODY SEALS INTACT ON ZIPLOC BAGS/at 5/1/19

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.7	Good	Yes			

05251

CHAIN OF CUSTODY RECORD

No. 1353

Page 1 of 2

Project Number:	Project Name:	Total Number of Containers	Requested Analyses								Analytical Laboratory
T502542-2	SSW Sampling R31		TDS	Chlorides	Sulfate						HEAL Albuquerque NM
Sampler(s): Brett Seal Allen Hall											
Sample Date	Sample Time	Matrix	Sample Number								Comments
4/29/19	0911	SSW	SSWC2811R31N1	1	X	X	X				Use for MS/MSD 190501-001
4/29/19	1024		SSWPZ12R31N1		X	X	X				-002
4/29/19	1141		SSWPZ10R31N1		X	X	X				-003
4/29/19	1253		SSWPZ7R31N1		X	X	X				-004
4/29/19	1411		SSWPZ11R31N1		X	X	X				-005
4/29/19	1430		SSWPZ11R31EB NIEB 4/29/19		X	X	X				EQUIP BLANK -006
			SSWPZ9R31N1		X	X	X				
			SSWC2507R31N1		X	X	X				
			SSWPZ1R31N1		X	X	X				
			SSWPZ6R31N1		X	X	X	NA BS 4/30/19			
			SSWPZ5R31N1D		X	X	X				
			SSWPZ5R31EB		X	X	X				EQUIP BLANK
			SSWPZ5R31N1		X	X	X				
4/30/19	0723		SSWPZ13R31N1		X	X	X				-007

Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)
4/30/19 1341			
Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received at Laboratory: (Signature, Date/Time)
			I-O Fedex 5/01/19 0735

Requested Turnaround Time: 30 DAYS

☒ Routine ☐ Rush _____

Sample Disposal:

☐ Return to Client ☒ Disposal by Lab

Carrier / Airbill No.:

Sample Receipt Remarks:

Temp: 1.8°C - 0.1°C (CF) 1.7°C

Results To:

Brett Seal

RES
PO Box 2078, MS 452-09
Carlsbad, NM 88221-2078

Phone: 575-234-8864 FAX: 575-234-6003

EDD: Brett.Seal@WIPP.WS

Special Instructions:

High TDS: PZ-7, 11, 9 6, 5, 13, 1

Report all data to 3 sig figs.

WHITE – Analytical Laboratory
DI – Deionized Water
GW – Groundwater

YELLOW – Field Copy
AF – Air Filter(s)
AN – Animal(s)

PINK – Record Copy
SE – Sediment
SO – Soil

SW – Surface Water
VG – Vegetation

Form CofC/RFA, Rev. 0 – NICHOLS PRINTING, INC.

05252

CHAIN OF CUSTODY RECORD

No. 1354

Page 2 of 2

Project Number:	Project Name:
T0502542-2	SSW Sampling R31

Sampler(s): Brett Seal, Allen Hall

Sample Date	Sample Time	Matrix	Sample Number	Total Number of Containers	TDS	Chloride	Sulfate	Nitrate	TKN					Analytical Laboratory / Comments
4/30/19	1054	SSW	SSWWQSP6AR31N1	1	X	X	X	X						Use for MS/MSD 190801-008
4/30/19	1057	SSW	SSWWQSP6AR31N2	1				X	X					209

N/A BS 4/30/19

Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)
4/30/19 1341			
Relinquished By: (Signature, Date/Time)	**Received By: (Signature, Date/Time)**	**Relinquished By: (Signature, Date/Time)**	**Received at Laboratory: (Signature, Date/Time)**
			I — Fedex 5/01/19 0735

Requested Turnaround Time: 30 Days

☒ **Routine** ☐ **Rush** _____

Sample Disposal:

☐ **Return to Client** ☒ **Disposal by Lab**

Carrier / Airbill No.:

Sample Receipt Remarks: Temp: 1.8°C - 0.1°C (CF) 1.7°C

Special Instructions:

Results To:

Brett Seal
RES
PO Box 2078, MS 452-09
Carlsbad, NM 88221-2078
Phone: 575-234-8806 FAX: 575-234-6003
EDD: Brett.Seal@WIPP.WS

WHITE – Analytical Laboratory
DI – Deionized Water
GW – Groundwater

YELLOW – Field Copy
AF – Air Filter(s)
AN – Animal(s)

PINK – Record Copy
SE – Sediment
SO – Soil

SW – Surface Water
VG – Vegetation

Form CofC/RFA, Rev. 0 – NICHOLS PRINTING, INC.

05253

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 17, 2019

Brett Seal
Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8966
FAX

RE: SSW Sampling R31 OrderNo.: 1905285

Dear Brett Seal:

Hall Environmental Analysis Laboratory received 7 sample(s) on 5/7/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1905285**
Date Reported: **5/17/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ9R31N1
Project: SSW Sampling R31
Collection Date: 5/2/2019 9:26:00 AM
Lab ID: 1905285-001 **Matrix:** AQUEOUS **Received Date:** 5/7/2019 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	126000	5000		mg/L	1E+	5/10/2019 3:02:54 PM	R59818
Sulfate	5830	500		mg/L	1E+	5/10/2019 2:50:02 PM	R59818
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	204000	2000	*D	mg/L	1	5/13/2019 11:48:00 AM	44823

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWC2507R31NI
Project: SSW Sampling R31
Collection Date: 5/2/2019 11:57:00 AM
Lab ID: 1905285-002 **Matrix:** AQUEOUS **Received Date:** 5/7/2019 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	4210	500		mg/L	1E+	5/10/2019 3:28:40 PM	R59818
Sulfate	748	50.0		mg/L	100	5/10/2019 3:15:47 PM	R59818
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	8770	200	*D	mg/L	1	5/13/2019 11:48:00 AM	44823

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ1R31N1
Project: SSW Sampling R31
Collection Date: 5/2/2019 1:06:00 PM
Lab ID: 1905285-003 **Matrix:** AQUEOUS **Received Date:** 5/7/2019 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	37100	5000		mg/L	1E+	5/13/2019 3:42:26 PM	R59846
Sulfate	2160	50.0		mg/L	100	5/10/2019 4:07:16 PM	R59818
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	63600	2000	*D	mg/L	1	5/13/2019 11:48:00 AM	44823

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ6R31N1
Project: SSW Sampling R31
Collection Date: 5/2/2019 2:12:00 PM
Lab ID: 1905285-004 **Matrix:** AQUEOUS **Received Date:** 5/7/2019 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	19100	500		mg/L	1E+	5/10/2019 4:45:52 PM	R59818
Sulfate	1160	50.0		mg/L	100	5/10/2019 4:33:00 PM	R59818
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	32100	2000	*D	mg/L	1	5/13/2019 11:48:00 AM	44823

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ5R31N1
Project: SSW Sampling R31
Collection Date: 5/2/2019 3:23:00 PM
Lab ID: 1905285-005 **Matrix:** AQUEOUS **Received Date:** 5/7/2019 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	7170	500		mg/L	1E+	5/10/2019 5:11:35 PM	R59818
Sulfate	617	50.0		mg/L	100	5/10/2019 4:58:44 PM	R59818
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	14500	200	*D	mg/L	1	5/13/2019 11:48:00 AM	44823

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ5R31N1D
Project: SSW Sampling R31
Collection Date: 5/2/2019 3:24:00 PM
Lab ID: 1905285-006 **Matrix:** AQUEOUS **Received Date:** 5/7/2019 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	5550	500		mg/L	1E+	5/10/2019 5:24:27 PM	R59818
Sulfate	624	500		mg/L	1E+	5/10/2019 5:24:27 PM	R59818
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	10600	200	*D	mg/L	1	5/13/2019 11:48:00 AM	44823

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ5R31N1EB
Project: SSW Sampling R31
Collection Date: 5/2/2019 3:38:00 PM
Lab ID: 1905285-007 **Matrix:** AQUEOUS **Received Date:** 5/7/2019 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	ND	0.500		mg/L	1	5/10/2019 5:50:10 PM	R59818
Sulfate	0.527	0.500		mg/L	1	5/10/2019 5:50:10 PM	R59818
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	ND	20.0		mg/L	1	5/13/2019 11:48:00 AM	44823

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1905285**

17-May-19

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R31

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R59818**	RunNo: **59818**							
Prep Date:	Analysis Date: **5/10/2019**	SeqNo: **2017565**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.7	90	110			
Sulfate	12	0.50	12.50	0	94.2	90	110			

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R59818**	RunNo: **59818**							
Prep Date:	Analysis Date: **5/10/2019**	SeqNo: **2017567**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R59818**	RunNo: **59818**							
Prep Date:	Analysis Date: **5/10/2019**	SeqNo: **2017568**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.7	90	110			
Sulfate	9.8	0.50	10.00	0	97.6	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R59818**	RunNo: **59818**							
Prep Date:	Analysis Date: **5/10/2019**	SeqNo: **2017577**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	8.5	0.50	8.000	0	106	90	110			
Sulfate	20	0.50	20.00	0	98.7	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R59818**	RunNo: **59818**							
Prep Date:	Analysis Date: **5/10/2019**	SeqNo: **2017589**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.8	90	110			
Sulfate	12	0.50	12.50	0	95.2	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R59818**	RunNo: **59818**							
Prep Date:	Analysis Date: **5/10/2019**	SeqNo: **2017601**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1905285**

17-May-19

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R31

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R59818**	RunNo: **59818**							
Prep Date:	Analysis Date: **5/10/2019**	SeqNo: **2017601**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.9	0.50	8.000	0	98.7	90	110			
Sulfate	20	0.50	20.00	0	98.7	90	110			

Sample ID: **1905285-007AMS**	SampType: **MS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **SSWPZ5R31N1EB**	Batch ID: **R59818**	RunNo: **59818**							
Prep Date:	Analysis Date: **5/10/2019**	SeqNo: **2017603**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.1	0.50	5.000	0.2583	96.0	61.7	139			
Sulfate	10	0.50	10.00	0.5267	98.5	47.2	154			

Sample ID: **1905285-007AMSD**	SampType: **MSD**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **SSWPZ5R31N1EB**	Batch ID: **R59818**	RunNo: **59818**							
Prep Date:	Analysis Date: **5/10/2019**	SeqNo: **2017604**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.1	0.50	5.000	0.2583	97.2	61.7	139	1.15	20	
Sulfate	10	0.50	10.00	0.5267	99.7	47.2	154	1.13	20	

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R59818**	RunNo: **59818**							
Prep Date:	Analysis Date: **5/10/2019**	SeqNo: **2017613**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.6	90	110			
Sulfate	12	0.50	12.50	0	95.2	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R59818**	RunNo: **59818**							
Prep Date:	Analysis Date: **5/10/2019**	SeqNo: **2017625**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.9	0.50	8.000	0	98.9	90	110			
Sulfate	20	0.50	20.00	0	99.1	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R59818**	RunNo: **59818**							
Prep Date:	Analysis Date: **5/11/2019**	SeqNo: **2017630**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1905285**

17-May-19

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R31

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R59818**	RunNo: **59818**							
Prep Date:	Analysis Date: **5/11/2019**	SeqNo: **2017630**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	95.0	90	110			
Sulfate	12	0.50	12.50	0	95.9	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R59846**	RunNo: **59846**							
Prep Date:	Analysis Date: **5/13/2019**	SeqNo: **2018661**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.8	90	110			

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R59846**	RunNo: **59846**							
Prep Date:	Analysis Date: **5/13/2019**	SeqNo: **2018663**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R59846**	RunNo: **59846**							
Prep Date:	Analysis Date: **5/13/2019**	SeqNo: **2018664**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.1	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R59846**	RunNo: **59846**							
Prep Date:	Analysis Date: **5/13/2019**	SeqNo: **2018673**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.9	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R59846**	RunNo: **59846**							
Prep Date:	Analysis Date: **5/13/2019**	SeqNo: **2018683**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.9	0.50	8.000	0	98.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1905285**
17-May-19

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R31

Sample ID: **MB-44823**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **44823**	RunNo: **59827**
Prep Date: **5/9/2019**	Analysis Date: **5/13/2019**	SeqNo: **2017986** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-44823**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **44823**	RunNo: **59827**
Prep Date: **5/9/2019**	Analysis Date: **5/13/2019**	SeqNo: **2017987** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **WIPP** Work Order Number: **1905285** RcptNo: **1**

Received By: **Yazmine Garduno** **5/7/2019 7:05:00 AM** Yazmine Garduno

Completed By: **Yazmine Garduno** **5/7/2019 8:00:19 AM** Yazmine Garduno

Reviewed By: LB 5/7/19

LB: JJC 5-7-19

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? FedEx

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: JJC 5-7-19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.8	Good	Yes			

CHAIN OF CUSTODY RECORD

No. 1355

Page 1 of 1

Project Number:	Project Name:
T502542-2	SSW Sampling R31

Sampler(s): Brett Seal, Allen Hall

Sample Date	Sample Time	Matrix	Sample Number	Total Number of Containers	TDS	Chloride	Sulfate		HEALTH 190528Y5 NB 5/7/19					Comments
5/2/19	0926	SSW	SSWPZ9R31N1	1	x	x	x		-001					
5/2/19	1157		SSWC2507R31N1		x	x	x		-002					
5/2/19	1306		SSWPZ1R31N1		x	x	x		-003					
5/2/19	1412		SSWPZ6R31N1		x	x	x		-004					
5/2/19	1523		SSWPZ5R31N1		x	x	x		-005					
5/2/19	1524		SSWPZ5R31N10		x	x	x		-006					
5/2/19	1538		SSWPZ5R31N1EB		x	x	x		-007					Equip Blank

NA All 5/6/19

Relinquished By: (Signature, Date/Time)

Relinquished By: (Signature, Date/Time)

Received By: (Signature, Date/Time) Yllo FED EX 705 5/7/19

Received By: (Signature, Date/Time)

Relinquished By: (Signature, Date/Time)

Relinquished By: (Signature, Date/Time)

Received By: (Signature, Date/Time)

Received at Laboratory: (Signature, Date/Time)

Requested Turnaround Time: 30

☑ Routine ☐ Rush _____

Sample Disposal:

☐ Return to Client ☑ Disposal by Lab

Carrier / Airbill No.:

Sample Receipt Remarks:

Results To:
Brett Seal
RES
PO Box 2078, MS 452-09
Carlsbad, NM 88221-2078
Phone: 575-234-8866
EDD: Brett.Seal@WIPP.WS

Temp: 1.9°C − 0.1°CF = 1.8°C Yl 5/7/19

FAX: 575-234-6003

Special Instructions:
High TDS: PZ-9, PZ-1
PZ-6, PZ-5
Report all data to
3 sig figs.

Analytical Laboratory
HEAL
Albuquerque NM

WHITE – Analytical Laboratory
DI – Deionized Water
GW – Groundwater

YELLOW – Field Copy
AF – Air Filter(s)
AN – Animal(s)

PINK – Record Copy
SE – Sediment
SO – Soil

SW – Surface Water
VG – Vegetation

Form CofC/RFA, Rev. 0 – NICHOLS PRINTING, INC.

05267

Table 7 - Monitoring Water Levels and Chemical Analyses

	Field and General Chemistry Parameters							
Monitoring Site	Sample Date	pH (SU)	Temp. (^{0}C)	Specific Conductivity @25 ^{0}C (µS/cm)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)
PZ-1	5/2/2019	6.4	24.03	93,090	NA	**2,160**	**37,100**	**63,600**
PZ-2	NS	NS	NS	NS	NS	NS	NS	NS
PZ-3	NS	NS	NS	NS	NS	NS	NS	NS
PZ-4	NS	NS	NS	NS	NS	NS	NS	NS
PZ-5	5/2/2019	7.08	22.03	72,500	NA	**617**	**7,170**	**14,500**
PZ-6	5/2/2019	6.84	23.09	94,800	NA	**1,160**	**19,100**	**32,100**
PZ-7	4/29/2019	6.23	23.25	95	NA	**2,650**	**60,300**	**106,000**
PZ-9	5/2/2019	6.18	20.05	101,200	NA	**5,830**	**126,000**	**204,000**
PZ-10	4/29/2019	7.22	23.22	4,990	NA	179	146	874
PZ-11	4/29/2019	6.75	22.52	96,080	NA	**744**	**15,900**	**26,300**
PZ-12	4/29/2019	6.83	22.34	32,390	NA	521	**2,310**	**5,340**
PZ-13	4/30/2019	Bailed			NA	**2,850**	**156,000**	**265,000**
PZ-14	NS	NS	NS	NS	NS	NS	NS	NS
PZ-15	NS	NS	NS	NS	NS	NS	NS	NS
C-2811	4/29/2019	7.05	21.24	14,580	NA	348	**1,020**	**2,680**
C-2505	NS	NS	NS	NS	NS	NS	NS	NS
C-2506	NS	NS	NS	NS	NS	NS	NS	NS
C-2507	5/2/2019	7.02	21.66	44,770	NA	**748**	**4,210**	**8,770**
WQSP-6A	4/30/2019	6.73	23.19	13,220	4.14	**1,940**	**309**	**3,230**
Explanation:	NA: Not Analyzed, parameter not required, per permit conditions.							
	NS: Not Sampled, not required per permit conditions							
	ND: Non-detect							
	PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty							
	"**Bold**" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic W							

Other	Water Level Monitoring (Ft AMSL)	
TKN (mg/L)	03/05/2019-03/07/19	06/04/19-06/06/19
NA	3371.72	3371.60
NS	3371.12	3370.99
NS	3371.63	3371.52
NS	3367.53	3367.29
NA	3372.41	3372.25
NA	3370.92	3370.60
NA	3378.68	3378.45
NA	3362.87	3362.97
NA	3369.72	3369.04
NA	3377.42	3376.98
NA	3358.03	3357.73
NA	3357.39	3357.27
NS	3354.47	3354.33
NS	3383.65	3383.21
NA	3347.53	3347.67
NS	3368.53	3368.40
NS	3369.11	3369.01
NA	3365.76	3365.64
ND	3195.37	3195.54

using Low-Flow pumps
ater Supply

Discharge to Facultative Lagoon System
January through June 2019

Date	Gallons Domestic	Gallons for the Month	Avg. Gal per day
1/1 - 1/6	43,076		
1/7 - 1/13	54,295		
1/14 - 1/20	70,782		
1/21 - 1/27	82,807	250,960	9,295
1/28 - 2/3*	40,259		
2/4 - 2/10	68,177		
2/11 - 2/17	67,094		
2/18 - 2/24	75,415		
2/25 - 3/3	69,157	320,102	9,146
3/4 - 3/10	62,208		
3/11 - 3/17	62,602		
3/18 - 3/24	51,358		
3/25 - 3/31	64,873	241,041	8,609
4/1 - 4/7	60,718		
4/8 - 4/14	61,075		
4/15 - 4/21	59,187		
4/22 - 4/28	58,356	239,336	8,548
4/29 - 5/5	61,793		
5/6 - 5/12	62,186		
5/13 - 5/19	62,853		
5/20 - 5/26	65,673		
5/27 - 6/2	53,863	306,368	8,753
6/3 - 6/9	55,478		
6/10 - 6/16	57,002		
6/10 - 6/23	58,854		
6/24 - 6/30**	57,111	228,445	8,159
	Total Flow	1,586,252	8,716

*Gallons Domestic Water was not included on this sheet.
The data was taken from the following week's reading.
**Gallons Domestic Water meter malfunction. The data
was obtained by averaging the previous three readings.

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 12/31/2018 End Date: 12/31/2018

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		(B)													
				FOT	C/O	27													
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓													
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]			✓	✓												
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70		67	68												
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]			75700	20898												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]			62531	43076												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230		005 (1)	005 (1)												
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000		↓	↓												
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2		1.11	1.04												

Entries continued on 2019 paperwork

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) OOS AR 1629840

APPROVED FOR USE/DATE: [signature] — 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 1/1/2019 End Date: 1/6/2019

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER				BJ		BJ		BJ		BJ		BJ		BJ	
				FOT	C/O			ZP		ZP		JH		BJ		BJ		BJ	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]								✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]					✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70				68		68		65		65		66		65	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]																
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]																
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230				005 (1)		005 (1)		005 (1)		005 (1)		005 (1)		005 (1)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2				1.03		1.07		1.10		1.10		1.10		1.0	

Enter 3 on daily Date Week

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) OOS AR 162940

APPROVED FOR USE/DATE: [signature] — 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 1/7/19 **End Date:** 1/13/19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		NL		NL		NL		NL		✓		✓		PJP	
				FOT	C/O	RT				RM		RW		JB RM		RM JB		RL GB	
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	65	65		65		67		65		67		67		67	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		20898	51667													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		430760	541955													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS ①	OOS ①		OOS ①		OOS ①		OOS ①		OOS ①		OOS ①		OOS ①	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	1.0	.89		.89		.83		.79		.92		.99		.92	

NOTES: **[A] - RESET meter after taking the reading on Monday.**
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:

① OOS AR 162 9840

APPROVED FOR USE/DATE: [signature] 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 1/14/19 End Date: 1/20/19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
			DAY	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
			SHIFT		JF		BF		BF		BF		CB		CB		CB	
			REVIEWER															
			FOT	C/O	EC		EC		DP		DP							
ITEM	MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	67	67		63		65		63		64		67		66	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		51667	50972													
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		54295	70782													
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	OOS①	OOS①		OOS		OOS		OOS		OOS		OOS①		OOS①	
[NMED, DP-831] **Max 23,000 gal** (Reading × 100)			23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.7	[C]	1.2	.92	.97		.93		.89		.77		.84		.89		.86	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① O.O.S.- AR# 162984

APPROVED FOR USE/DATE: — 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 1-21-19 **End Date:** 1-27-19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		PJP				PJP									
				FOT	C/O	RMJB		RMJB		RMJB						KM		R.T.	
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓									
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓		✓									
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	66	63		63		67									
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A] 1-21-19 KM		5C972 ~~505~~	131911													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		70782	82887													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS	OOS		OOS		OOS									
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.7	[C]	1.2	.96	.84		1.14		1.03									

NOTES: **[A] - RESET meter after taking the reading on Monday.**
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.2) or adding chlorine (chlorine below 0.7) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) NAT - Outage SEC 1/23/19

APPROVED FOR USE/DATE: 4/16/18

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 1/28/19 End Date: 2/3/19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2		2	1	2
				REVIEWER				G		G		G							
				FOT	C/O														
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]								① DP 1/28/19		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]					✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70				66		66		65		66		66		65	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]																	
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]																	
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230				② OOS		② OOS		② OOS		② OOS		② OOS		② OOS	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	2.0				1.0		.77		.87		.78		.86		.89	

New Raw Issued 1-28-19

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 2.0) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① CMS NOT Working - Battery Bad
② O.O.S.

APPROVED FOR USE/DATE: [signature] 1-28-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 2/4/19 End Date: 2/10/19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		NJ		NJ		NJ		NJ							
				FOT	C/O	R.T.		R.T.		RV		DP RM JZM DP 2/19		JB		JB			
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	65	65		64		65		65		66		67		67	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			144228.9	247426													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			40259.60	68177													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS	OOS		OOS		OOS		OOS		OOS		OOS		OOS	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	2.0	.89	.88		.85		.84		.81		.94		.86		.84	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 2.0) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:

APPROVED FOR USE/DATE: [signature] 1-28-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 2-11-19 End Date: 2-17-19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		DP		DP		DP									
				FOT	C/O	DP		DP		DP									
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	67	66		65		64		65		64		65		67	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		47426	48553													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		68177	67094													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS	OOS		OOS		OOS		OOS		OOS		OOS		OOS	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	2.0	.84	.89		1.0		.90		.89		.82		.75		1.14	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 2.0) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:

APPROVED FOR USE/DATE: [signature] 1-28-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 2-18-19 **End Date:** 2-24-19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		DJP		JL		JL		PJP		JL		JL		JL	
				FOT	C/O	JL		JL	JB	JL		JB		~~JB~~ JB 2/21/19		JB		R.T.	
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	67	66		69		67		68		68		68		68	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		40553	93345.92													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		67094	15415.20													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	005	005		005		005		005		005		005		005	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	2.0	1.14	1.10		.69		1.19		1.77		2.0		1.96		2.0	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 2.0) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:

APPROVED FOR USE/DATE: [signature] 1-28-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 2/25/19 End Date: 3/3/19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		ZP GB		ZP GB		ZP GB		ZP GB							
				FOT	C/O	JG				JG				RT. DP					
ITEM		MIN	NORM	MAX										R.T. 2-28-19					
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	68	68		67		67		67		66		67		67	
456-FIY-010-001 WATER FLOW METER					DP 2/24/19	93345.9													
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		9235	3 8137.88													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		75415.2	69150.92													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS	COS		OOS		OOS		OOS		OOS		OOS		OOS	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	2.0	2.0	2.0		1.86		1.82		1.84		1.60		1.56		1.56	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 2.0) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:

APPROVED FOR USE/DATE: [signature] 1-28-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 3/4/19 End Date: 3/10/19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		[illegible]		[illegible]		[illegible]		[illegible]		PJP		PJP		PJP	
				FOT	C/O	R.T.		R.T.		RN		RN		JB		ZM		[illegible]	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	67	67		67		67		65		68		68		68	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			38137	71489													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			69156	62208													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS	OOS		OOS		OOS		OOS		OOS		OOS		OOS	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	2.0	1.56	1.63		1.57		1.50		1.50		.88		1.14		1.08	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 2.0) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:

APPROVED FOR USE/DATE: [signature] — 1-28-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 031119 End Date: 031719

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
	REVIEWER		DP		DP		DP		DP		JG		✓		✓	
	FOT	C/O														

ITEM	MIN	NORM	MAX	SUN	MON 1	MON 2	TUES 1	TUES 2	WED 1	WED 2	THURS 1	THURS 2	FRI 1	FRI 2	SAT 1	SAT 2	SUN 1	SUN 2
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	68	67		68		67		67		68		68		68	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		71489	71567.8													
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		62208	626025													
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	OOS (1)	OOS (1)		OOS (1)		OOS (1)		OOS (1)		OOS (1)		OOS (1)		OOS (1)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	↓	↓								↓		✓		✓	
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.5	[C]	2.0	1.08	1.17		1.14		1.16		1.14		1.05		1.02		1.00	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 2.0) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
1. Out of Service AR# 1629904

APPROVED FOR USE/DATE: [signature] 1-28-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 03-18-2019 **End Date:** 03-24-2019

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
			DAY	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
			SHIFT															
			REVIEWER				PJD		PJD		PJD							
			FOT	C/O			JB		JB		JB				RT.		RT.	
ITEM	**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	68	67		60		63		67		67		67		67	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		7156788387860														
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		6260251351.8														
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	OOS (1)	OOS (1)		550 (2)		85740 (1) (2) 03-26-19		750001		550 (1)		1373400 (1) 03-23-19		72370 (1)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	↓	↓		52,816 (2)		857400 (1)		750000 (1)		550200 (1)		1373400 (1)		723700 (1)	
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.5	[C]	2.0	1.00	.92		.75		.94		.71		.69		.94		.96	

NOTES:
- **[A] - RESET meter after taking the reading on Monday.**
- **[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].**
- **[C] - ADJUST chlorine levels by either adding water (chlorine above 2.0) or adding chlorine (chlorine below 0.5) to maintain specifications.**
- **[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.**
- **[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.**
- **[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.**
- **[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.**

COMMENTS: (1) OOS. AR # 1629904
(2) out of spec FSM notified AR# 1629904

APPROVED FOR USE/DATE: [signature] 1-28-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 03/25/19 End Date: 03/31/19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]	
				FOT	C/O	[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	67	67		67		67		66		67		67		67	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			38786.0	77535.75													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			51357.8	64873.22													
456-FM-045-001 SEWAGE FLOW METER					①														
($) SEWAGE FLOW READING		N/A	[B]	230	7237	①		①		①		①		①		①		①	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	723700	①		①		①		①		①		①		①	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	2.0	.96	.92		.83		.87		.86		.71		.70		.70	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 2.0) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: 1. OOS AR # 629904
2. ~~Out of spec FSM Notified~~ DP 3/30/19

APPROVED FOR USE/DATE: [signature] — 1-28-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 4/1/19 End Date: 4/7/19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		JJ		AR											
				FOT	C/O	R.T.		RT											
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING										DP 4/2/19									
ALTERNATE CMR [D]						✓		✓		✓									
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓						New	Rev issued				
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	67	67		67											
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			77535	67533								AR	4-3-19				
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			64873	60718													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	(1)	(1)		(1)		(1)									
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓									
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	2.0	.70	1.02		1.06											

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 2.0) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) OOS AR# 162-9904

APPROVED FOR USE/DATE: [signature] — 1-28-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 4-8-19 End Date: 4-14-19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O														
ITEM		MIN	NORM	MAX	DP 4/8/19														
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	67	67		66		67		66		65		66		68	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			67533	131973.83													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			60718	61074.89													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	①	①		①		①		①		①		①		①	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	1.02	.91		.90		.81		.79		.89		.79		0.80	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① - 005 - AR # 1629904

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 4-15-19 **End Date:** 4-21-19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		RJP		RJP		RJP		RAC		MB		MB		MB	
				FOT	C/O	GB		JB		GB		DC				km		B.T.	
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	68	68		66		66		67		68		67		69	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			131973	40762.87													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			41674	59187.91													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	① ↓	① ↓		① ↓		① ↓		① ↓		① ↓		① ↓		① ↓	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.80	1.03		.73		.73		.87		.83		.81		.88	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① A.R. # 1629904

APPROVED FOR USE/DATE: 4-3-19

ISSUED

COPY

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 4-22-19 **End Date:** 4-28-19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		(2)		AC		AC		(6)							
				FOT	C/O	✓		DP 4/22/19		97		98							
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	67	63		66		67		67		67		67		67	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			4076287	5934895													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			5167.01	5835561													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	(1)	(1)		(1)		(1)		(1)		(1)		(1)		(1)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	✓	✓		✓		✓		✓		✓		✓		✓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.86	.92		.85		.92		.80		.60		.79		.69	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: 1. AR # 1629904

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 4/29/19 End Date: 5/5/19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
	REVIEWER		MB		MB		MB		ZP		PJD		PJP		PJP	
	FOT	C/O	kmm		[illegible]		R.T.		DJ		JB		RL		JB	

ITEM	MIN	NORM	MAX	SUN 2	MON 1	MON 2	TUES 1	TUES 2	WED 1	WED 2	THURS 1	THURS 2	FRI 1	FRI 2	SAT 1	SAT 2	SUN 1	SUN 2
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					(2)		(2)		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	67	66		66		63		62		62		65		65	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)	RESET MONDAY [A]			59348.95	70947.37													
DOMESTIC WATER GALLONS (gal)	RESET MONDAY [A]			58355.61	61792.73													
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	(1) ↓	(1) ↓		(1) ↓		(1) ↓		(1) ↓		(1) ↓		(1) ↓		(1) ↓	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000															
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.5	[C]	1.8	.69	.67		.63		.93		1.11		.95		.71		1.8	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) AR# 16029904 (2) Could not log in - FSM informed (CC'ed 5-1-19 R.T.)

APPROVED FOR USE/DATE: [signature] 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 5/6/19 **End Date:** 5/12/19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER						ZP		ZP		ZP		ZP		B	
				FOT	C/O											Jh		Jh	
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	66	64		63		64		63		65		63		63	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			7098237	74 034.8													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			61792.77	62186.3													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	①	①				①		①		①		①		①	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.69	1.0		1.6		1.7		1.6		1.6		1.3		1.2	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① AR # 1629904

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 5-13-19 **End Date:** 5-19-19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		AL		AP		Ae		D,P		AL		AL		MB	
				FOT	C/O	JB		RL		JB		RL		JB 5/16/19				R.T.	
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	63	65		65		65		65		65		65		65	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			74034.8														
					✗ R.F. 5-12-19	36451													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			↓	62853													
456-FM-045-001 SEWAGE FLOW METER					62186.3														
($) SEWAGE FLOW READING		N/A	[B]	230	① ↓	① ↓		① ↓		① ↓		① ↓		① ↓		① ↓		① ↓	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	1.2	0.6		1.7		1.6		1.5		1.4		1.3		1.2	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① AR# 1629904

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 5-20-19 **End Date:** 5-26-19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		ZP		(B)		(B)		(B)		BK		MB		MB	
				FOT	C/O	JG		SD		SD		JG		LT		DT		DT	
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	65	65		65		65		65		65		65		65	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			364519	5677382													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			62853	65673													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	(1) ↓	(1) ↓		(1) ↓		(1) ↓		(1) ↓		(1) ↓		(1) ↓		(1) ↓	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	1.2	1.1		1.8		1.8		1.8		1.3		1.5		1.8	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) AR # 1629904

APPROVED FOR USE/DATE: 4-3-19

ISSUED

COPY

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 5/27/19 **End Date:** 6/2/19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		BB		RP		MB		RP		RP		RJA		✓	
				FOT	C/O	97		97		~~DP~~ 97		97		JB		RL		9B	
										DP 5/28/19									
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		—		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	65	65		65		65		65		65		65		65	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			5677352	44661.83													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			65673	53863.21													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	①	①		①		①		①		①		①		①	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	1.8	②		1.8		1.6		1.8		1.3		1.5		1.2	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① AR# 1629904 ② ~~NO AMPULES - FSM NOTIFIED~~ - 5-28-19 1 Box

APPROVED FOR USE/DATE: 4-3-19

ISSUED

COPY

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 060319 **End Date:** 060919

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
	REVIEWER		BP		BP		BP		BP		ZP		JH		JH	
	FOT	C/O														

ITEM	MIN	NORM	MAX	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	65	65		65		65		65		65		65		65	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)	RESET MONDAY [A]			64611.83	86433.47													
DOMESTIC WATER GALLONS (gal)	RESET MONDAY [A]			53863.21	55478.16													
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	0	1		1		1		1		1		0		0	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000															
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.5	[C]	1.8	1.2	.90		1.6		1.4		.6		.7		1.6		1.4	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ~~AR# 1624404~~ AR# 1629840 REPAIR flow METER
DP 6/4/19

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 6-10-19 **End Date:** 6-16-19

Location:	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
456, PUMPHOUSE BUILDING	REVIEWER		AE		PJP				PJP							
	FOT	C/O	DJ		DJ								R.T.			

ITEM	MIN	NORM	MAX	SUN	MON 1	MON 2	TUES 1	TUES 2	WED 1	WED 2	THURS 1	THURS 2	FRI 1	FRI 2	SAT 1	SAT 2	SUN 1	SUN 2
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		—		✓		②		②	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	65	65		65		65		65		65		65		65	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)	RESET MONDAY [A]			3643342	576261													
DOMESTIC WATER GALLONS (gal)	RESET MONDAY [A]			55478.6	57001.6													
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	①	①		①		①		①		①		①		①	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.5	[C]	1.8	1.4	.76		.85		1.14		1.41		1.05		1.0		.93	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Repair flow meter AR # 1629840
② Failed to initiate - FSM notified Submitted IT ticket 6/15/2019. mc

APPROVED FOR USE/DATE: 4-3-19

ISSUED

COPY

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 6/17/2019 **End Date:** 6/23/2019

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		EB		EB		EB		EB		BA		BA		BA	
				FOT	C/O	DR								DP		DR		DP	
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]					(1)	(1)		(1)		(1)		(1)		(1)		(1)		(1)	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓		✓		✓		✓		✓		✓	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	65	45		65		65		65		65		65		65	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		57626.1	65104.33													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		57001.6	68854.47													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	(2)	(2)		(2)		(2)		(2)		(2)		(2)		(2)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.93	1.04		.96		.90		.88		.95		.80		.60	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: 1. Failed to initiate FSM NOTIFIED, submitt ticket to IT ON 6/15/19
2. REPAIR FLOW METER AR 1629840

APPROVED FOR USE/DATE: 4-3-19

ISSUED

COPY

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 6/24/19 **End Date:** 6/30/19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		MB		MB		MB		MB		A		A		A	
				FOT	C/O			R.T.						JB		RL		GB	
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]					(1)	(1)		(1)		(1)		(1)		(1)		(1)		(1)	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		✓	✓		✓		✓		✓		(5)		(5)		(5)	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	65	65		65		65		65		65		65		65	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			65104	50493													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			58854	0													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	(2) ↓	(2) ↓		(2) ↓		(2) ↓		(2) ↓		(2) ↓		(2) ↓		(2) ↓	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.60	.66		(3) .53		.09 (4)		.64		.80		.73		.69	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
(1) Failed to initiate FSM notified
(2) OOS AR# 1629840
(3) Chlorinators not working AR# 1923806 - cleared 6-26-19
(4) 6-26-19 ~~BM~~ OUT of spec - adding Cl2 and informed FSM
(5) Low level alarms do not illuminate

APPROVED FOR USE/DATE: 4-3-19

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

JAN 3 0 2020

Ms. Michelle Hunter, Bureau Chief
New Mexico Environment Department
Ground Water Quality Bureau
Harold Runnels Building
1190 Saint Francis Drive
P.O. Box 5469
Santa Fe, NM 87502

Subject: Semi-Annual Discharge Monitoring Report for July 1 through December 31, 2019, Discharge Permit 831

Dear Ms. Hunter:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Discharge Monitoring Report, including the required attachments on compact disc, for the period of July 1 through December 31, 2019. This report is required by Discharge Permit 831.

If you have any questions about this report or require any additional information, please contact me at (575) 234-7476.

Sincerely,

Michael R. Brown, Director
Environmental Protection Division

Enclosure (2)

cc: w/o enclosures
R. Maestas, NMED *ED
A. Young, NMED ED
CBFO M&RC
*ED denotes electronic distribution

CBFO:OEP:MRB:ER:20-0206:UFC 5486.00

05298

Waste Isolation Pilot Plant Semi-Annual Discharge Monitoring Report for Discharge Permit DP-831 for Reporting Period July 1, 2019 through December 31, 2019

U.S. Department of Energy

January 2020

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2019 THROUGH DECEMBER 31, 2019

REPORTING REQUIREMENTS OF DP-831 OPERATIONAL PLAN

Part B. Applicable to the Facultative Lagoon System

Condition 8. *– The permittee shall measure the thickness of the sludge blanket in each pond of the Facultative Lagoon System once within the effective term of this Discharge Permit, but before the end of 2018. When sludge accumulation exceeds 1/3 of the total depth of any pond, the permittee shall remove the sludge in a manner, which is protective of the pond liner. Removed solids shall be contained, transported, and disposed of in accordance with all local, state, and federal regulations. The permittee shall maintain solids blanket measurements and solids disposal manifests for solids transported from the facility for off-site disposal. The permittee shall submit all measurements and manifests to NMED in the semi-annual monitoring report immediately following the solids thickness measurement.*

Sludge measurements were performed on the Facultative Lagoon System ponds in 2017. The measurements were submitted to the NMED in the second semi-annual report for 2017. This completes the requirement to sample the sludge once within the effective term of this discharge permit.

Part D. Applicable to the Storm Water Runoff Impoundments in Contact with Salt Stockpiles (Salt Storage Ponds 1, 2, and 3) and Salt Stockpiles (Salt Cells 1, 2, and 3).

Condition 9. *– The permittee shall measure the thickness of the solids blanket in each impoundment once within the effective term of this Discharge Permit, but before the end of 2018. Removed solids shall be contained, transported, and disposed of in accordance with all local, state, and federal regulations. The permittee shall maintain solids blanket measurements and solids disposal manifests for solids transported from the facility for off-site disposal. The permittee shall submit all measurements and manifests to NMED in the semi-annual monitoring report immediately following the solids thickness measurement.*

Sludge measurements were performed on Salt Storage Ponds 1, 2 and 3 in 2018. The sludge levels were as follows:

Salt Storage Pond 1 – 0.25 ft
Salt Storage Pond 2 – 4.63 ft
Salt Storage Pond 3 – 5.14 ft

The measurement results were submitted to the NMED in the first semi-annual report for 2018. Removal of sludge from Salt Storage Pond 2 has commenced and is currently being worked.

Condition 10. *– The permittee shall inspect the leak detection systems for Salt Storage Ponds 2 and 3 on a monthly basis for the presence of liquid. The permittee shall keep a log of the inspection findings and repairs made. The inspection log, including a statement whether or not liquids were observed in the leak detection systems, shall be submitted to NMED in the semi-annual monitoring reports.*

Monthly inspections of the Salt Storage Pond 2 and 3 leak detection systems were performed during the reporting period. In November, Salt Storage Pond 2 sump could not be inspected due to construction barriers preventing access to the area. The construction barriers were there during the beginning of the

clean out of the salt build up in Salt Storage Pond 2. Water was observed in both of the leak detection systems. The sumps of Salt Storage Ponds 2 and 3 were pumped in December. A total of 15,123 gallons was pumped from the Salt Storage Pond 2 sump, whereas a total of 20,600 gallons was pumped from the Salt Storage Pond 3 sump. The average leakage rate was calculated to be 71 gallons per day from Salt Storage Pond 2, and 98 gallons per day from Salt Storage Pond 3 since the last time the sumps were pumped in May 2019. The Action Leakage Rate for Salt Storage Pond 2 is 706 gallons per day, and 1,880 gallons per day for Salt Storage Pond 3. Both of the leakage rates were well below the Action Leakage Rate using EPA Standard EPA 530-R-92-004, NTIS #PB 92-128 214. Therefore, no excessive leakage rates were determined. The inspection log can be found on the accompanying compact disc (CD) as a portable document format (pdf) file named "Salt Pond Sump Inspection 2nd Half 2019.pdf."

There were no repairs required to the leak detection system during this reporting period.

Condition 11. *– The permittee shall conduct regular maintenance of the earthen cover on the Salt Cell 1, and SPDV material pile. Inspections shall be conducted monthly and after storm events of 2 inches or greater in a 24-hour period to evaluate potential erosion and vegetation success of the cover. In the event of significant erosion or failure of vegetative success, the permittee shall provide a plan and schedule for repair within 90 days of discovery. General observations and cover repair shall be reported to NMED.*

The monthly inspections of the earthen cover of the Salt Cell 1 and the Site and Preliminary Design Validation (SPDV) material pile resulted in the following observations. The soil cover overlying the synthetic liner on both piles was noted as needing repair. An Action Request was written. Repair of the Salt Cell 1 liner began on July 8, 2019 and has been completed. However, two small holes in the liner in the spillway of Salt Cell 1 were identified and Action Requests have been written to repair these small holes.

A start date for the SPDV Pile repair work has not been established as of this report. Preliminary corrective measures are being finalized. A projected start date for this project will be established and included in that the next semi-annual report.

There were no rain events of 2 inches or greater in a 24-hour period in this reporting period.

REQUIREMENTS OF DP-831 MONITORING AND REPORTING SECTION

Part B. Applicable to the Facultative Sewage Lagoon System

Condition 15. *– The volume of domestic influent discharged to the Facultative lagoon System shall be measured monthly using a totalizing flow meter on the influent line to the system or the totalizing meter that measures total domestic water usage. Volumes of other authorized discharges to the Facultative Lagoon System shall be calculated by a time/volume method or volumetric measurement of the transport container(s). NMED may require comprehensive laboratory analyses of such wastewater prior to discharge when NMED determines that additional information is needed. Monthly meter readings, the units of measurement, monthly discharge volumes and other volumetric calculations for the previous 6-month period shall be submitted to NMED semi-annually in the monitoring reports.*

Table 1 shows the volume of water discharged to the Facultative Lagoon System for this reporting period. Discharged water volume is based on total raw water use. No miscellaneous non-hazardous water was discharged to Evaporation Lagoons B or C.

Table 1 – Discharge to Facultative Lagoon System

Month (2019)	Volume (gallons)
July	364,814
August	431,896
September	319,432
October	365,904
November	241,369
December	359,864
Total	**2,083,279**

Weekly meter readings of the domestic water meter are found on the accompanying CD as a pdf file named "Water Discharge to Facultative System 2nd Half of 2019.pdf."

Condition 16. *– The permittee shall collect a wastewater sample on a semi-annual basis (once every six months) from the influent to the Facultative Lagoon System. The grab sample shall be analyzed for TKN, NO_3-N, SO_4, TDS, and Cl. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.*

Samples were collected from the Settling Lagoon 2 influent, which is the influent to the Facultative Lagoon System. Analytical Results are shown in Table 2.

Table 2 – Facultative Lagoon System Influent Analytical Data

Analyte	Sample Date	Settling Lagoon 2 Concentration (mg/L)
TKN	10/9/19	170
NO_3-N	10/9/19	ND
SO_4	10/9/19	46.3
TDS	10/9/19	760
Cl	10/9/19	124

TKN: Total Kjeldahl nitrogen
TDS: Total dissolved solids
ND: Not detected, analyte below the method detection limit

Analytical results and QA/QC Summary Report for the Facultative Lagoon System are found as a pdf file on the accompanying CD named "Facultative Lagoon and H-19 Analytical and QA-QC.pdf."

Part C. Applicable to the Evaporation Pond H-19 and Storm Water Impoundments Not in Contact with Salt Stockpiles (Storm Water Ponds 1, 2, and 3)

Condition 17. *– The volume and origin of all wastewater discharged to the Evaporation Pond H-19 that is derived from miscellaneous non-hazardous sources shall be measured monthly and reported to NMED. Discharge volumes to the Evaporation Pond H-19 shall be calculated by a time/volume method or volumetric measurement of the transport container(s). NMED may require comprehensive laboratory analyses of such wastewater prior to discharge when NMED determines that additional information is needed. Monthly discharge volumes and other volumetric calculations for the previous 6-month period shall be submitted to NMED semi-annually in the monitoring reports.*

Table 3 shows the volume of miscellaneous non-hazardous water discharged to Evaporation Pond H-19 for this reporting period. This water is from ground water well pumping (GW), condensate from the Exhaust Shaft ductwork (ES), Miscellaneous Wastewater (MW), and Waste Shaft sump water (WS).

Table 3 – Discharge to H-19 Evaporation Pond

Month (2019)	Volume (gallons)	Water Origin
July	7,750	GW, MW, & WS
August	0	-
September	62,520	GW, MW, & WS
October	18,900	GW
November	442	MW
December	0	-
Total	**89,612**	

Condition 18. *– A sample shall be collected semi-annually from the Evaporation Pond H-19 and analyzed for SO_4, Cl, and TDS. Samples shall be collected annually after a significant storm event from each of the storm water ponds, Storm Water Ponds 1, 2, and 3 and analyzed for SO_4, Cl, and TDS. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring report.*

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

No significant storm events occurred during this reporting period. However, storm events of moderate intensity occurred during this reporting period and samples from the Storm Water Ponds were taken, as shown in Table 4.

Table 4 – Storm Water Ponds and Evaporation Pond H-19 Analytical Data (January to June 2019)

Analyte	Sample Date	Evaporation Pond H-19	Storm Water Pond 1	Storm Water Pond 2	Storm Water Pond 3
SO_4 (mg/L)	10/23/19 for Storm Water Ponds and 10/09/19 for EP H-19	3,110	46.3	8.52	94.7
Cl (mg/L)	10/23/19 for Storm Water Ponds and 10/09/19 for EP H-19	58,000	301	125	278
TDS (mg/L)	10/23/19 for Storm Water Ponds and 10/09/19 for EP H-19	121,000	858	391	844

Condition 19. *– The water depth shall be measured monthly to the nearest tenth of a foot (0.1 ft) in the Storm Water ponds 1, 2, and 3. The approximate volume of storm water shall be calculated and submitted to NMED in the semi-annual monitoring reports.*

Table 5 summarizes the water depths and volumes in the three storm water ponds for the reporting period.

Table 5 – Storm Water Ponds Depths and Volumes

	July 07/22/19	August 08/19/19	September 09/12/19	October 10/16/19	November 11/18/19	December 12/09/19
Storm Water Pond 1						
Water Depth (ft)	1.2	0.7	0.1	0.6	0.3	0.3
Water Volume (gal)	166,954	97,390	13,913	83,477	41,735	41,738
Storm Water Pond 2						
Water Depth (ft)	2.0	1.5	1.1	1.8	1.8	1.6
Water Volume (gal)	687,373	515,529	378,055	618,635	618,635	549,898
Storm Water Pond 3						
Water Depth (ft)	1.7	1.3	0.9	1.8	1.8	1.8
Water Volume (gal)	2,452,069	1,875,111	1,298,154	2,596,308	2,596,308	2,596,308

Storm water has been pumped from the Storm Water Ponds to be used in construction projects for the WIPP facility. Pumping of the storm water began in mid-May. A Notice of Intent to discharge and the analytical results of the storm water were sent to the Ground Water Quality Bureau (GWQB). The GWQB agreed to the request to use the uncontaminated storm water for construction and dust control purposes.

Part D. Applicable to the Storm Water Runoff Impoundments in Contact with Salt Stockpiles (Salt Storage Ponds 1, 2, and 3) and Salt Stockpiles (Salt Cells 1, 2, and 3)

Condition 20. *– A sample shall be collected annually after a significant storm event from each of the Salt Storage Cells 1, 2, and 3 and analyzed for SO_4, Cl, and TDS. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.*

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

Table 6 shows the levels of SO_4, Cl, and TDS in the three salt storage ponds for the reporting period.

Table 6 – Salt Storage Ponds Analytical Data

Analyte	Salt Storage Pond 1 10/09/19	Salt Storage Pond 2 10/09/19	Salt Storage Pond 3 10/09/19
SO_4 (mg/L)	2,000	7,580	40,900
Cl (mg/L)	138,000	182,000	199,000
TDS (mg/L)	243,000	331,000	395,000

Analytical results and QA/QC Summary Report for Evaporative Pond H-19 are found on the accompanying CD as a pdf file named "Salt Storage Ponds and Storm Water Ponds Analytical and QA-QC.pdf."

Condition 21. *The water depth shall be measured monthly to the nearest tenth of a foot (0.1 ft) in the Salt Storage Ponds 1, 2, and 3. The approximate volume of storm water shall be calculated and submitted to NMED in the semi-annual monitoring reports.*

Table 7 summarizes the water depths and volumes in the three Salt Storage Ponds for the reporting period.

Table 7 – Salt Storage Ponds Depths and Volumes

	July 07/22/19	August 08/19/19	September 09/12/19	October 10/16/19	November 11/18/19	December 12/09/2019
Salt Storage Pond 1						
Water Depth (ft)	0.1	0.3	0.0	0.0	0.0	0.0
Water Volume (gal)	113,849	341,548	0	0	0	0
Salt Storage Pond 2						
Water Depth (ft)	0.0	0.0	0.0	0.0	0.0	0.0
Water Volume (gal)	0	0	0	0	0	0
Salt Storage Pond 3						
Water Depth (ft)	6.26	4.6	5.0	5.5	5.5	5.9
Water Volume (gal)	7,207,615	6,635,582	5,720,330	5,292,363	6,292,363	6,749,989

Ground Water Monitoring and Reports

Condition 22. *– Depth to the water table shall be measured to the nearest hundredth of a foot (0.01 ft) quarterly in the piezometers/monitoring wells:*

- *PZ-1, PZ-2, PZ-3, PZ-4, PZ-5, PZ-6, PZ-7, PZ-8, PZ-9, PZ-10, PZ-11, PZ-12, PZ-13, PZ-14 and PZ-15*
- *C-2505, C-2506, C-2507, C-2811, and WQSP-6A*

For depth to the water in the piezometers and monitoring wells, see Table 8 – Monitoring Well Water Levels and Ground Water Chemical Analyses. Well PZ-8 was plugged and abandoned in early 2019.

Condition 23. *– The permittee shall perform semi-annual ground water sampling in the following piezometers/monitoring wells and analyze the samples for temperature, pH, specific conductance, SO4, TDS, and Cl:*

- *Piezometers: PZ-1, PZ-5, PZ-6, PZ-7, PZ-9, PZ-10, PZ-11, PZ-12, and PZ-13*
- *Monitoring Wells: C-2507, C-2811, and WQSP-6A*

Ground water sample collection, preservation, transport and analysis shall be performed according to the following procedure:

a) Measure the depth-to-most-shallow ground water from the top of the well casing to the nearest hundredth of a foot.
b) Purge three well volumes of water from the well prior to sample collection.
c) Obtain samples from the well for analysis.
d) Properly prepare, preserve and transport samples.
e) Analyze samples in accordance with the methods authorized in this Discharge Permit.

Depth-to-most-shallow ground water measurements, analytical results, including the laboratory QA/QC summary report, and a facility layout map showing the location and number of each well shall be submitted to NMED in the semi-annual monitoring reports.

Water levels in the shallow wells were obtained September 16-23, 2019, and December 03-04, 2019. Water levels are included in Table 8 Monitoring Well Water Levels and Chemical Analyses. These were taken in accordance with quarterly milestones outlined in the Ground Water Monitoring Schedule specified in the Discharge Permit renewal, DP-831, dated July 29, 2014. During the reporting period, the water levels at the shallow subsurface water (SSW) monitoring points showed an average change in elevation of -0.20 feet. The drop in water elevation over this reporting period is most likely due to below average precipitation rates during 2019.

The SSW piezometers, required to be sampled according to Condition 23, were sampled for field and general chemistry parameters in October 2019. Four locations were sampled on October 14, 2019, four on October 16, 2019, and four on October 17, 2019. Results for the field sampling parameters and laboratory analyses are presented in Table 8.

Analytical results and QA/QC Summary Report are found on the accompanying CD as a pdf file named "Shallow Surface Water Analytical and QA-QC (1).pdf" and "Shallow Surface Water Analytical and QA-QC (2).pdf."

Condition 24. *– The permittee shall perform semi-annual ground water sampling from monitoring well WQSP-6A and analyzed for TKN and NO3. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.*

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

WQSP-6A was sampled on October 16, 2019. Sulfate, chloride, and total dissolved solids were detected in WQSP-6A samples at concentrations above standards of 20.6.2.3103 NMAC, Standards for Ground Water of 1,000 mg/L TDS concentration or less for Human Health and Domestic Water Supply. Although the concentrations were higher than the standards, they are less than background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285). Nitrate was also detected but did not exceed the standards. Total Kjeldahl Nitrogen was below the detection limit of 1 mg/L. The SSW identified at the WIPP facility has not impacted the Dewey Lake ground water in WQSP-6A based on the analyzed parameters in this well.

For WQSP-6A analytical results, see Table 8 – Monitoring Well Water Levels and Ground Water Chemical Analyses.

Analytical results and QA/QC Summary Report for WQSP-6A samples are found on the accompanying CD as a pdf file named "Shallow Surface Water Analytical and QA-QC (1).pdf."

Condition 25. *– Hydrographs shall be submitted annually for all monitoring wells and piezometers covered under Condition 22 of this Discharge Permit. At a minimum, graphs shall include the previous five years of water level data, or for recently installed wells, all data since the well was installed. Data for several wells may be included on one graph.*

The hydrographs of all monitoring wells and piezometers are included in this 2019 semi-annual report (see Attachment 1).

Condition 26. *– A potentiometric map for facility area shall be submitted annually. The map shall incorporate the most recent water level data for all monitoring wells and piezometers installed in the shallow subsurface water (SSW).*

The potentiometric surface for the SSW using December 2019 data is presented in Figure 2. The interpolated contours were generated using *SURFER*, Version 16 surface mapping software by Golden Software. Fifteen data points were used in the contour development, whereas the contours around the SPDV salt pile were estimated by hand.

Condition 27. *– A single table in a paper and electronic format (EXCEL spreadsheet) of water level measurements and water quality data with only those constituents analyzed and water levels measured during a single event shown in columns. Tabulated field measurements to include temperature, pH, and electrical conductivity corrected*

to 25 degrees Celsius. Monitoring sites shall be shown in rows. The second column shall contain the date of the sampling event. Values exceeding standards shall be bolded. Any constituent not analyzed for a particular site shall be shown as "NA", any site not sampled shall be shown as "NS" with an associated reason, and any site not measured for water levels shall be shown as "NM" with an associated reason.

Table 8 – Monitoring Well Water Levels and Chemical Analyses is included in paper form in this report and in electronic Excel format on the accompanying CD. The Excel file name on the CD is "Table 8 – Monitoring Well Water Levels and Chemical Analyses." Electrical conductivity is listed as specific conductivity in this table.

Condition 28. *– A single table that includes all available ground water data to date shall be submitted annually. For each monitoring well, the name of the well shall be entered in the far left column in a row by itself. Sampling events, beginning with the earliest event first, shall be entered in subsequent rows with the sampling date in the second column and the corresponding analytical data in columns further to the right. Each new sampling event shall be added as an additional row to the existing spreadsheet with the corresponding date of the sampling event noted in the second column next to the monitoring well name.*

Available ground water analytical data to date are included in this second semi-annual report for 2019 (see Table 9).

Condition 45. *– In the event the permittee implements changes to the wastewater system authorized by this Discharge Permit which result in only a minor effect on the character of the discharge, the permittee shall report such changes (including submission of record drawings, where applicable) as of January 1 and June 30 of each year to the NMED.*

There were no changes to the wastewater system authorized by this Discharge Permit during this reporting period.

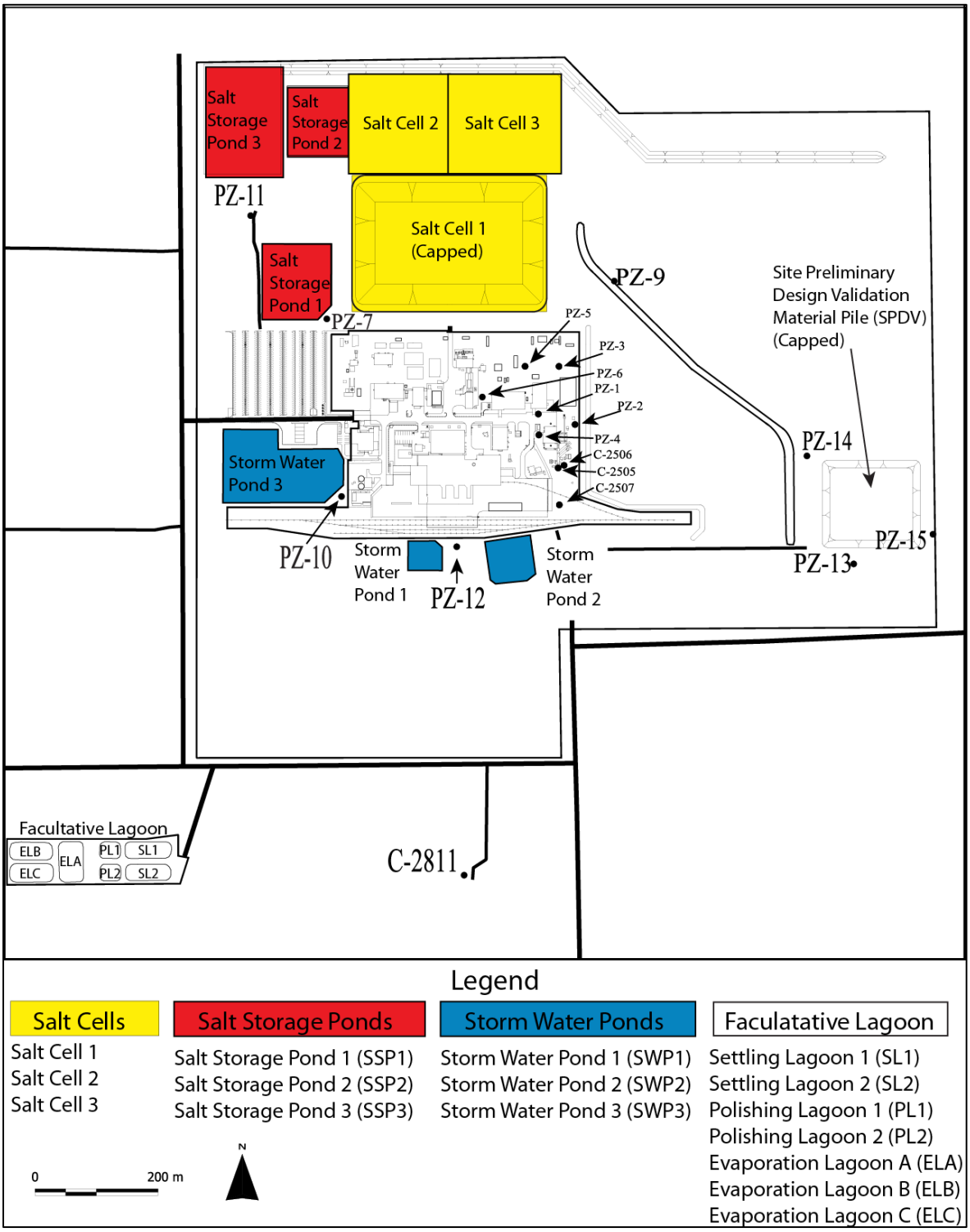


Figure 1 – Well and Pond Locations

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2019 THROUGH DECEMBER 31, 2019

Table 8 – Monitoring Well Water Levels and Ground Water Chemical Analyses

	Field and General Chemistry Parameters								**Other**	**Water Level Monitoring (Ft AMSL)**	
Monitoring Site	Sample Date	pH (SU)	Temp. (^{0}C)	Specific Conductivity @25 ^{0}C (µS/cm)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)	9/16/19-9/23/19	12/03/19-12/04/19
PZ-1	10/16/2019	6.43	23.11	97,760	NA	**1,940**	**29,000**	**54,500**	NA	3,371.27	3,371.19
PZ-2	NS	NS	NS	NS	NS	NS	NS	NS	NS	3,370.67	3,370.67
PZ-3	NS	NS	NS	NS	NS	NS	NS	NS	NS	3,371.17	3,371.04
PZ-4	NS	NS	NS	NS	NS	NS	NS	NS	NS	3,366.80	3,366.65
PZ-5	10/17/2019	7.34	23.22	75,890	NA	540	**6,700**	**12,800**	NA	3,371.86	3,371.72
PZ-6	10/17/2019	7.18	22.43	96,270	NA	**1,000**	**16,000**	**28,100**	NA	3,370.13	3,370.02
PZ-7	10/14/2019	6.27	22.90	100,000	NA	**2,520**	**60,000**	**105,000**	NA	3,378.15	3,377.88
PZ-9	10/17/2019	6.31	19.81	101,900	NA	**4,800**	**100,000**	**175,000**	NA	3,362.89	3,362.78
PZ-10	10/14/2019	7.27	22.27	5,713	NA	205	163	921	NA	3,368.35	3,368.20
PZ-11	10/16/2019	6.57	20.58	103,200	NA	**1,620**	**27,200**	**48,800**	NA	3,377.00	3,375.22
PZ-12	10/14/2019	6.87	22.05	38,600	NA	522	**2,680**	**5,880**	NA	3,357.10	3,356.96
PZ-13	10/16/2019	Bailed			NA	**2,780**	**156,000**	**243,000**	NA	3,357.21	3,357.04
PZ-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	3,354.31	3,354.24
PZ-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	3,382.68	3,382.74
C-2811	10/14/2019	7.05	20.69	14,290	NA	325	**930**	**2,210**	NA	3,346.84	3,347.22
C-2505	NS	NS	NS	NS	NS	NS	NS	NS	NS	3,367.96	3,367.94
C-2506	NS	NS	NS	NS	NS	NS	NS	NS	NS	3,368.62	3,368.55
C-2507	10/17/2019	7.12	20.65	48,280	NA	**670**	**3,900**	**8,560**	NA	3,365.28	3,365.15
WQSP-6A	10/16/2019	6.60	22.82	14,980	4.97	**1,800**	**366**	**3,450**	ND	3,195.48	3,195.54
Explanation:	NA: Not Analyzed, parameter not required, per permit conditions.										
	NS: Not Sampled, not required per permit conditions										
	PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty using Low-Flow pumps										
	"**Bold**" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply										
	ND: Non-detect										
	AMSL: Above Mean Sea Level										

Table 9 –Ground Water Sampling Data

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-1	6/21/2004	<10	1,530	36,300	79,600	0.044	<0.00500
PZ-1	11/9/2004	1.3	6,530	45,700	85,800	0.106	<0.0100
PZ-1	5/17/2005	1.47	2,640	62,300	100,500	0.06	0.077
PZ-1	10/11/2005	2.59	1,950	54,900	74,800	0.043	<0.0100
PZ-1	5/16/2006	<2.5	2,490	62,400	113,000	0.051	<0.0100
PZ-1	10/10/2006	<1.00	1,390	55,300	70,200	<0.0500	<0.0250
PZ-1	5/9/2007	2.7	2,220	63,000	107,000	<0.0500	<0.0250
PZ-1	10/9/2007	<1.00	2,820	83,200	99,500	<0.1000	<0.0250
PZ-1	6/5/2008	<2.0	2,100	57,000	98,000	0.667	0.00218
PZ-1	10/14/2008	NA	2,200	59,000	94,000	NA	NA
PZ-1	5/19/2009	NA	2,200	54,000	96,000	NA	NA
PZ-1	10/19/2009	NA	2,300	66,000	101,000	NA	NA
PZ-1	5/25/2010	NA	2,200	53,000	92,800	NA	NA
PZ-1	10/26/2010	NA	1,800	62,000	96,100	NA	NA
PZ-1	5/24/2011	NA	2,000	51,000	85,200	NA	NA
PZ-1	10/5/2011	NA	2,000	50,000	84,600	NA	NA
PZ-1	5/16/2012	NA	2,100	54,000	82,100	NA	NA
PZ-1	10/2/2012	NA	2,110	48,100	84,200	NA	NA
PZ-1	5/14/2013	NA	1,840	35,800	74,400	NA	NA
PZ-1	10/22/2013	NA	2,050	42,500	100,000	NA	NA
PZ-1	5/13/2014	NA	2,010	44,000	76,000	NA	NA
PZ-1	10/14/2014	NA	2,090	46,700	84,800	NA	NA
PZ-1	5/13/2015	NA	1,830	40,800	73,400	NA	NA
PZ-1	11/10/2015	NA	1,740	37,100	75,800	NA	NA
PZ-1	5/31/2016	NA	1,740	42,900	79,600	NA	NA
PZ-1	9/28/2016	NA	1,940	34,000	67,000	NA	NA
PZ-1	5/31/2017	NA	1,890	37,600	71,200	NA	NA
PZ-1	10/10/2017	NA	1,900	36,100	63,900	NA	NA
PZ-1	5/22/2018	NA	1,860	26,500	54,500	NA	NA
PZ-1	10/16/2018	NA	1,980	35,800	72,000	NA	NA
PZ-1	5/2/2019	NA	2,160	37,100	63,600	NA	NA

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-1	10/16/2019	NA	1,940	29,000	54,500	NA	NA
PZ-5	6/21/2004	20.7	1,340	28,800	55,200	0.067	<0.00500
PZ-5	11/9/2004	<2.50	1,820	47800	86,000	0.094	<0.0100
PZ-5	5/17/2005	2.96	3,260	46,000	65,400	0.093	0.067
PZ-5	10/11/2005	5.14	769	14,000	32,800	0.062	<0.0100
PZ-5	5/16/2006	2.56	1,520	18,300	32,600	0.071	<0.0100
PZ-5	10/10/2006	5.04	1,330	28,800	47,400	<0.0500	<0.0250
PZ-5	5/9/2007	4.6	1,640	17,300	32,400	<0.0500	<0.0250
PZ-5	10/9/2007	<1.00	1,880	19,400	28,700	0.071	<0.005
PZ-5	6/5/2008	5.7	1,500	19,000	33,000	0.0801	0.00317
PZ-5	10/14/2008	NA	1,400	13,000	25,000	NA	NA
PZ-5	5/19/2009	NA	1,500	13,000	24,000	NA	NA
PZ-5	10/19/2009	NA	1,600	14,000	20,200	NA	NA
PZ-5	5/25/2010	NA	1,400	13,000	21,900	NA	NA
PZ-5	10/26/2010	NA	1,400	13,000	20,800	NA	NA
PZ-5	5/24/2011	NA	1,200	10,000	18,400	NA	NA
PZ-5	10/4/2011	NA	1,300	13,000	19,800	NA	NA
PZ-5	5/16/2012	NA	1,500	12,000	21,400	NA	NA
PZ-5	10/2/2012	NA	1,340	9,870	18,600	NA	NA
PZ-5	5/15/2013	NA	1,200	9,540	19,200	NA	NA
PZ-5	10/23/2013	NA	1,180	11,400	25,200	NA	NA
PZ-5	5/13/2014	NA	1,180	9,080	18,100	NA	NA
PZ-5	10/14/2014	NA	1,250	13,300	26,500	NA	NA
PZ-5	5/13/2015	NA	1,100	7,380	14,800	NA	NA
PZ-5	11/10/2015	NA	917	7,470	15,200	NA	NA
PZ-5	5/31/2016	NA	970	7,180	14,500	NA	NA
PZ-5	9/28/2016	NA	748	7,170	17,400	NA	NA
PZ-5	5/31/2017	NA	737	4,470	10,300	NA	NA
PZ-5	10/10/2017	NA	638	4,790	11,300	NA	NA
PZ-5	5/22/2018	NA	585	5,910	12,800	NA	NA
PZ-5	10/16/2018	NA	482	5,870	14,400	NA	NA
PZ-5	5/2/2019	NA	617	7,170	14,500	NA	NA

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-5	10/17/2019	NA	540	6,700	12,800	NA	NA
PZ-6	6/21/2004	21.2	2,860	70,500	134,000	0.017	<0.00500
PZ-6	11/9/2004	4.89	13,000	75,400	113,000	0.06	<0.0100
PZ-6	5/17/2005	4.25	3,610	109,000	160,500	0.05	0.054
PZ-6	10/11/2005	<20.0	2,850	83,800	106,000	0.021	<0.0100
PZ-6	5/16/2006	7.69	3,050	68,800	115,000	<0.0100	<0.0100
PZ-6	10/10/2006	252	2,790	79,800	134,000	<0.0500	<0.0250
PZ-6	5/9/2007	6.65	2,840	73,500	122,500	<0.0500	<0.0250
PZ-6	10/9/2007	<1.00	3,080	81,000	105,000	<0.1000	<0.0250
PZ-6	6/5/2008	6.1	2,100	47,000	81,000	0.0412	0.00259
PZ-6	10/14/2008	NA	2,500	58,000	87,000	NA	NA
PZ-6	5/19/2009	NA	2,700	61,000	89,000	NA	NA
PZ-6	10/19/2009	NA	2,300	50,000	83,600	NA	NA
PZ-6	5/25/2010	NA	2,300	47,000	82,100	NA	NA
PZ-6	10/26/2010	NA	1,900	47,000	72,300	NA	NA
PZ-6	5/24/2011	NA	1,700	37,000	67,700	NA	NA
PZ-6	10/5/2011	NA	1,900	41,000	69,800	NA	NA
PZ-6	5/16/2012	NA	1,800	41,000	67,200	NA	NA
PZ-6	10/2/2012	NA	2,130	52,200	78,700	NA	NA
PZ-6	5/15/2013	NA	2,060	47,900	86,900	NA	NA
PZ-6	10/22/2013	NA	2,120	46,000	90,500	NA	NA
PZ-6	5/13/2014	NA	2,040	46,600	80,800	NA	NA
PZ-6	10/14/2014	NA	2,160	49,800	80,400	NA	NA
PZ-6	5/13/2015	NA	2,180	49,200	77,000	NA	NA
PZ-6	11/10/2015	NA	1,900	37,500	69,200	NA	NA
PZ-6	5/31/2016	NA	1,680	31,000	50,500	NA	NA
PZ-6	9/28/2016	NA	1,330	21,900	43,100	NA	NA
PZ-6	5/31/2017	NA	1,230	21,000	39,300	NA	NA
PZ-6	10/10/2017	NA	1,260	20,800	37,500	NA	NA
PZ-6	5/22/2018	NA	1,210	18,400	32,300	NA	NA
PZ-6	10/16/2018	NA	1,140	19,900	36,100	NA	NA
PZ-6	5/2/2019	NA	1,160	19,100	32,100	NA	NA

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-6	10/17/2019	NA	1,000	16,000	28,100	NA	NA
PZ-7	6/21/2004	20.7	2,620	53,000	109,000	0.041	<0.00500
PZ-7	11/8/2004	2.89	7,460	43,600	80,400	0.088	<0.0100
PZ-7	5/16/2005	4.02	2,530	42,100	65,900	0.082	0.094
PZ-7	10/10/2005	6.37	2,770	61,000	88,000	0.047	<0.0100
PZ-7	5/15/2006	<5.3	3,190	54,100	139,000	0.068	<0.0100
PZ-7	10/9/2006	<1.00	2,890	66,800	81,500	<0.00100	<0.0500
PZ-7	5/7/2007	5.15	3,190	64,800	119,000	<0.0200	0.02
PZ-7	10/8/2007	<1.00	2,660	45,600	65,000	0.064	<0.00500
PZ-7	6/4/2008	5	2,300	49,000	86,000	0.0635	0.00257
PZ-7	10/13/2008	NA	1,700	27,000	42,000	NA	NA
PZ-7	5/18/2009	NA	3,700	76,000	120,000	NA	NA
PZ-7	10/20/2009	NA	4,200	67,000	106,000	NA	NA
PZ-7	5/24/2010	NA	3,000	68,000	103,000	NA	NA
PZ-7	10/25/2010	NA	3,000	75,000	103,000	NA	NA
PZ-7	5/23/2011	NA	2,700	60,000	101,000	NA	NA
PZ-7	10/4/2011	NA	3,100	81,000	116,000	NA	NA
PZ-7	5/15/2012	NA	3,000	64,000	96,600	NA	NA
PZ-7	10/3/2012	NA	4,380	67,500	106,000	NA	NA
PZ-7	5/13/2013	NA	3,050	58,500	112,000	NA	NA
PZ-7	10/22/2013	NA	3,100	61,100	126,000	NA	NA
PZ-7	5/13/2014	NA	2,650	35,400	114,000	NA	NA
PZ-7	10/13/2014	NA	3,530	74,500	136,000	NA	NA
PZ-7	5/12/2015	NA	3,240	68,200	118,000	NA	NA
PZ-7	11/9/2015	NA	2,960	44,900	114,000	NA	NA
PZ-7	5/24/2016	NA	3,790	75,400	109,000	NA	NA
PZ-7	9/27/2016	NA	2,850	51,600	99,300	NA	NA
PZ-7	5/30/2017	NA	2,890	59,800	111,000	NA	NA
PZ-7	10/9/2017	NA	2,170	36,800	80,100	NA	NA
PZ-7	5/21/2018	NA	2,950	54,600	100,000	NA	NA
PZ-7	10/15/2018	NA	2,600	50,900	108,000	NA	NA
PZ-7	4/29/2019	NA	2,650	60,300	106,000	NA	NA

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2019 THROUGH DECEMBER 31, 2019

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-7	10/14/2019	NA	2,520	60,000	105,000	NA	NA
PZ-8	10/15/2007	0.677	500	7,440	15,000	0.039	<0.00500
PZ-8	6/6/2008	1.8	630	11,000	16,000	0.0655	<0.001
PZ-9	6/21/2004	<20.0	3,740	80,200	140,000	<0.0100	<0.00500
PZ-9	11/9/2004	1.4	14,500	92,400	144,000	0.066	<0.0100
PZ-9	5/17/2005	2.82	5,090	182,000	164,000	0.05	0.071
PZ-9	10/11/2005	<20.0	3,930	85,500	107,000	0.022	<0.0100
PZ-9	5/16/2006	3.01	4,350	84,700	153,000	0.023	<0.0100
PZ-9	10/10/2006	<20.0	3,370	102,000	135,000	<0.0500	<0.0250
PZ-9	5/9/2007	3.28	4,320	89,600	164,000	<0.0500	<0.0250
PZ-9	10/9/2007	<200	4,720	116,000	144,000	<0.0200	<0.0050
PZ-9	6/5/2008	2.2	4,400	87,000	150,000	0.0351	0.00492
PZ-9	10/14/2008	NA	4,100	96,000	140,000	NA	NA
PZ-9	5/19/2009	NA	3,600	94,000	130,000	NA	NA
PZ-9	10/19/2009	NA	4,000	77,000	139,000	NA	NA
PZ-9	5/25/2010	NA	4,400	94,000	144,000	NA	NA
PZ-9	10/26/2010	NA	4,300	95,000	149,000	NA	NA
PZ-9	5/24/2011	NA	4300	83,000	147,000	NA	NA
PZ-9	10/4/2011	NA	4600	99,000	153,000	NA	NA
PZ-9	5/16/2012	NA	4,900	98,000	152,000	NA	NA
PZ-9	10/3/2012	NA	4,440	99,700	141,000	NA	NA
PZ-9	5/14/2013	NA	4,580	82,000	152,000	NA	NA
PZ-9	10/22/2013	NA	4,620	88,200	179,000	NA	NA
PZ-9	5/13/2014	NA	4,730	83,600	161,000	NA	NA
PZ-9	10/14/2014	NA	5,150	98,600	172,000	NA	NA
PZ-9	5/13/2015	NA	7,090	112,000	175,000	NA	NA
PZ-9	11/10/2015	NA	4,390	84,300	176,000	NA	NA
PZ-9	5/25/2016	NA	5,640	115,000	167,000	NA	NA
PZ-9	9/28/2016	NA	4,860	99,200	353,000	NA	NA
PZ-9	5/30/2017	NA	5,200	113,000	169,000	NA	NA
PZ-9	10/10/2017	NA	4,580	91,900	172,000	NA	NA
PZ-9	5/22/2018	NA	4,790	99,200	180,000	NA	NA

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-9	10/16/2018	NA	4,540	100,000	171,000	NA	NA
PZ-9	5/2/2019	NA	5,850	126,000	204,000	NA	NA
PZ-9	10/17/2019	NA	4,800	100,000	175,000	NA	NA
PZ-10	6/14/2004	3.81	469	368	1,714	0.02	<0.00500
PZ-10	11/8/2004	3.69	431	353	1,576	<0.0500	<0.0100
PZ-10	5/16/2005	3.63	572	416	1,756	0.044	0.037
PZ-10	10/10/2005	3.34	515	318	1,720	0.015	<0.0100
PZ-10	5/15/2006	3.42	539	460	1,830	0.014	<0.0100
PZ-10	10/9/2006	5.5	549	350	1,600	<0.00100	<0.0500
PZ-10	5/7/2007	14.8	407	274	1,504	<0.0200	0.02
PZ-10	10/8/2007	<1.00	211	186	968	0.026	<0.0050
PZ-10	6/4/2008	4.5	390	300	1,500	0.0144	0.00119
PZ-10	10/13/2008	NA	380	290	1,400	NA	NA
PZ-10	5/18/2009	NA	530	460	1,800	NA	NA
PZ-10	10/20/2009	NA	500	440	1,730	NA	NA
PZ-10	5/24/2010	NA	500	370	1,680	NA	NA
PZ-10	10/25/2010	NA	410	360	1,530	NA	NA
PZ-10	5/23/2011	NA	400	310	1,620	NA	NA
PZ-10	10/4/2011	NA	440	370	1,640	NA	NA
PZ-10	5/15/2012	NA	450	410	1,650	NA	NA
PZ-10	10/1/2012	NA	480	414	1,700	NA	NA
PZ-10	5/13/2013	NA	426	394	1,580	NA	NA
PZ-10	10/21/2013	NA	434	348	1,710	NA	NA
PZ-10	5/12/2014	NA	471	407	1,840	NA	NA
PZ-10	10/13/2014	NA	178	167	910	NA	NA
PZ-10	5/12/2015	NA	435	370	1,620	NA	NA
PZ-10	11/9/2015	NA	339	255	1,310	NA	NA
PZ-10	5/24/2016	NA	274	200	1,100	NA	NA
PZ-10	9/27/2016	NA	116	113	805	NA	NA
PZ-10	5/30/2017	NA	203	173	998	NA	NA
PZ-10	10/9/2017	NA	161	135	414	NA	NA
PZ-10	5/21/2018	NA	224	193	998	NA	NA

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-10	10/15/2018	NA	105	92.8	734	NA	NA
PZ-10	4/29/2019	NA	179	146	874	NA	NA
PZ-10	10/14/2019	NA	205	163	921	NA	NA
PZ-11	6/21/2004	20.8	2,220	58,100	123,000	<0.0100	<0.00500
PZ-11	11/8/2004	3.15	13,000	84,100	119,000	<0.0500	<0.0100
PZ-11	5/16/2005	4.63	2,890	66,000	100,000	<0.0100	<0.0100
PZ-11	10/10/2005	<20.0	2,950	84,300	129,000	0.013	<0.0100
PZ-11	5/15/2006	<5.3	3,090	71,000	133,000	<0.0100	<0.0100
PZ-11	10/9/2006	<1.00	2,550	85,800	123,000	<0.00100	<0.0500
PZ-11	5/7/2007	3.84	2,620	68,700	135,000	<0.0200	<0.0100
PZ-11	10/8/2007	<1.00	2,970	94,400	108,000	<0.0200	<0.0050
PZ-11	6/4/2008	3.9	2,100	65,000	110,000	0.0149	0.00216
PZ-11	10/13/2008	NA	3,000	79,000	110,000	NA	NA
PZ-11	5/18/2009	NA	2,500	72,000	110,000	NA	NA
PZ-11	10/20/2009	NA	3,200	64,000	112,000	NA	NA
PZ-11	5/24/2010	NA	2,500	69,000	107,000	NA	NA
PZ-11	10/25/2010	NA	2,300	77,000	100,000	NA	NA
PZ-11	5/23/2011	NA	2,000	45,000	80,500	NA	NA
PZ-11	10/3/2011	NA	2,300	65,000	92,200	NA	NA
PZ-11	5/15/2012	NA	2,400	59,000	93,200	NA	NA
PZ-11	10/3/2012	NA	2,220	53,000	95,600	NA	NA
PZ-11	5/13/2013	NA	2,270	64,800	105,000	NA	NA
PZ-11	10/21/2013	NA	2,360	59,000	123,000	NA	NA
PZ-11	5/12/2014	NA	2,260	45,000	102,000	NA	NA
PZ-11	10/13/2014	NA	2,740	68,800	123,000	NA	NA
PZ-11	5/12/2015	NA	2,590	57,000	105,000	NA	NA
PZ-11	11/9/2015	NA	2,770	59,900	96,400	NA	NA
PZ-11	5/24/2016	NA	2,640	54,900	93,200	NA	NA
PZ-11	9/27/2016	NA	2,240	43,300	82,700	NA	NA
PZ-11	5/30/2017	NA	911	18,000	40,000	NA	NA
PZ-11	10/9/2017	NA	1,710	49,800	61,900	NA	NA
PZ-11	5/21/2018	NA	1,980	36,400	66,300	NA	NA

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-11	10/15/2018	NA	1,920	39,000	82,000	NA	NA
PZ-11	4/29/2019	NA	744	15,900	26,300	NA	NA
PZ-11	10/16/2019	NA	1,620	27,200	48,800	NA	NA
PZ-12	6/14/2004	11.2	773	5,320	9,700	0.077	<0.00500
PZ-12	11/8/2004	19.8	879	7,170	9,540	0.066	<0.0100
PZ-12	5/16/2005	8.85	679	3,730	5,890	0.051	0.054
PZ-12	10/10/2005	426	805	3,790	7,740	0.02	<0.0100
PZ-12	5/15/2006	20.6	866	4,510	8,790	0.019	<0.0100
PZ-12	10/9/2006	13.2	795	5,340	9,150	<0.00100	<0.0500
PZ-12	5/7/2007	10.8	831	3,780	7,010	<0.0200	0.024
PZ-12	10/8/2007	<1.00	958	4,310	6,200	0.026	<0.0050
PZ-12	6/4/2008	11	760	3,300	6,800	0.0291	0.00132
PZ-12	10/13/2008	NA	850	3,300	7,000	NA	NA
PZ-12	5/18/2009	NA	870	4,600	8,300	NA	NA
PZ-12	10/20/2009	NA	980	6,500	10,100	NA	NA
PZ-12	5/24/2010	NA	990	5,500	10,100	NA	NA
PZ-12	10/25/2010	NA	990	5,800	10,300	NA	NA
PZ-12	5/23/2011	NA	900	5,600	10,900	NA	NA
PZ-12	10/3/2011	NA	900	6,800	13,100	NA	NA
PZ-12	5/15/2012	NA	620	6,400	9,400	NA	NA
PZ-12	10/1/2012	NA	503	5,290	9,780	NA	NA
PZ-12	5/13/2013	NA	449	3,990	7,610	NA	NA
PZ-12	10/21/2013	NA	415	3,320	8,110	NA	NA
PZ-12	5/12/2014	NA	374	2,490	5,640	NA	NA
PZ-12	10/13/2014	NA	409	2,440	6,100	NA	NA
PZ-12	5/12/2015	NA	665	4,470	8,720	NA	NA
PZ-12	11/9/2015	NA	627	3,450	8,280	NA	NA
PZ-12	5/24/2016	NA	560	2,570	6,100	NA	NA
PZ-12	9/27/2016	NA	548	2,460	6,240	NA	NA
PZ-12	5/30/2017	NA	509	2,470	6,100	NA	NA
PZ-12	10/9/2017	NA	521	2,840	6,740	NA	NA
PZ-12	5/21/2018	NA	576	3,280	7,280	NA	NA

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-12	10/15/2018	NA	542	3,270	7,600	NA	NA
PZ-12	4/29/2019	NA	521	2,310	5,340	NA	NA
PZ-12	10/14/2019	NA	522	2,680	5,880	NA	NA
PZ-13	10/10/2007	12.4	2,670	150,000	245,500	<0.100	<0.00500
PZ-13	6/6/2008	<200	2,600	170,000	240,000	0.0118	0.00316
PZ-13	10/13/2008	NA	2,900	160,000	230,000	NA	NA
PZ-13	5/18/2009	NA	3,300	180,000	240,000	NA	NA
PZ-13	10/20/2009	NA	3,300	170,000	255,000	NA	NA
PZ-13	5/24/2010	NA	3,000	170,000	240,000	NA	NA
PZ-13	10/26/2010	NA	2,900	190,000	246,000	NA	NA
PZ-13	5/24/2011	NA	2,700	150,000	248,000	NA	NA
PZ-13	10/4/2011	NA	3,000	170,000	259,000	NA	NA
PZ-13	5/15/2012	NA	3,300	160,000	252,000	NA	NA
PZ-13	10/2/2012	NA	3,260	170,000	263,000	NA	NA
PZ-13	5/14/2013	NA	3,130	144,000	260,000	NA	NA
PZ-13	10/22/2013	NA	3,220	139,000	262,000	NA	NA
PZ-13	5/13/2014	NA	2,900	104,000	265,000	NA	NA
PZ-13	10/14/2014	NA	3,100	179,000	274,000	NA	NA
PZ-13	5/13/2015	NA	3,550	197,000	267,000	NA	NA
PZ-13	11/10/2015	NA	2,980	118,000	233,000	NA	NA
PZ-13	5/25/2016	NA	1,600	168,000	260,000	NA	NA
PZ-13	9/28/2016	NA	2,790	153,000	236,000	NA	NA
PZ-13	5/31/2017	NA	2,730	150,000	251,000	NA	NA
PZ-13	10/10/2017	NA	2,650	134,000	251,000	NA	NA
PZ-13	5/22/2018	NA	2,800	146,000	269,000	NA	NA
PZ-13	10/17/2018	NA	2,650	152,000	263,000	NA	NA
PZ-13	4/30/2019	NA	2,850	156,000	265,000	NA	NA
PZ-13	10/16/2019	NA	2,780	156,000	243,000	NA	NA
PZ-14	10/15/2007	1.41	2,140	71,500	106,000	<0.0100	<0.00500
PZ-14	6/6/2008	<100	3,300	130,000	180,000	0.0201	0.00168
PZ-15	10/15/2007	2.97	169	764	2,060	0.022	<0.00500
PZ-15	6/6/2008	12	160	460	1,600	0.00372	<0.001

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2019 THROUGH DECEMBER 31, 2019

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
C-2811	6/14/2004	6.06	299	769	2,022	0.047	<0.00500
C-2811	11/8/2004	7.63	305	1,030	1,996	0.054	<0.0100
C-2811	5/16/2005	6.02	524	1,930	3,740	0.058	0.053
C-2811	10/10/2005	7.48	584	2,250	4,410	0.034	<0.0100
C-2811	5/15/2006	6.94	511	1,760	3,740	0.031	<0.0100
C-2811	10/9/2006	6.05	402	1,310	2,100	<0.00100	<0.0500
C-2811	5/7/2007	5.31	516	1,760	4,205	<0.0200	0.031
C-2811	10/8/2007	<1.00	635	2,980	3,860	0.051	<0.0050
C-2811	6/4/2008	5.7	390	1,300	2,800	0.0017	0.035
C-2811	10/13/2008	NA	320	1,000	2,100	NA	NA
C-2811	5/18/2009	NA	360	1,200	2,300	NA	NA
C-2811	10/20/2009	NA	320	1,000	2,120	NA	NA
C-2811	5/24/2010	NA	340	920	2,090	NA	NA
C-2811	10/25/2010	NA	370	1,100	2,470	NA	NA
C-2811	5/23/2011	NA	350	960	2,370	NA	NA
C-2811	10/3/2011	NA	340	910	2,330	NA	NA
C-2811	5/14/2012	NA	320	810	1,870	NA	NA
C-2811	10/1/2012	NA	337	862	2,100	NA	NA
C-2811	5/13/2013	NA	328	872	2,090	NA	NA
C-2811	10/21/2013	NA	341	838	2,490	NA	NA
C-2811	5/13/2014	NA	297	865	2,250	NA	NA
C-2811	10/14/2014	NA	277	827	2,580	NA	NA
C-2811	5/12/2015	NA	586	1,430	3,460	NA	NA
C-2811	11/9/2015	NA	451	1260	3,300	NA	NA
C-2811	5/24/2016	NA	491	1,210	2,720	NA	NA
C-2811	9/27/2016	NA	422	1,100	2,820	NA	NA
C-2811	5/30/2017	NA	479	1,020	3,100	NA	NA
C-2811	10/9/2017	NA	375	1,110	2,640	NA	NA
C-2811	5/21/2018	NA	347	1,090	2,510	NA	NA
C-2811	10/15/2018	NA	291	864	2,370	NA	NA
C-2811	4/29/2019	NA	348	1,020	2,680	NA	NA
C-2811	10/14/2019	NA	325	930	2,210	NA	NA

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
C-2507	6/21/2004	7.55	717	1,300	3,830	0.029	0.028
C-2507	11/9/2004	7.58	824	1,380	3,350	0.08	0.014
C-2507	5/17/2005	7.94	860	1,370	3,340	0.078	0.063
C-2507	10/11/2005	6.13	920	1,630	3,240	0.047	<0.0100
C-2507	5/16/2006	7.37	1,040	1,930	5,300	0.051	<0.0100
C-2507	10/10/2006	2.9	943	3,640	1,740	<0.0500	<0.0250
C-2507	5/9/2007	6.62	1,110	3,060	5,485	<0.0500	<0.0250
C-2507	10/9/2007	<1.00	1,220	3,500	5,540	0.055	0.007
C-2507	6/5/2008	6.9	990	2,800	5,800	0.0637	0.00493
C-2507	10/14/2008	NA	940	2,200	5,100	NA	NA
C-2507	5/19/2009	NA	950	2,600	5,200	NA	NA
C-2507	10/19/2009	NA	930	3,400	5,710	NA	NA
C-2507	5/25/2010	NA	910	3,500	6,640	NA	NA
C-2507	10/26/2010	NA	980	3,500	7,120	NA	NA
C-2507	5/24/2011	NA	790	3,200	6,190	NA	NA
C-2507	10/5/2011	NA	810	3,400	6,660	NA	NA
C-2507	5/16/2012	NA	800	2,800	5,720	NA	NA
C-2507	10/1/2012	NA	774	2,970	6,790	NA	NA
C-2507	5/14/2013	NA	704	2,820	6,020	NA	NA
C-2507	10/21/2013	NA	692	3,270	8,350	NA	NA
C-2507	5/13/2014	NA	643	2,770	7,590	NA	NA
C-2507	10/14/2014	NA	693	3,830	9,180	NA	NA
C-2507	5/13/2015	NA	683	3,430	7,590	NA	NA
C-2507	11/10/2015	NA	605	2,800	6,850	NA	NA
C-2507	5/31/2016	NA	679	3,110	6,620	NA	NA
C-2507	9/28/2016	NA	626	2,960	7,280	NA	NA
C-2507	5/31/2017	NA	683	3,490	8,020	NA	NA
C-2507	10/10/2017	NA	627	2,890	7,270	NA	NA
C-2507	5/22/2018	NA	638	3,040	6,850	NA	NA
C-2507	10/16/2018	NA	638	3,440	7,870	NA	NA
C-2507	5/2/2019	NA	748	4,210	8,770	NA	NA
C-2507	10/17/2019	NA	670	3,900	8,560	NA	NA

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2019 THROUGH DECEMBER 31, 2019

	General Chemistry Parameters					Trace Metals	
Monitoring Site	**Sample Date**	**Nitrate (mg/L)**	**Sulfate (mg/L)**	**Chloride (mg/L)**	**TDS (mg/L)**	**Selenium (mg/L)**	**Chromium (mg/L)**
WQSP-6A	3/28/1996	3.98	1,810	507	3,920	<0.013	<0.025
WQSP-6A	7/11/1996	2.75	1,971	6,748	4,500	0.02	<0.025
WQSP-6A	4/10/1997	4.64	2,240	675	3,960	0.017	<0.025
WQSP-6A	7/10/1997	4.04	2,560	660	3,840	<0.050	<0.1000
WQSP-6A	6/10/1998	6.19	1,950	644	4,120	0.016	0.0015
WQSP-6A	11/3/1998	11	2,100	770	4,100	0.22	<0.500
WQSP-6A	5/26/1999	7	1,900	540	3,800	<0.100	<0.050
WQSP-6A	11/10/1999	9.4	1,900	540	3,800	<0.050	<0.050
WQSP-6A	5/24/2000	7.5	2,100	530	3,800	0.0129	<0.020
WQSP-6A	11/30/2000	6.7	1,900	480	3,700	<0.0130	<0.025
WQSP-6A	6/6/2001	6.37	1,900	536	3,680	0.0385	<0.025
WQSP-6A	11/14/2001	3.67	1,900	414	4,600	<0.050	<0.010
WQSP-6A	5/22/2002	5.52	1,930	487	3,540	<0.050	<0.010
WQSP-6A	11/20/2002	5.61	2,090	419	3,685	<0.050	<0.010
WQSP-6A	5/21/2003	4.74	1,950	384	3,650	<0.123	<0.050
WQSP-6A	11/19/2003	<0.01	1,950	391	3,955	<0.219	<0.025
WQSP-6A	5/26/2004	9.61	1,970	416	3,646	<0.025	<0.025
WQSP-6A	11/17/2004	6.72	1,960	491	3,655	<0.025	<0.025
WQSP-6A	4/20/2005	5.98	1,920	432	3,700	0.057	<0.025
WQSP-6A	10/19/2005	<0.01	1,940	360	3,430	<0.025	<0.025
WQSP-6A	5/3/2006	2.5	2,210	450	3,200	<0.025	<0.025
WQSP-6A	9/20/2006	6	2,120	360	3,515	<0.025	<0.025
WQSP-6A	3/7/2007	5.78	2,170	484	3,355	<0.025	<0.025
WQSP-6A	9/12/2007	5.47	1,950	350	3,400	<0.025	<0.025
WQSP-6A	3/12/2008	4.67	2,090	378	3,400	<0.025	<0.025

Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)	
WQSP-6A	9/10/2008	5.69	2,030	348	3,150	< 5	
WQSP-6A	3/4/2009	5.9	2,100	350	3,500	<1.0	
WQSP-6A	9/10/2009	6.3	2,100	350	3,640	<1.0	
WQSP-6A	3/3/2010	6.55	2,145	330	3,545	<1.0	
WQSP-6A	9/23/2010	6.34	2,090	321	3,500	<1.0	
WQSP-6A	5/26/2011	6.5	2,100	270	3,480	<1.0	
WQSP-6A	10/6/2011	5.9	2,100	280	3,450	<1.0	
WQSP-6A	5/16/2012	5.4	2,200	310	3,340	<1.0	
WQSP-6A	10/2/2012	5.1	2,110	301	3,400	<1.0	
WQSP-6A	5/14/2013	5.29	2,260	318	3,420	<1.0	
WQSP-6A	10/23/2013	5.85	1,840	284	3,540	<1.0	
WQSP-6A	5/14/2014	5.4	1,870	342	3,500	<1.0	
WQSP-6A	10/15/2014	5.38	2,000	285	3,360	<1.0	
WQSP-6A	5/14/2015	5.11	1,940	294	3,520	<1.0	
WQSP-6A	11/11/2015	5.45	1,840	296	3,290	<1.0	
WQSP-6A	5/25/2016	4.91	1,900	379	3,380	<1.0	
WQSP-6A	9/29/2016	5.61	1,860	286	3,490	<1.0	
WQSP-6A	6/1/2017	5.27	1,870	322	3,380	<1.0	
WQSP-6A	10/11/2017	4.87	1,880	342	3,390	<1.0	
WQSP-6A	5/23/2018	4.98[H]	1,770	340	6,850	<1.0	
WQSP-6A	10/17/2018	4.46	1,970	300	3,340	<1.0	
WQSP-6A	4/30/2019	4.14	1,940	309	3,230	<1.0	
WQSP-6A	10/16/2019	4.97	1,800	366	3,450	<1.0	

NA: Not Analyzed, parameter not required, per permit conditions.

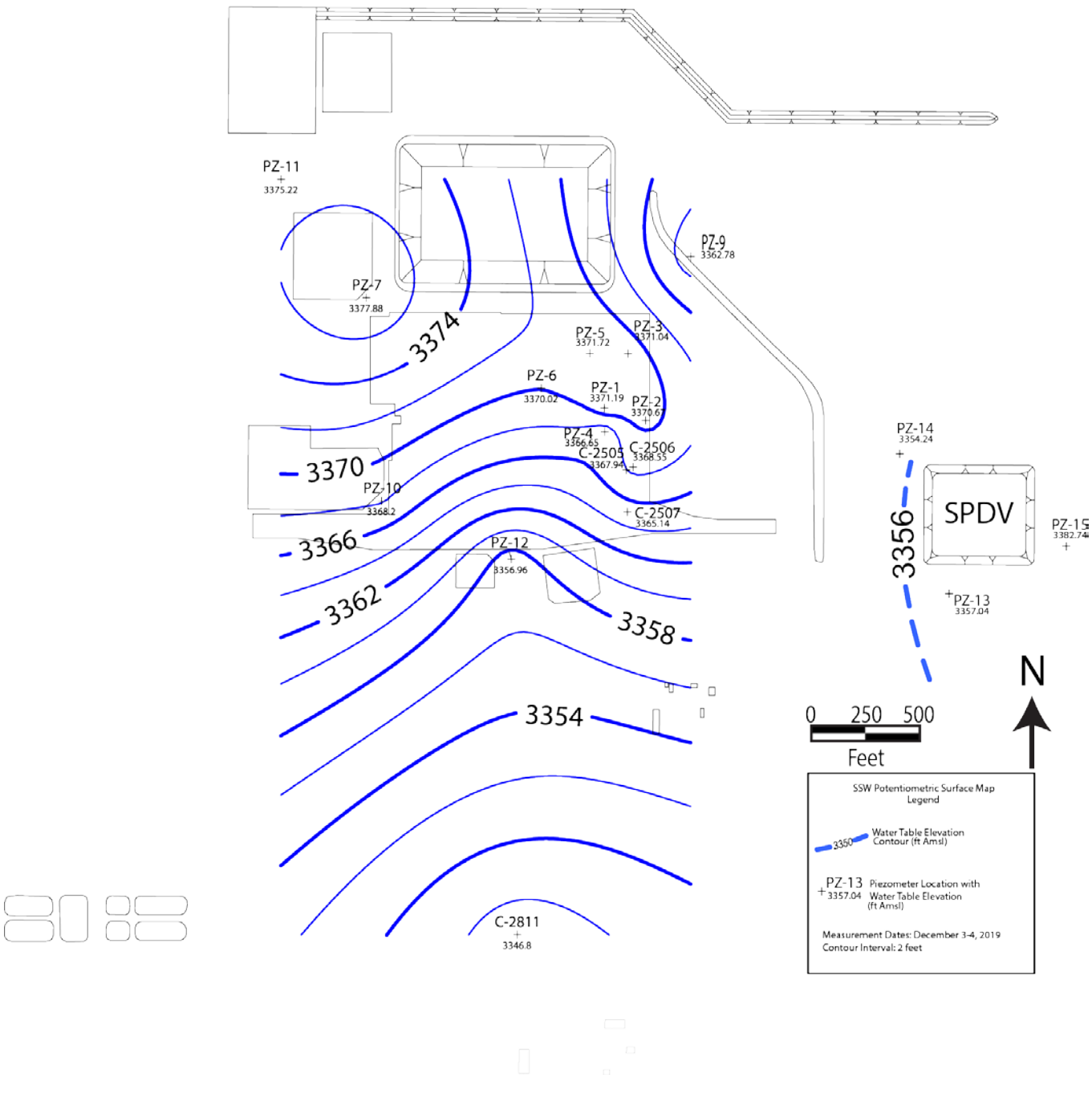
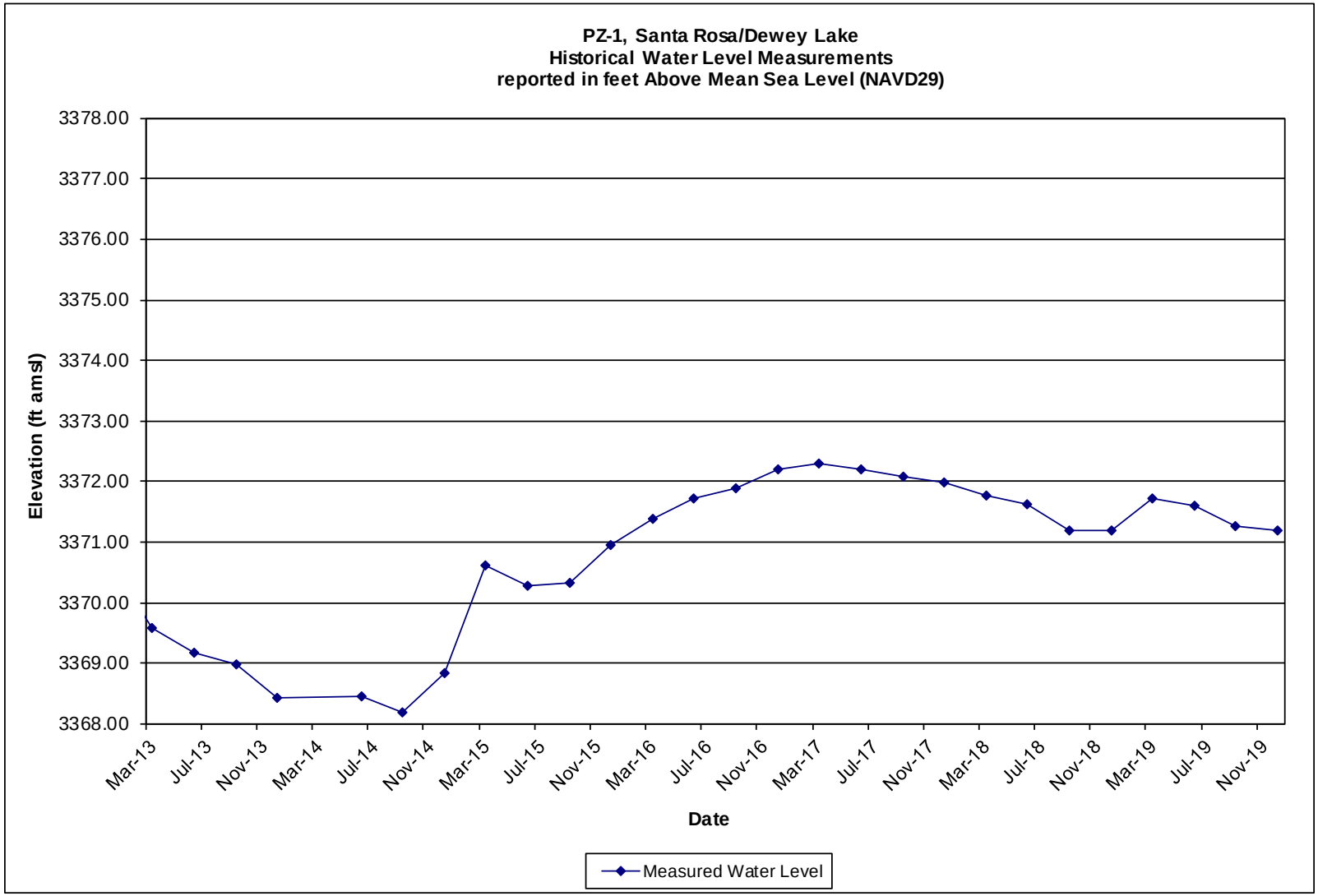
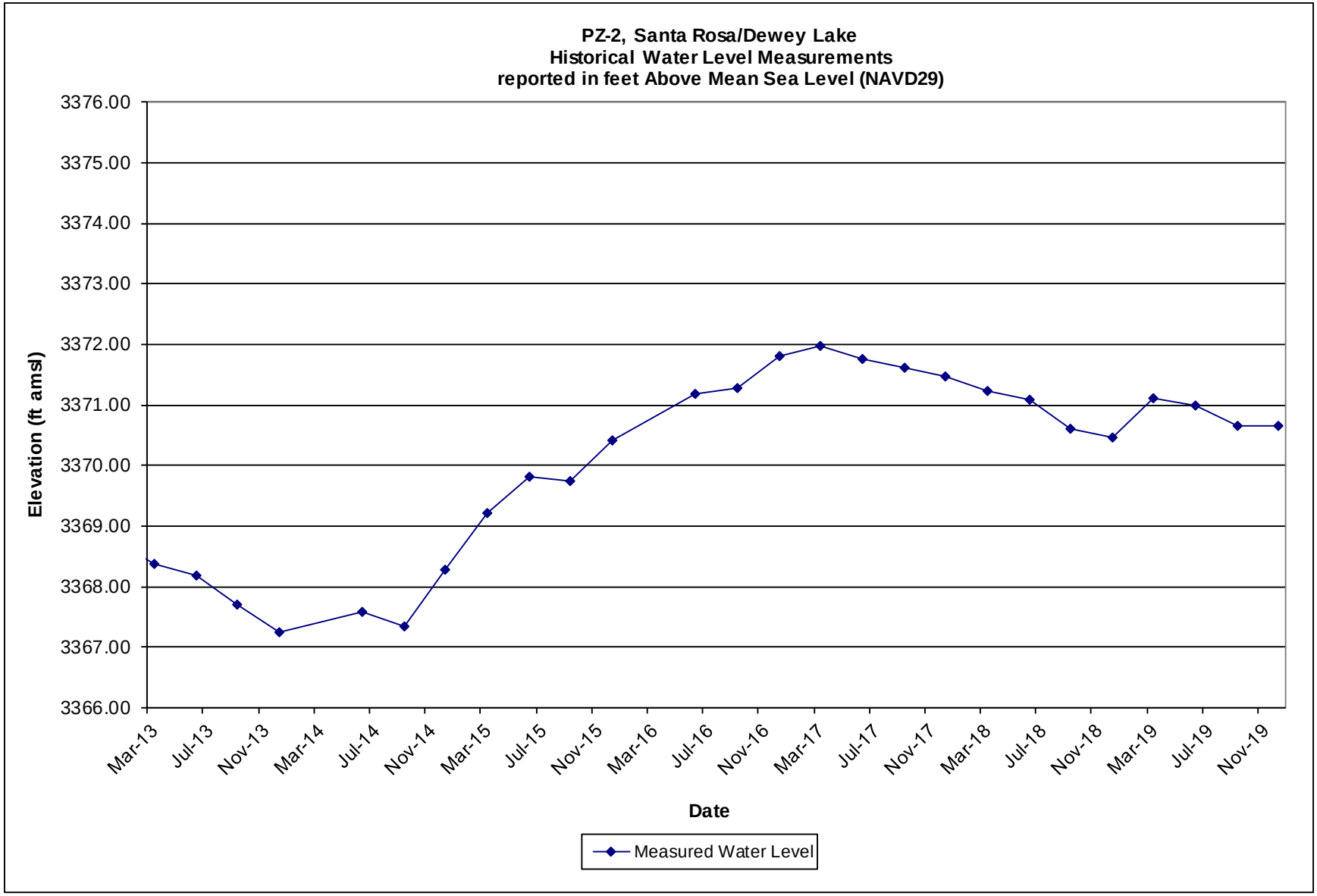
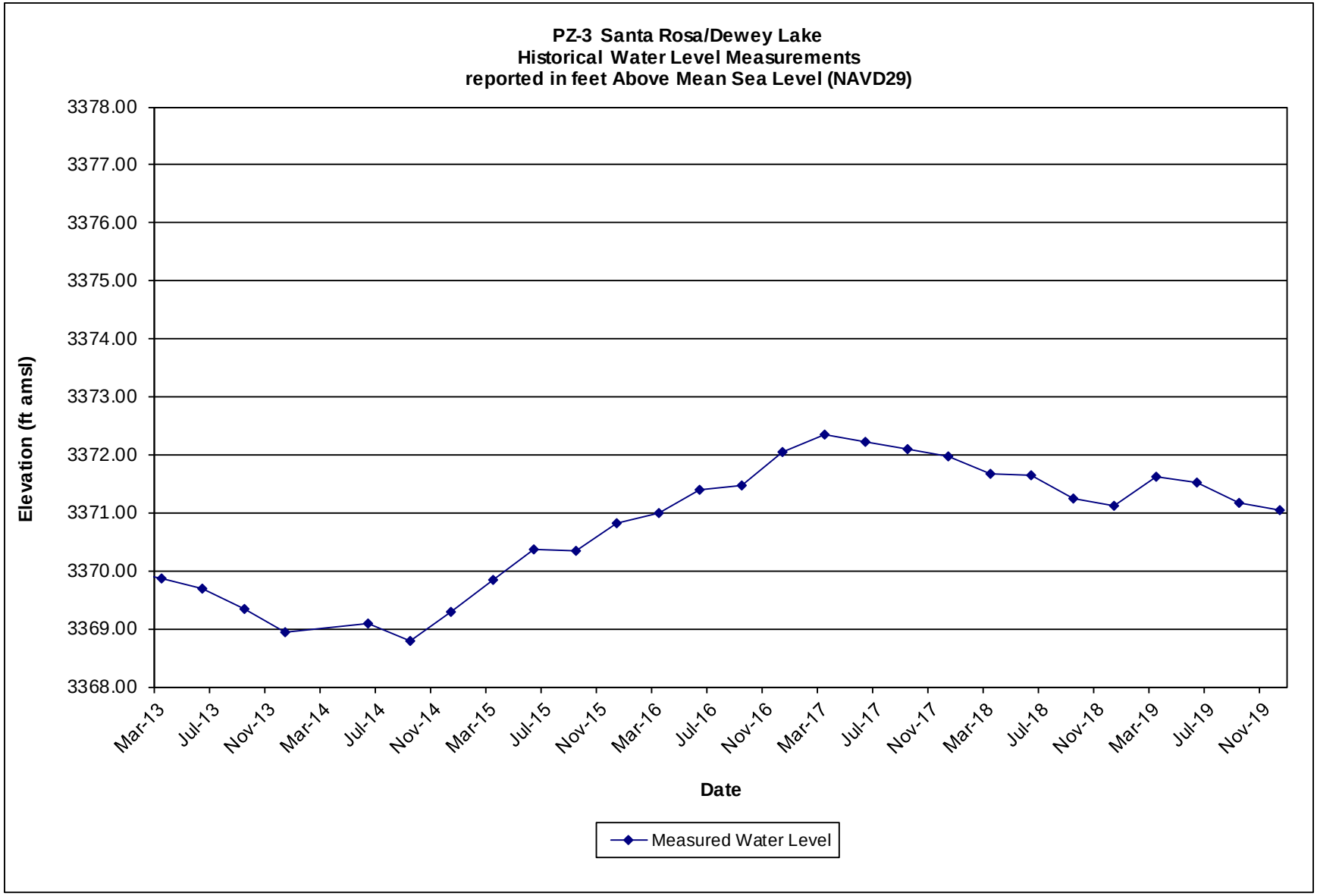


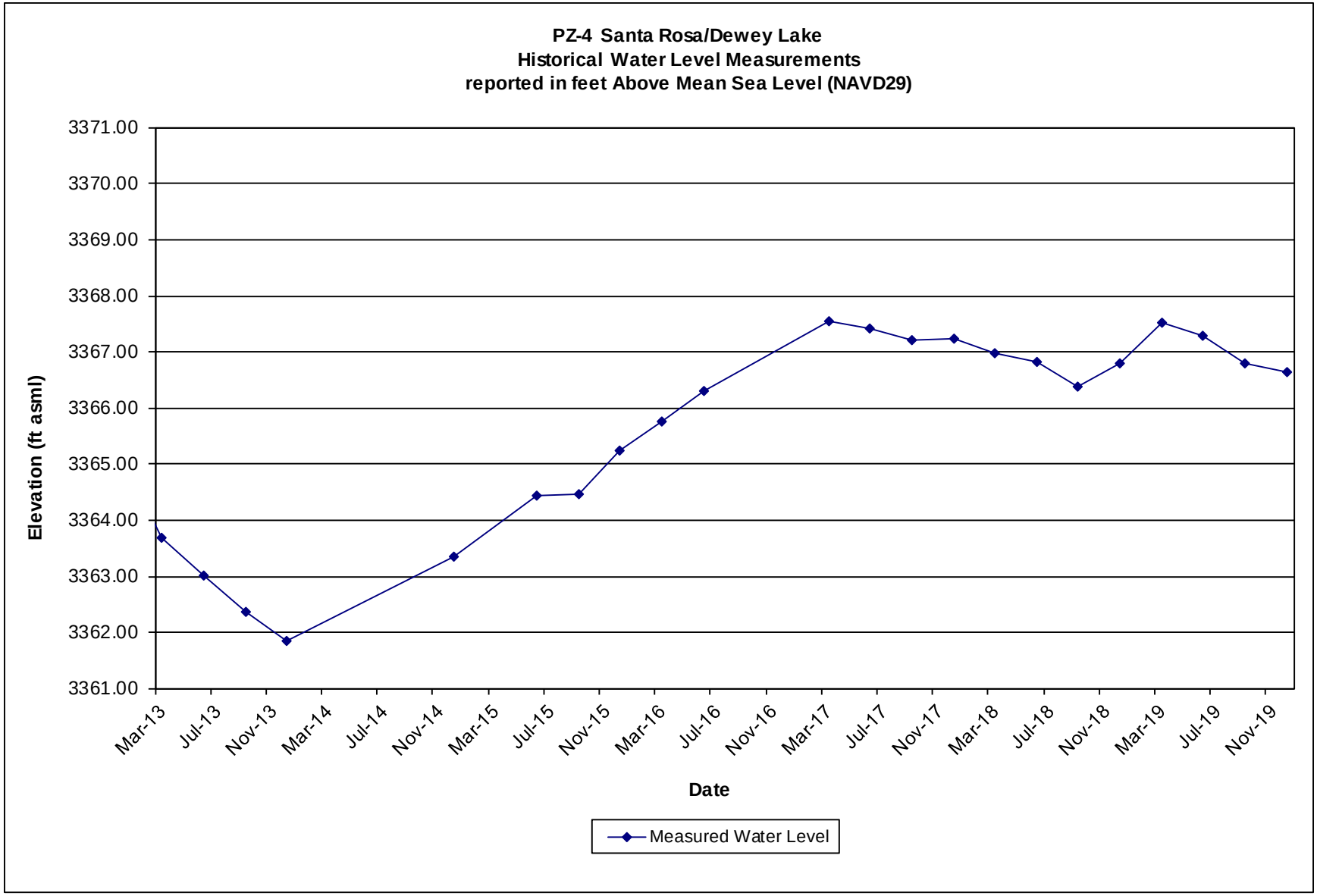
Figure 2 – 2019 Potentiometric Surface Map

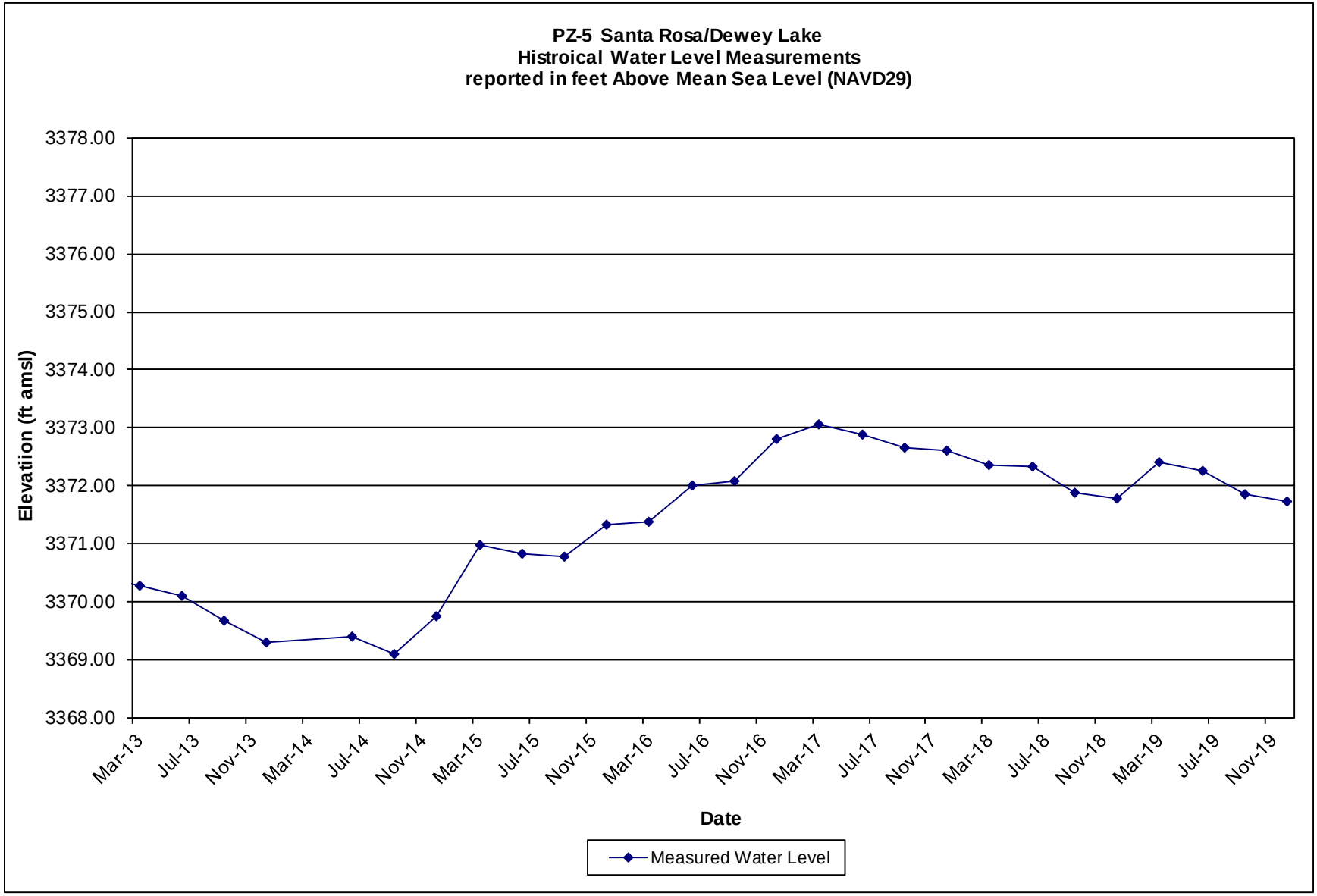
Attachment 1– Hydrographs

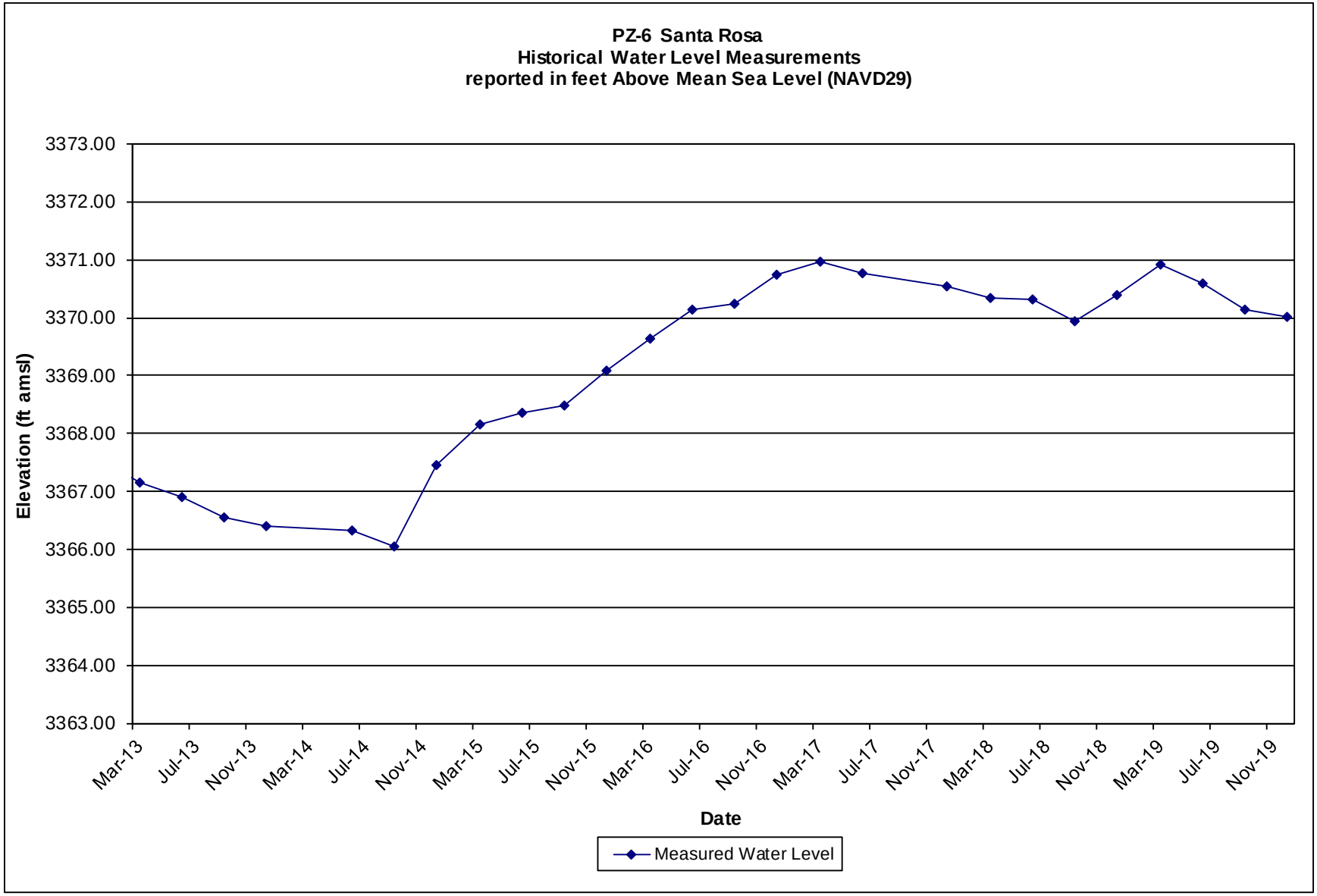


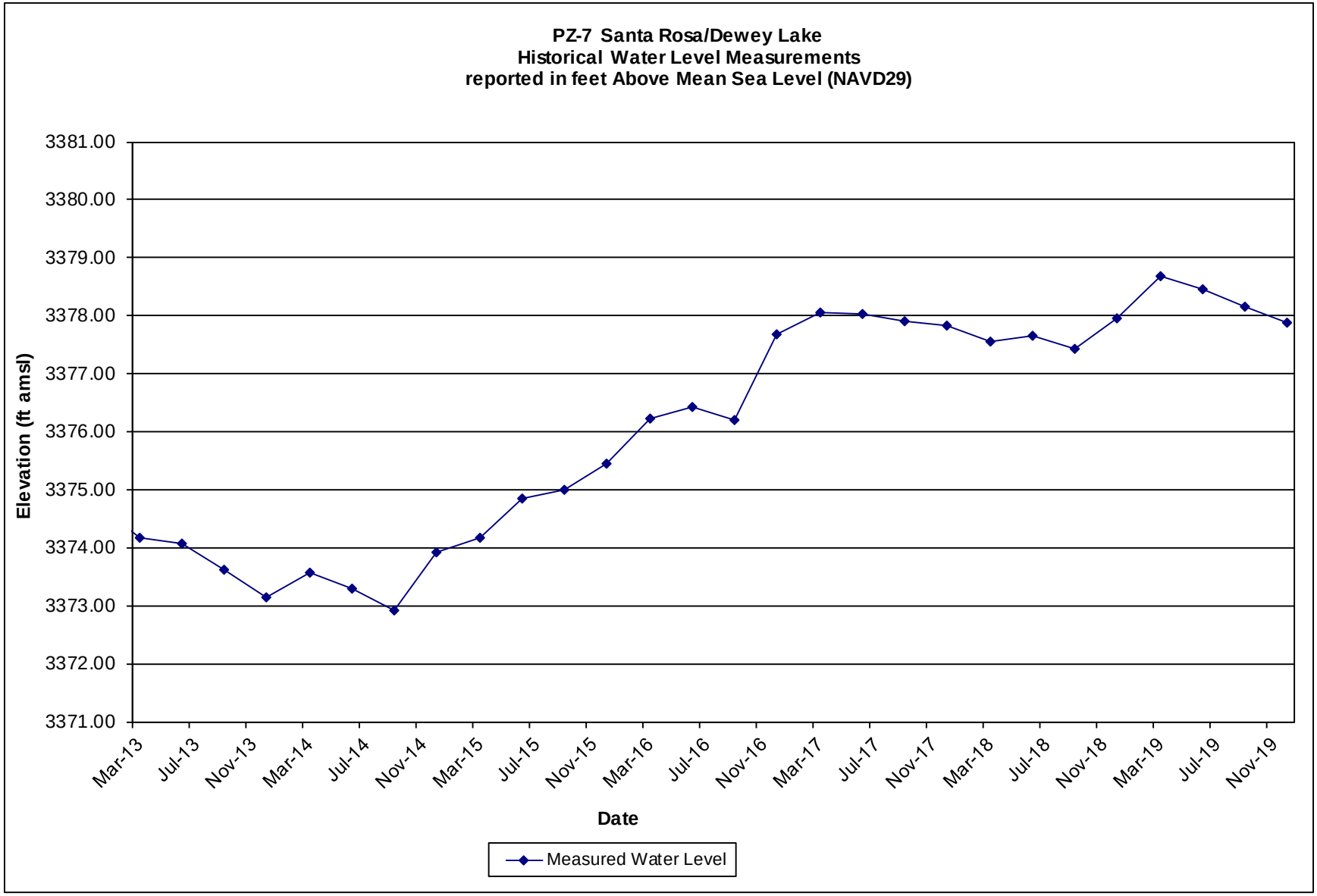

PZ-2, Santa Rosa/Dewey Lake
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3376.00
3375.00
3374.00
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
Mar-13
Jul-13
Nov-13
Mar-14
Jul-14
Nov-14
Mar-15
Jul-15
Nov-15
Mar-16
Jul-16
Nov-16
Mar-17
Jul-17
Nov-17
Mar-18
Jul-18
Nov-18
Mar-19
Jul-19
Nov-19
Date
Measured Water Level

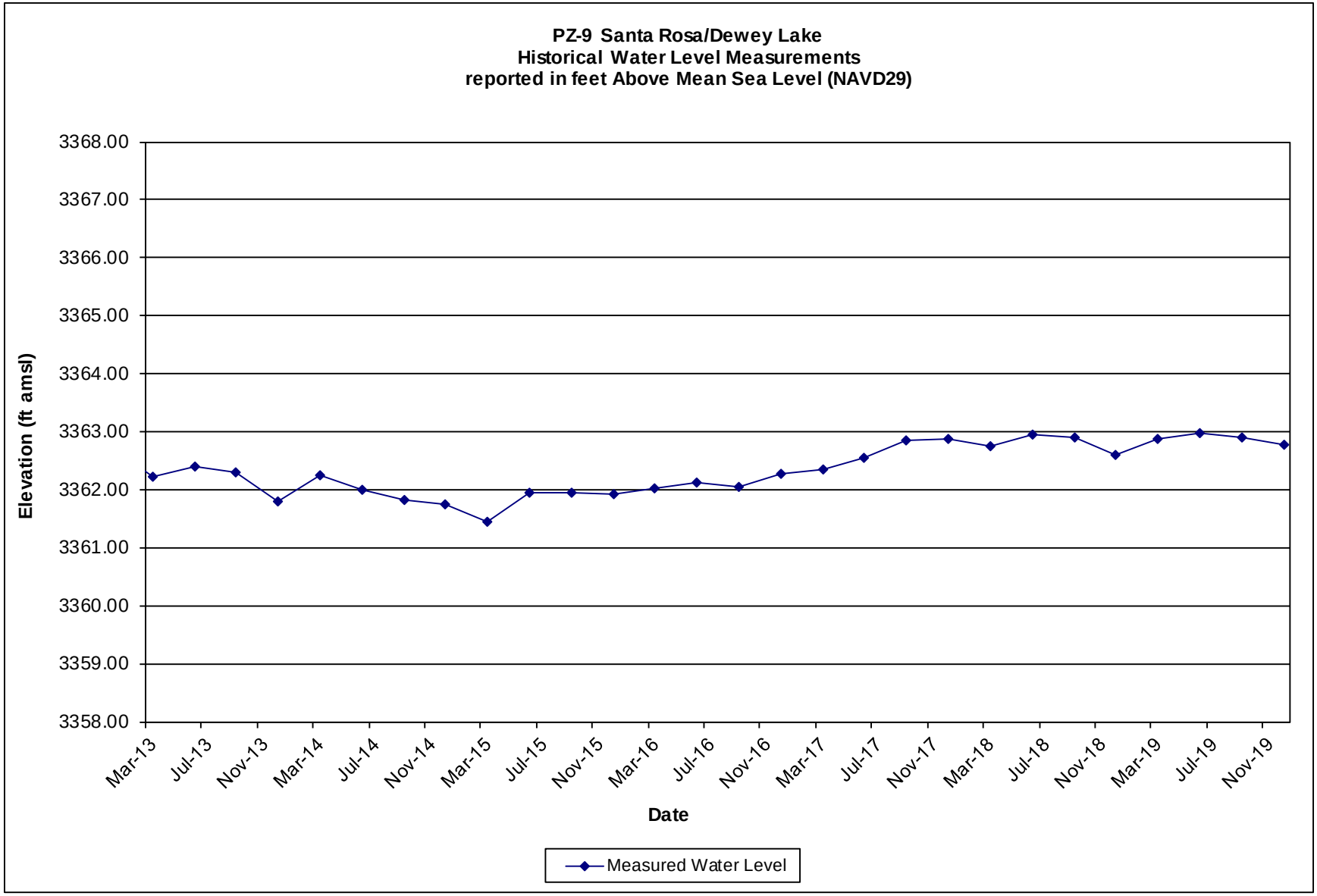

PZ-3 Santa Rosa/Dewey Lake
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3378.00
3377.00
3376.00
3375.00
3374.00
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
Mar-13
Jul-13
Nov-13
Mar-14
Jul-14
Nov-14
Mar-15
Jul-15
Nov-15
Mar-16
Jul-16
Nov-16
Mar-17
Jul-17
Nov-17
Mar-18
Jul-18
Nov-18
Mar-19
Jul-19
Nov-19
Date
Measured Water Level

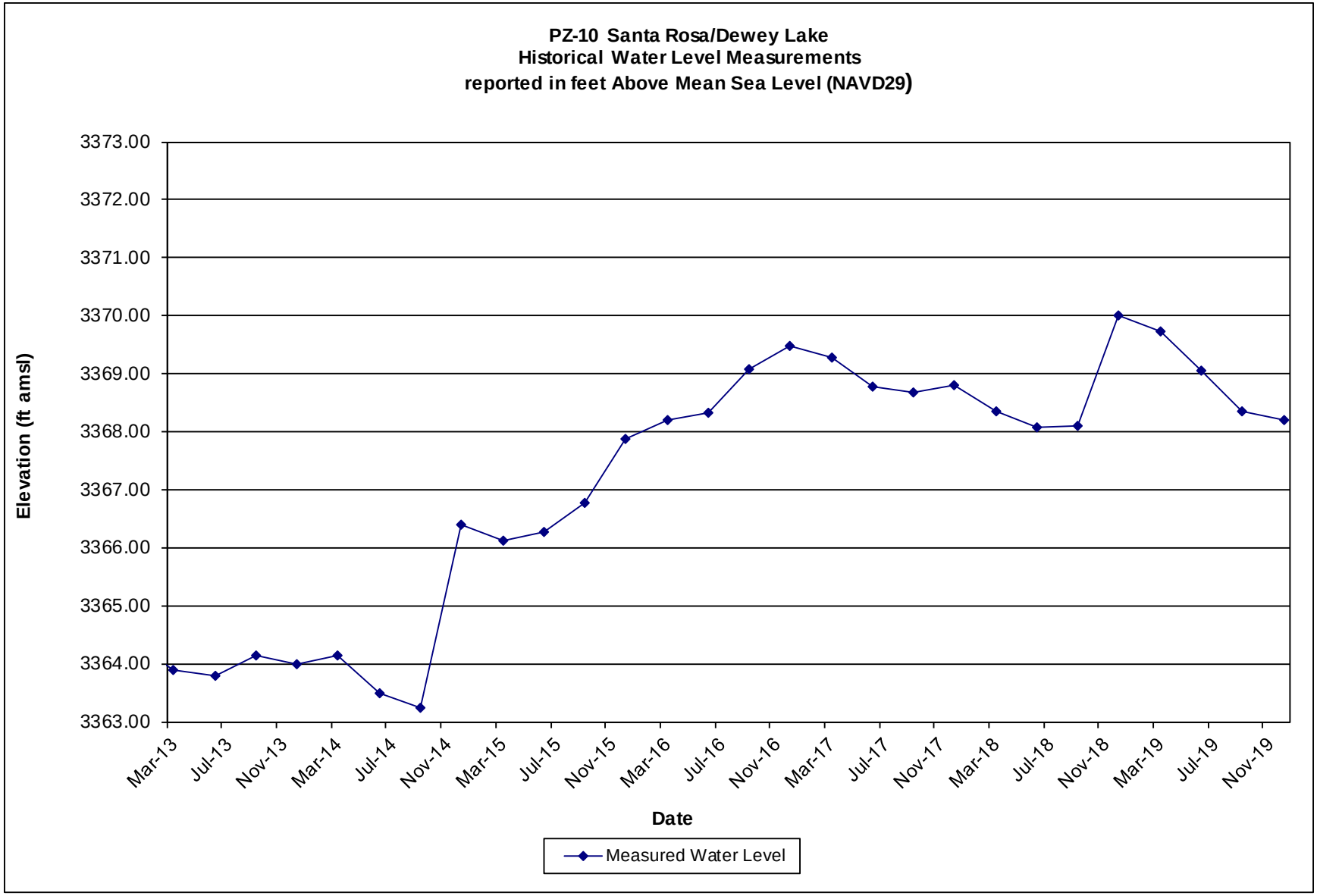

PZ-4 Santa Rosa/Dewey Lake
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft asml)
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
3362.00
3361.00
Mar-13
Jul-13
Nov-13
Mar-14
Jul-14
Nov-14
Mar-15
Jul-15
Nov-15
Mar-16
Jul-16
Nov-16
Mar-17
Jul-17
Nov-17
Mar-18
Jul-18
Nov-18
Mar-19
Jul-19
Nov-19
Date
Measured Water Level

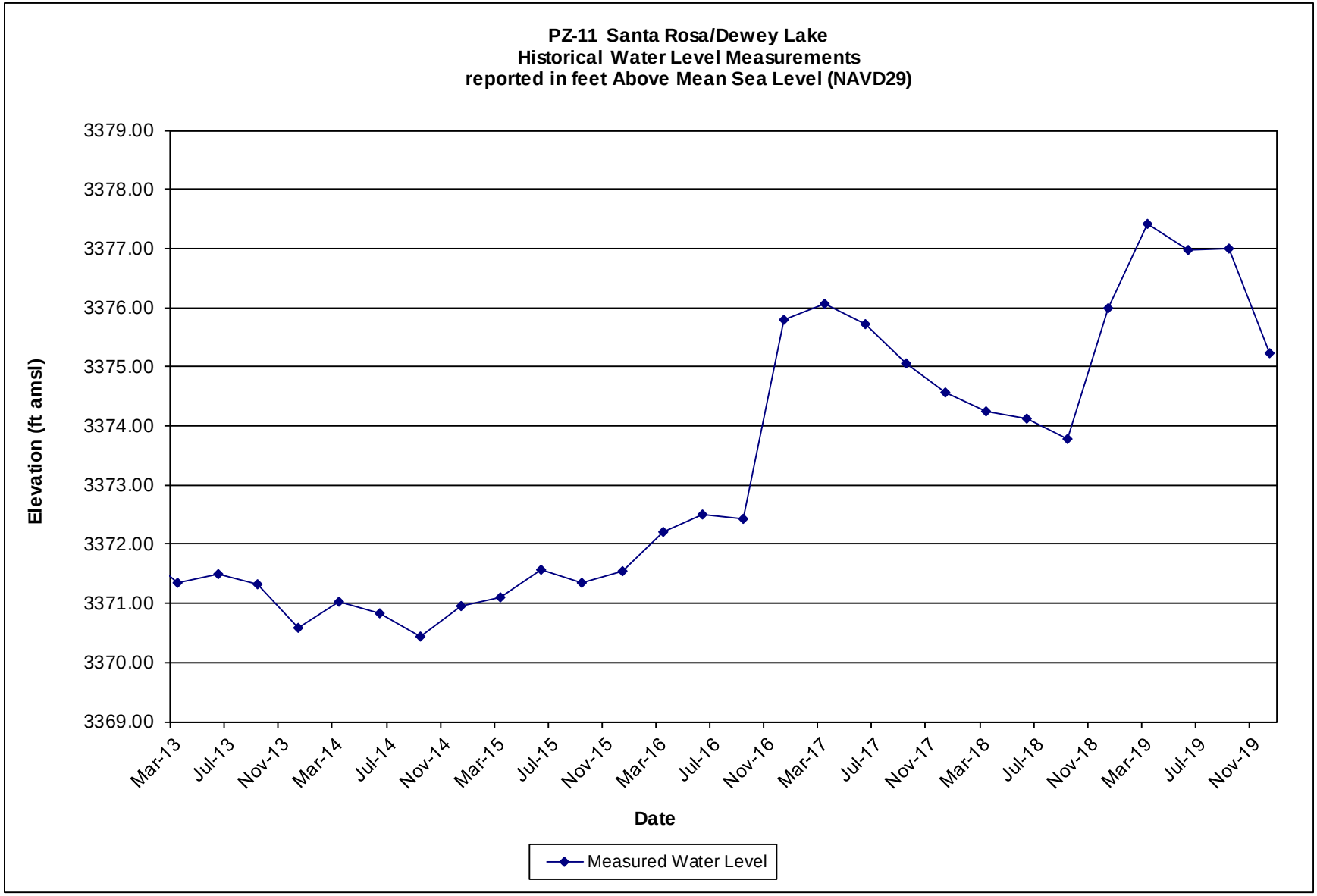

PZ-5 Santa Rosa/Dewey Lake
Histroical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3378.00
3377.00
3376.00
3375.00
3374.00
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
Mar-13
Jul-13
Nov-13
Mar-14
Jul-14
Nov-14
Mar-15
Jul-15
Nov-15
Mar-16
Jul-16
Nov-16
Mar-17
Jul-17
Nov-17
Mar-18
Jul-18
Nov-18
Mar-19
Jul-19
Nov-19
Date
Measured Water Level

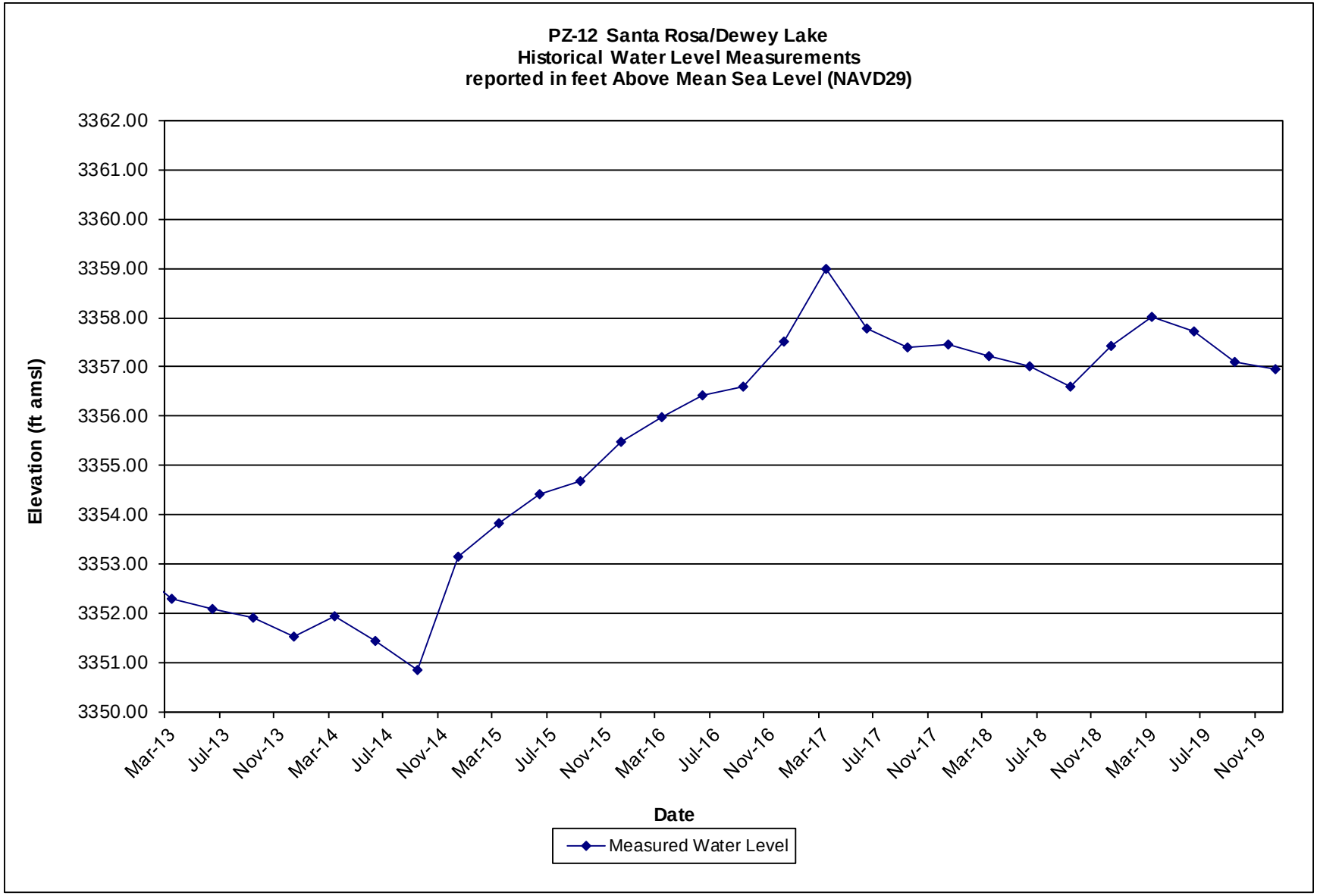

PZ-6 Santa Rosa
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
Mar-13
Jul-13
Nov-13
Mar-14
Jul-14
Nov-14
Mar-15
Jul-15
Nov-15
Mar-16
Jul-16
Nov-16
Mar-17
Jul-17
Nov-17
Mar-18
Jul-18
Nov-18
Mar-19
Jul-19
Nov-19
Date
Measured Water Level

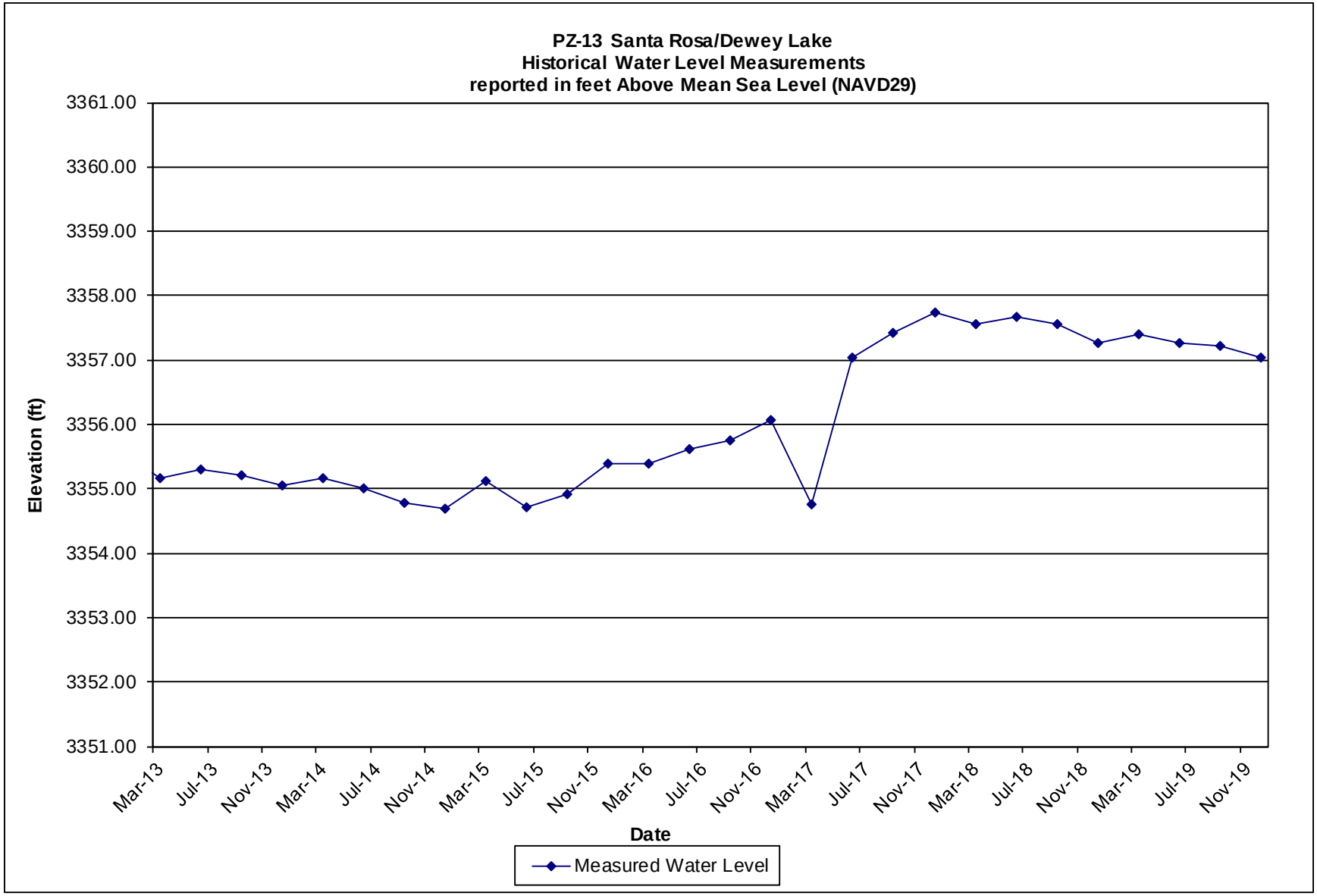

PZ-7 Santa Rosa/Dewey Lake
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3381.00
3380.00
3379.00
3378.00
3377.00
3376.00
3375.00
3374.00
3373.00
3372.00
3371.00
Mar-13
Jul-13
Nov-13
Mar-14
Jul-14
Nov-14
Mar-15
Jul-15
Nov-15
Mar-16
Jul-16
Nov-16
Mar-17
Jul-17
Nov-17
Mar-18
Jul-18
Nov-18
Mar-19
Jul-19
Nov-19
Date
Measured Water Level

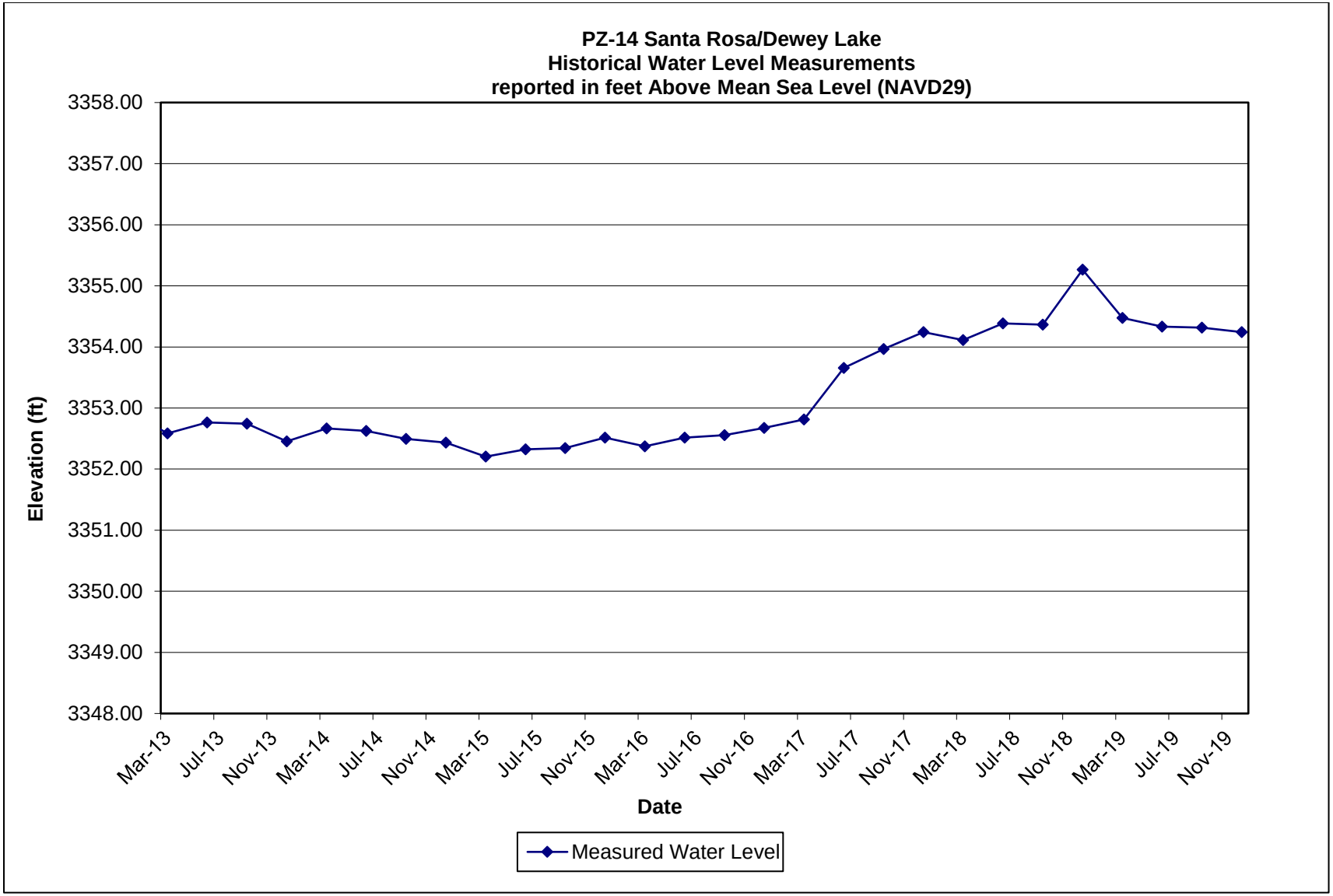

PZ-9 Santa Rosa/Dewey Lake
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
3362.00
3361.00
3360.00
3359.00
3358.00
Mar-13
Jul-13
Nov-13
Mar-14
Jul-14
Nov-14
Mar-15
Jul-15
Nov-15
Mar-16
Jul-16
Nov-16
Mar-17
Jul-17
Nov-17
Mar-18
Jul-18
Nov-18
Mar-19
Jul-19
Nov-19
Date
Measured Water Level

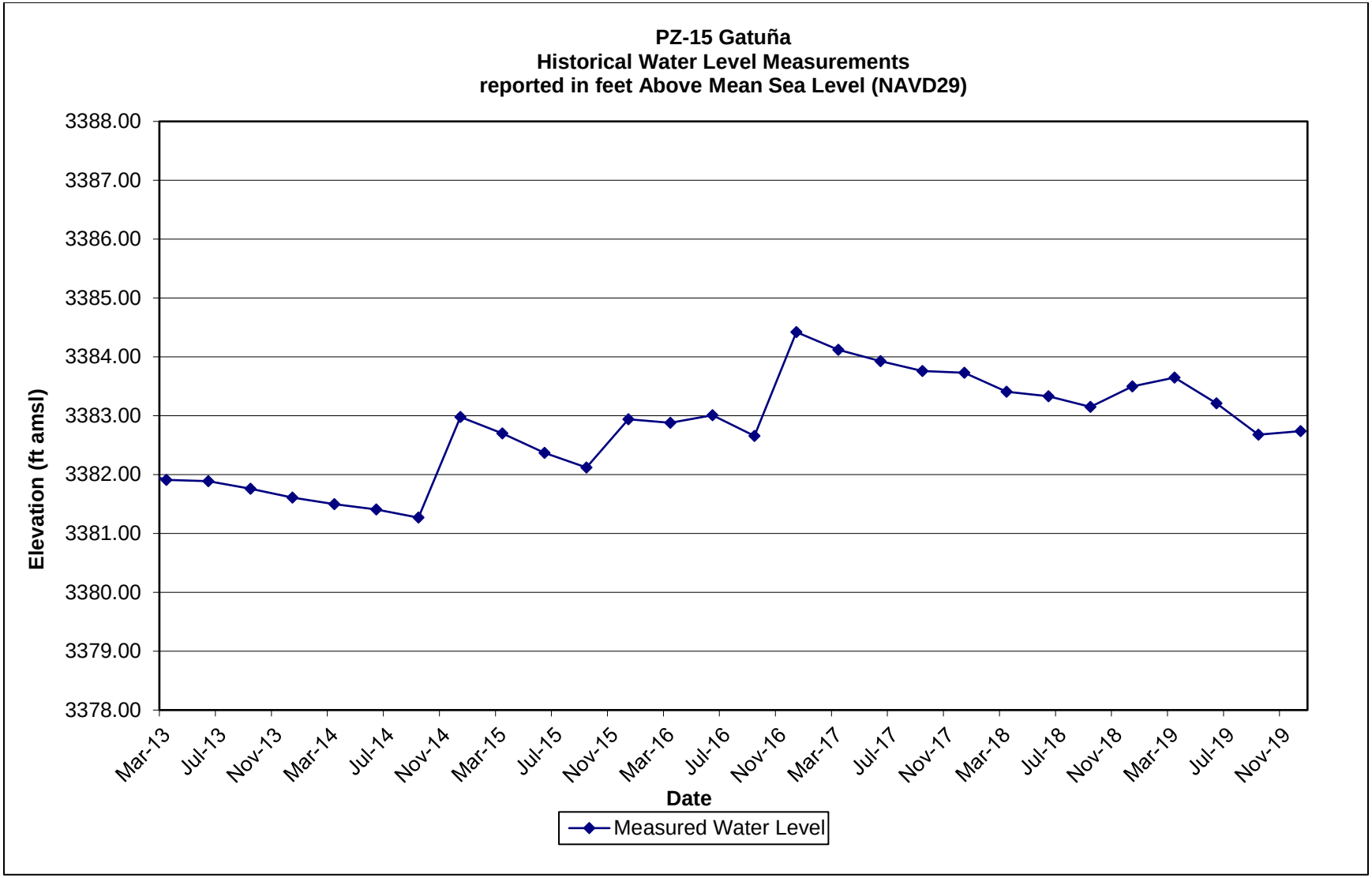

PZ-10 Santa Rosa/Dewey Lake
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
Mar-13
Jul-13
Nov-13
Mar-14
Jul-14
Nov-14
Mar-15
Jul-15
Nov-15
Mar-16
Jul-16
Nov-16
Mar-17
Jul-17
Nov-17
Mar-18
Jul-18
Nov-18
Mar-19
Jul-19
Nov-19
Date
Measured Water Level

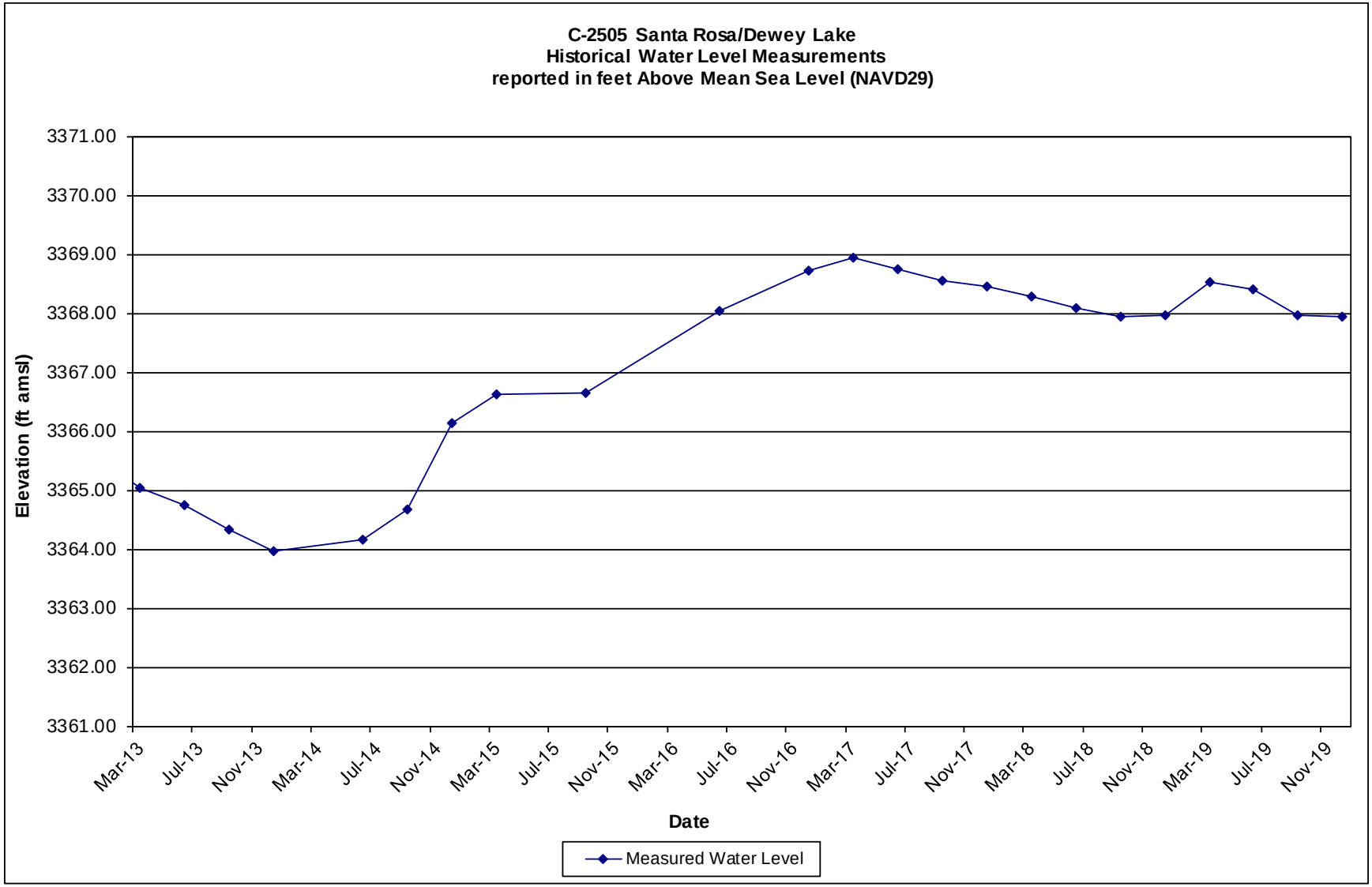

PZ-11 Santa Rosa/Dewey Lake
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3379.00
3378.00
3377.00
3376.00
3375.00
3374.00
3373.00
3372.00
3371.00
3370.00
3369.00
Mar-13
Jul-13
Nov-13
Mar-14
Jul-14
Nov-14
Mar-15
Jul-15
Nov-15
Mar-16
Jul-16
Nov-16
Mar-17
Jul-17
Nov-17
Mar-18
Jul-18
Nov-18
Mar-19
Jul-19
Nov-19
Date
Measured Water Level

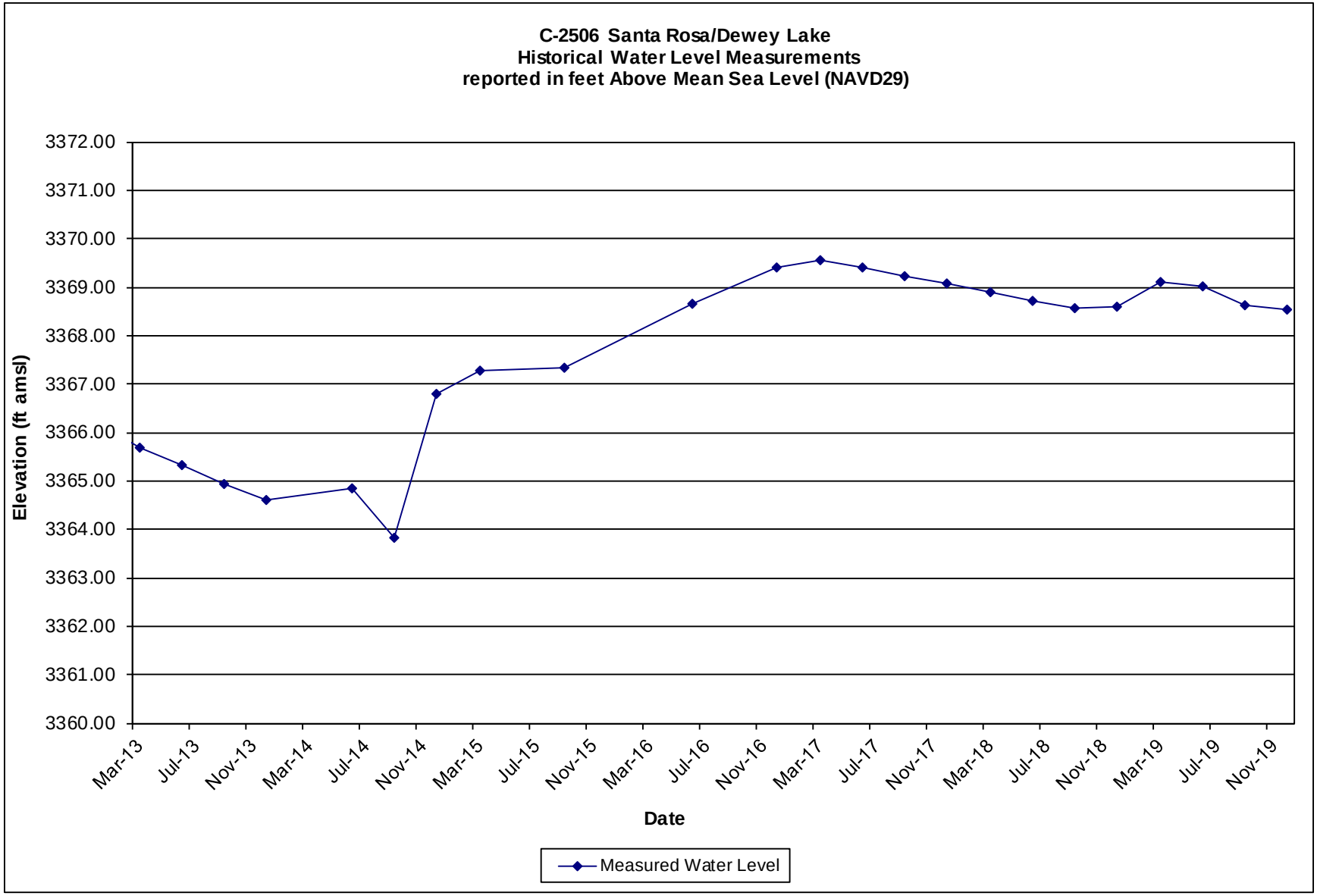

PZ-12 Santa Rosa/Dewey Lake
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3362.00
3361.00
3360.00
3359.00
3358.00
3357.00
3356.00
3355.00
3354.00
3353.00
3352.00
3351.00
3350.00
Mar-13
Jul-13
Nov-13
Mar-14
Jul-14
Nov-14
Mar-15
Jul-15
Nov-15
Mar-16
Jul-16
Nov-16
Mar-17
Jul-17
Nov-17
Mar-18
Jul-18
Nov-18
Mar-19
Jul-19
Nov-19
Date
Measured Water Level

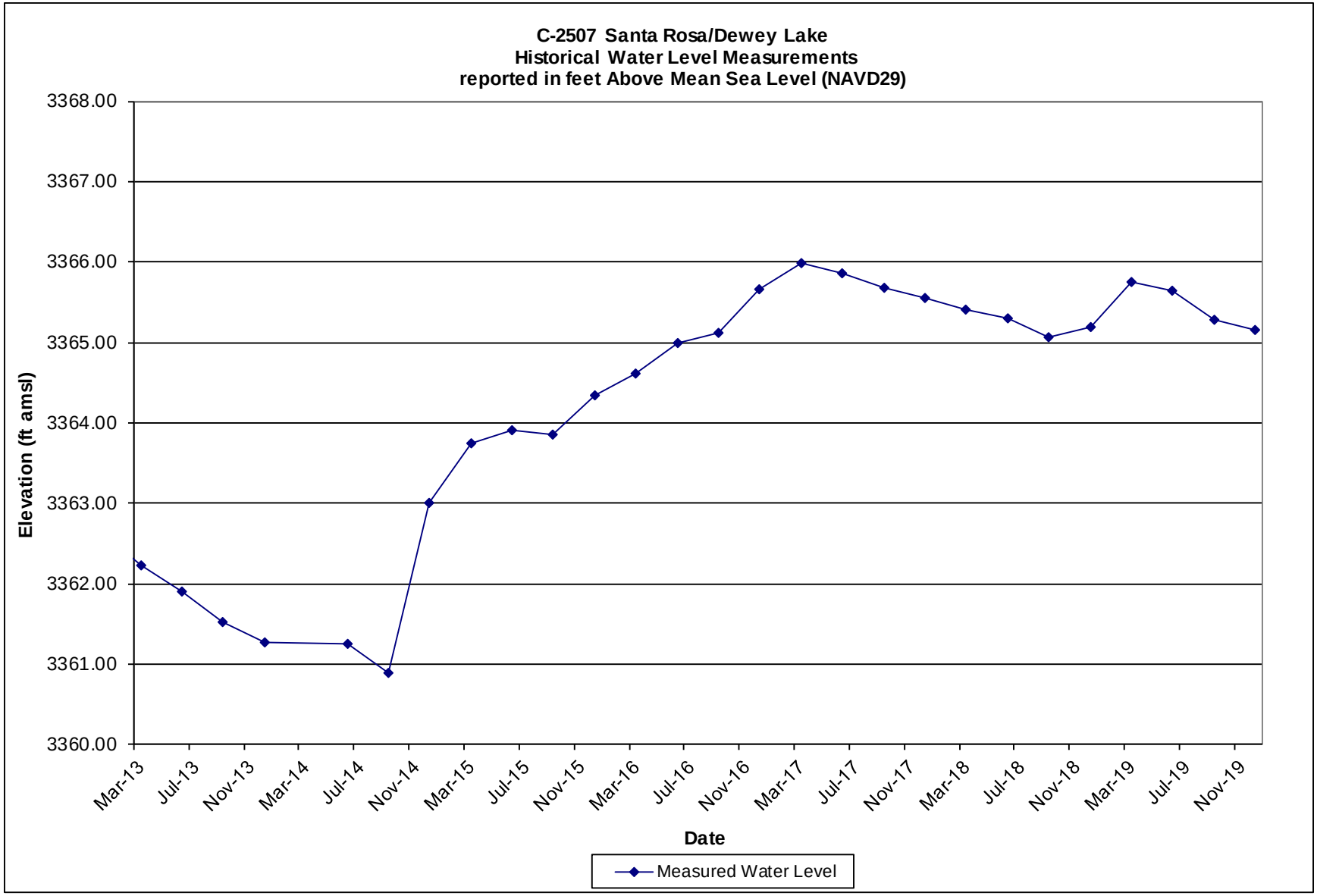

PZ-13 Santa Rosa/Dewey Lake
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft)
3361.00
3360.00
3359.00
3358.00
3357.00
3356.00
3355.00
3354.00
3353.00
3352.00
3351.00
Mar-13
Jul-13
Nov-13
Mar-14
Jul-14
Nov-14
Mar-15
Jul-15
Nov-15
Mar-16
Jul-16
Nov-16
Mar-17
Jul-17
Nov-17
Mar-18
Jul-18
Nov-18
Mar-19
Jul-19
Nov-19
Date
Measured Water Level

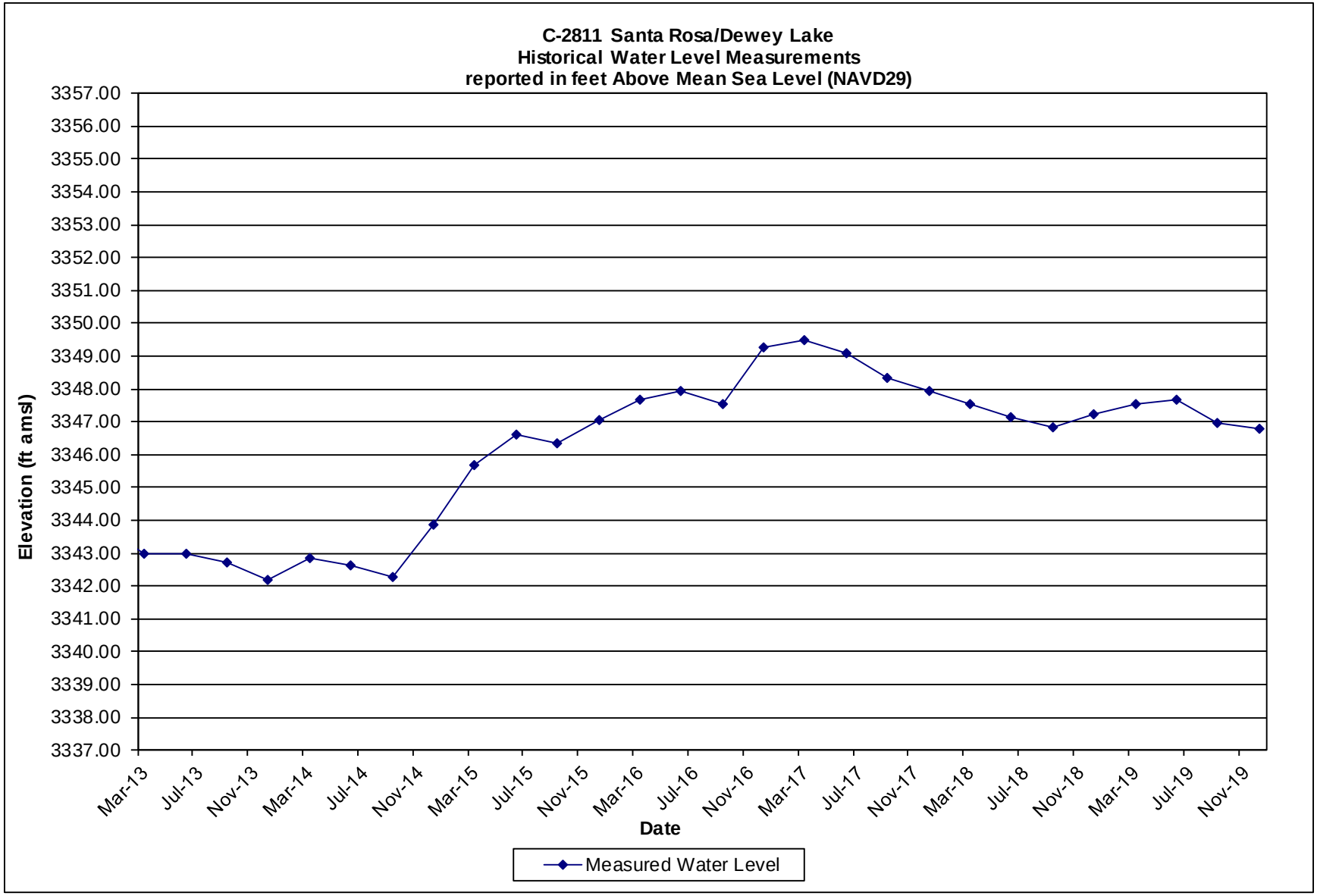

PZ-14 Santa Rosa/Dewey Lake
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft)
3358.00
3357.00
3356.00
3355.00
3354.00
3353.00
3352.00
3351.00
3350.00
3349.00
3348.00
Mar-13
Jul-13
Nov-13
Mar-14
Jul-14
Nov-14
Mar-15
Jul-15
Nov-15
Mar-16
Jul-16
Nov-16
Mar-17
Jul-17
Nov-17
Mar-18
Jul-18
Nov-18
Mar-19
Jul-19
Nov-19
Date
Measured Water Level

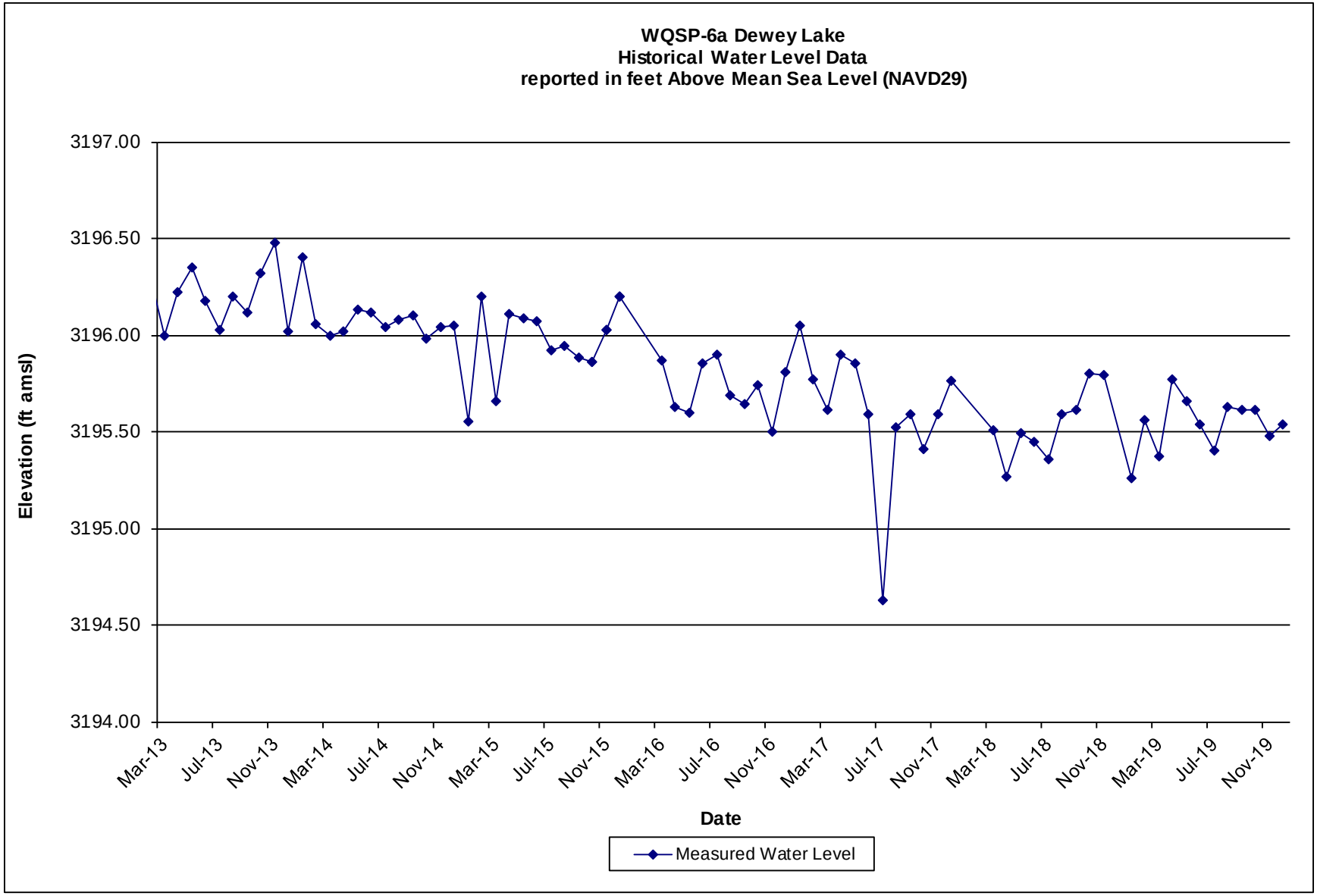

PZ-15 Gatuña
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3388.00
3387.00
3386.00
3385.00
3384.00
3383.00
3382.00
3381.00
3380.00
3379.00
3378.00
Mar-13
Jul-13
Nov-13
Mar-14
Jul-14
Nov-14
Mar-15
Jul-15
Nov-15
Mar-16
Jul-16
Nov-16
Mar-17
Jul-17
Nov-17
Mar-18
Jul-18
Nov-18
Mar-19
Jul-19
Nov-19
Date
Measured Water Level


C-2505 Santa Rosa/Dewey Lake
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
3362.00
3361.00
Mar-13
Jul-13
Nov-13
Mar-14
Jul-14
Nov-14
Mar-15
Jul-15
Nov-15
Mar-16
Jul-16
Nov-16
Mar-17
Jul-17
Nov-17
Mar-18
Jul-18
Nov-18
Mar-19
Jul-19
Nov-19
Date
Measured Water Level


C-2506 Santa Rosa/Dewey Lake
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3372.00
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
3362.00
3361.00
3360.00
Mar-13
Jul-13
Nov-13
Mar-14
Jul-14
Nov-14
Mar-15
Jul-15
Nov-15
Mar-16
Jul-16
Nov-16
Mar-17
Jul-17
Nov-17
Mar-18
Jul-18
Nov-18
Mar-19
Jul-19
Nov-19
Date
Measured Water Level


C-2507 Santa Rosa/Dewey Lake
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
3362.00
3361.00
3360.00
Mar-13
Jul-13
Nov-13
Mar-14
Jul-14
Nov-14
Mar-15
Jul-15
Nov-15
Mar-16
Jul-16
Nov-16
Mar-17
Jul-17
Nov-17
Mar-18
Jul-18
Nov-18
Mar-19
Jul-19
Nov-19
Date
Measured Water Level


C-2811 Santa Rosa/Dewey Lake
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3357.00
3356.00
3355.00
3354.00
3353.00
3352.00
3351.00
3350.00
3349.00
3348.00
3347.00
3346.00
3345.00
3344.00
3343.00
3342.00
3341.00
3340.00
3339.00
3338.00
3337.00
Mar-13
Jul-13
Nov-13
Mar-14
Jul-14
Nov-14
Mar-15
Jul-15
Nov-15
Mar-16
Jul-16
Nov-16
Mar-17
Jul-17
Nov-17
Mar-18
Jul-18
Nov-18
Mar-19
Jul-19
Nov-19
Date
Measured Water Level


WQSP-6a Dewey Lake
Historical Water Level Data
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3197.00
3196.50
3196.00
3195.50
3195.00
3194.50
3194.00
Mar-13
Jul-13
Nov-13
Mar-14
Jul-14
Nov-14
Mar-15
Jul-15
Nov-15
Mar-16
Jul-16
Nov-16
Mar-17
Jul-17
Nov-17
Mar-18
Jul-18
Nov-18
Mar-19
Jul-19
Nov-19
Date
Measured Water Level

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

October 30, 2019

Hnin Khaing
Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8966
FAX

RE: ENVIRONMENTAL 502542-4 OrderNo.: 1910582

Dear Hnin Khaing:

Hall Environmental Analysis Laboratory received 8 sample(s) on 10/10/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Workorder Sample Summary

WO#: **1910582**

30-Oct-19

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL 502542-4

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1910582-001	EC-SL2-20191009-1.3		10/9/2019 10:07:00 AM	10/10/2019 8:45:00 AM	Aqueous
1910582-002	EC-SL2-20191009-2.3		10/9/2019 10:04:00 AM	10/10/2019 8:45:00 AM	Aqueous
1910582-003	EC-SL2-20191009-3.3		10/9/2019 10:00:00 AM	10/10/2019 8:45:00 AM	Aqueous
1910582-004	EC-ELB-20191009-1.2		10/9/2019 9:47:00 AM	10/10/2019 8:45:00 AM	Aqueous
1910582-005	EC-ELB-20191009-2.2		10/9/2019 9:47:00 AM	10/10/2019 8:45:00 AM	Aqueous
1910582-006	EC-ELC-20191009-1.1		10/9/2019 9:39:00 AM	10/10/2019 8:45:00 AM	Aqueous
1910582-007	EC-H-19-20191009-1.1		10/9/2019 9:21:00 AM	10/10/2019 8:45:00 AM	Aqueous
1910582-008	EC-BLK-20191009-1.1		10/9/2019 10:55:00 AM	10/10/2019 8:45:00 AM	Aqueous

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-SL2-20191009-1.3
Project: ENVIRONMENTAL 502542-4
Collection Date: 10/9/2019 10:07:00 AM
Lab ID: 1910582-001 **Matrix:** AQUEOUS **Received Date:** 10/10/2019 8:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Nitrogen, Nitrate (As N)	ND	0.030	0.50		mg/L	5	10/11/2019 9:42:39 AM	R63644

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-SL2-20191009-2.3
Project: ENVIRONMENTAL 502542-4
Collection Date: 10/9/2019 10:04:00 AM
Lab ID: 1910582-002 **Matrix:** AQUEOUS **Received Date:** 10/10/2019 8:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM 4500 NORG C: TKN							Analyst: **OG**	
Nitrogen, Kjeldahl, Total	170	5.7	10	D	mg/L	1	10/16/2019 11:31:00 A	48165

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-SL2-20191009-3.3
Project: ENVIRONMENTAL 502542-4
Collection Date: 10/9/2019 10:00:00 AM
Lab ID: 1910582-003 **Matrix:** AQUEOUS **Received Date:** 10/10/2019 8:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	124	5.00	5.00		mg/L	10	10/11/2019 9:47:03 PM	R63654
Sulfate	46.3	0.669	5.00		mg/L	10	10/11/2019 9:47:03 PM	R63654
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **JMT**	
Total Dissolved Solids	760	100	100	*D	mg/L	1	10/14/2019 1:07:00 PM	48105

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-ELB-20191009-1.2
Project: ENVIRONMENTAL 502542-4
Collection Date: 10/9/2019 9:47:00 AM
Lab ID: 1910582-004 **Matrix:** AQUEOUS **Received Date:** 10/10/2019 8:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Chloride	192000	5000	5000		mg/L	1E+	10/16/2019 11:32:16 P	A63748
Sulfate	114000	669	5000		mg/L	1E+	10/16/2019 11:32:16 P	A63748
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **JMT**	
Total Dissolved Solids	492000	2000	2000	*D	mg/L	1	10/14/2019 1:07:00 PM	48105

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-ELB-20191009-2.2
Project: ENVIRONMENTAL 502542-4
Collection Date: 10/9/2019 9:47:00 AM
Lab ID: 1910582-005 **Matrix:** AQUEOUS **Received Date:** 10/10/2019 8:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Chloride	187000	10000	10000		mg/L	2E+	10/21/2019 7:15:28 PM	R63855
Sulfate	32900	1340	10000		mg/L	2E+	10/21/2019 7:15:28 PM	R63855
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **JMT**	
Total Dissolved Solids	571000	2000	2000	*D	mg/L	1	10/14/2019 1:07:00 PM	48105

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-ELC-20191009-1.1
Project: ENVIRONMENTAL 502542-4
Collection Date: 10/9/2019 9:39:00 AM
Lab ID: 1910582-006 **Matrix:** AQUEOUS **Received Date:** 10/10/2019 8:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	324000	10000	10000		mg/L	2E+	10/25/2019 3:17:24 PM	R63973
Sulfate	118000	1340	10000		mg/L	2E+	10/25/2019 3:17:24 PM	R63973
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **JMT**	
Total Dissolved Solids	500000	2000	2000	*D	mg/L	1	10/14/2019 1:07:00 PM	48105

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-H-19-20191009-1.1
Project: ENVIRONMENTAL 502542-4
Collection Date: 10/9/2019 9:21:00 AM
Lab ID: 1910582-007 **Matrix:** AQUEOUS **Received Date:** 10/10/2019 8:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	58000	2500	2500		mg/L	5E+	10/17/2019 10:00:57 P	R63799
Sulfate	3110	134	1000		mg/L	2E+	10/17/2019 12:09:19 A	A63748
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **JMT**	
Total Dissolved Solids	121000	2000	2000	*D	mg/L	1	10/14/2019 1:07:00 PM	48105

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-BLK-20191009-1.1
Project: ENVIRONMENTAL 502542-4
Collection Date: 10/9/2019 10:55:00 AM
Lab ID: 1910582-008 **Matrix:** AQUEOUS **Received Date:** 10/10/2019 8:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Chloride	ND	0.500	0.500		mg/L	1	10/17/2019 12:21:40 A	A63748
Sulfate	0.0989	0.0669	0.500	J	mg/L	1	10/17/2019 12:21:40 A	A63748
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **JMT**	
Total Dissolved Solids	ND	20.0	20.0		mg/L	1	10/14/2019 1:07:00 PM	48105

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910582**

30-Oct-19

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL 502542-4

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R63644**	RunNo: **63644**							
Prep Date:	Analysis Date: **10/11/2019**	SeqNo: **2174392**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	103	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **CCB**	Batch ID: **R63644**	RunNo: **63644**							
Prep Date:	Analysis Date: **10/11/2019**	SeqNo: **2174393**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R63644**	RunNo: **63644**							
Prep Date:	Analysis Date: **10/11/2019**	SeqNo: **2174398**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID: **LCS-b**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R63644**	RunNo: **63644**							
Prep Date:	Analysis Date: **10/11/2019**	SeqNo: **2174400**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R63644**	RunNo: **63644**							
Prep Date:	Analysis Date: **10/11/2019**	SeqNo: **2174405**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	96.5	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **CCB**	Batch ID: **R63644**	RunNo: **63644**							
Prep Date:	Analysis Date: **10/11/2019**	SeqNo: **2174406**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	ND	0.10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910582**

30-Oct-19

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL 502542-4

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R63644**	RunNo: **63644**							
Prep Date:	Analysis Date: **10/11/2019**	SeqNo: **2174418**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	5.0	0.10	4.800	0	103	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **CCB**	Batch ID: **R63644**	RunNo: **63644**							
Prep Date:	Analysis Date: **10/11/2019**	SeqNo: **2174419**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R63644**	RunNo: **63644**							
Prep Date:	Analysis Date: **10/11/2019**	SeqNo: **2174430**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	97.0	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **CCB**	Batch ID: **R63644**	RunNo: **63644**							
Prep Date:	Analysis Date: **10/11/2019**	SeqNo: **2174431**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R63644**	RunNo: **63644**							
Prep Date:	Analysis Date: **10/11/2019**	SeqNo: **2174442**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	5.0	0.10	4.800	0	104	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **CCB**	Batch ID: **R63644**	RunNo: **63644**							
Prep Date:	Analysis Date: **10/11/2019**	SeqNo: **2174443**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	ND	0.10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910582**

30-Oct-19

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL 502542-4

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R63644**	RunNo: **63644**							
Prep Date:	Analysis Date: **10/11/2019**	SeqNo: **2174456**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	97.4	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **CCB**	Batch ID: **R63644**	RunNo: **63644**							
Prep Date:	Analysis Date: **10/11/2019**	SeqNo: **2174457**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R63644**	RunNo: **63644**							
Prep Date:	Analysis Date: **10/12/2019**	SeqNo: **2174468**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	5.0	0.10	4.800	0	104	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **CCB**	Batch ID: **R63644**	RunNo: **63644**							
Prep Date:	Analysis Date: **10/12/2019**	SeqNo: **2174469**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R63644**	RunNo: **63644**							
Prep Date:	Analysis Date: **10/12/2019**	SeqNo: **2174479**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	97.2	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **CCB**	Batch ID: **R63644**	RunNo: **63644**							
Prep Date:	Analysis Date: **10/12/2019**	SeqNo: **2174480**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	ND	0.10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910582**

30-Oct-19

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL 502542-4

Sample ID: **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R63654** RunNo: **63654**

Prep Date: Analysis Date: **10/11/2019** SeqNo: **2174813** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.6	0.50	8.000	0	95.6	90	110			
Sulfate	19	0.50	20.00	0	96.6	90	110			

Sample ID: **ccb** SampType: **CCB** TestCode: **EPA Method 300.0: Anions**

Client ID: **CCB** Batch ID: **R63654** RunNo: **63654**

Prep Date: Analysis Date: **10/11/2019** SeqNo: **2174814** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **MB** SampType: **MBLK** TestCode: **EPA Method 300.0: Anions**

Client ID: **PBW** Batch ID: **R63654** RunNo: **63654**

Prep Date: Analysis Date: **10/11/2019** SeqNo: **2174816** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS** SampType: **LCS** TestCode: **EPA Method 300.0: Anions**

Client ID: **LCSW** Batch ID: **R63654** RunNo: **63654**

Prep Date: Analysis Date: **10/11/2019** SeqNo: **2174817** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.9	90	110			
Sulfate	9.9	0.50	10.00	0	98.6	90	110			

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R63654** RunNo: **63654**

Prep Date: Analysis Date: **10/11/2019** SeqNo: **2174825** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	91.9	90	110			
Sulfate	12	0.50	12.50	0	93.0	90	110			

Sample ID: **ccb** SampType: **CCB** TestCode: **EPA Method 300.0: Anions**

Client ID: **CCB** Batch ID: **R63654** RunNo: **63654**

Prep Date: Analysis Date: **10/11/2019** SeqNo: **2174826** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910582**

30-Oct-19

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL 502542-4

Sample ID: **ccb**	SampType: **CCB**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63654**	RunNo: **63654**
Prep Date:	Analysis Date: **10/11/2019**	SeqNo: **2174826** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63654**	RunNo: **63654**
Prep Date:	Analysis Date: **10/11/2019**	SeqNo: **2174855** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	98.0	90	110			
Sulfate	20	0.50	20.00	0	98.2	90	110			

Sample ID: **ccb**	SampType: **CCB**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63654**	RunNo: **63654**
Prep Date:	Analysis Date: **10/11/2019**	SeqNo: **2174856** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63654**	RunNo: **63654**
Prep Date:	Analysis Date: **10/11/2019**	SeqNo: **2174867** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.5	90	110			
Sulfate	12	0.50	12.50	0	93.7	90	110			

Sample ID: **ccb**	SampType: **CCB**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63654**	RunNo: **63654**
Prep Date:	Analysis Date: **10/11/2019**	SeqNo: **2174868** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63654**	RunNo: **63654**
Prep Date:	Analysis Date: **10/11/2019**	SeqNo: **2174879** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910582**

30-Oct-19

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL 502542-4

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63654**	RunNo: **63654**
Prep Date:	Analysis Date: **10/11/2019**	SeqNo: **2174879** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.9	90	110			
Sulfate	20	0.50	20.00	0	99.4	90	110			

Sample ID: **ccb**	SampType: **CCB**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63654**	RunNo: **63654**
Prep Date:	Analysis Date: **10/11/2019**	SeqNo: **2174880** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63654**	RunNo: **63654**
Prep Date:	Analysis Date: **10/11/2019**	SeqNo: **2174891** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.1	90	110			
Sulfate	12	0.50	12.50	0	93.0	90	110			

Sample ID: **ccb**	SampType: **CCB**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63654**	RunNo: **63654**
Prep Date:	Analysis Date: **10/11/2019**	SeqNo: **2174892** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A63748**	RunNo: **63748**
Prep Date:	Analysis Date: **10/16/2019**	SeqNo: **2179191** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	0.14	0.50								J

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A63748**	RunNo: **63748**
Prep Date:	Analysis Date: **10/16/2019**	SeqNo: **2179192** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910582**
30-Oct-19

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL 502542-4

Sample ID: **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **A63748** RunNo: **63748**
Prep Date: Analysis Date: **10/16/2019** SeqNo: **2179192** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.2	90	110			
Sulfate	9.3	0.50	10.00	0	92.9	90	110			

Sample ID: **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63799** RunNo: **63799**
Prep Date: Analysis Date: **10/17/2019** SeqNo: **2180760** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.1	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63799** RunNo: **63799**
Prep Date: Analysis Date: **10/17/2019** SeqNo: **2180761** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63799** RunNo: **63799**
Prep Date: Analysis Date: **10/17/2019** SeqNo: **2180772** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.1	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63799** RunNo: **63799**
Prep Date: Analysis Date: **10/17/2019** SeqNo: **2180773** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63799** RunNo: **63799**
Prep Date: Analysis Date: **10/17/2019** SeqNo: **2180785** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	95.6	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910582**
30-Oct-19

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL 502542-4

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63799**	RunNo: **63799**
Prep Date:	Analysis Date: **10/17/2019**	SeqNo: **2180786** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63799**	RunNo: **63799**
Prep Date:	Analysis Date: **10/18/2019**	SeqNo: **2180797** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.5	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63799**	RunNo: **63799**
Prep Date:	Analysis Date: **10/18/2019**	SeqNo: **2180798** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63799**	RunNo: **63799**
Prep Date:	Analysis Date: **10/17/2019**	SeqNo: **2180799** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.6	0.50	8.000	0	94.9	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63799**	RunNo: **63799**
Prep Date:	Analysis Date: **10/17/2019**	SeqNo: **2180800** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R63799**	RunNo: **63799**
Prep Date:	Analysis Date: **10/17/2019**	SeqNo: **2180802** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910582**
30-Oct-19

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL 502542-4

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R63799**	RunNo: **63799**
Prep Date:	Analysis Date: **10/17/2019**	SeqNo: **2180803** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	91.8	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63799**	RunNo: **63799**
Prep Date:	Analysis Date: **10/17/2019**	SeqNo: **2180811** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.3	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63799**	RunNo: **63799**
Prep Date:	Analysis Date: **10/17/2019**	SeqNo: **2180812** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63855**	RunNo: **63855**
Prep Date:	Analysis Date: **10/21/2019**	SeqNo: **2182834** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63855**	RunNo: **63855**
Prep Date:	Analysis Date: **10/21/2019**	SeqNo: **2182835** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.3	0.50	8.000	0	91.4	90	110			
Sulfate	19	0.50	20.00	0	92.6	90	110			

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R63855**	RunNo: **63855**
Prep Date:	Analysis Date: **10/21/2019**	SeqNo: **2182837** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910582**
30-Oct-19

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL 502542-4

Sample ID: **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R63855** RunNo: **63855**
Prep Date: Analysis Date: **10/21/2019** SeqNo: **2182838** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.5	0.50	5.000	0	90.4	90	110			
Sulfate	9.2	0.50	10.00	0	91.7	90	110			

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63855** RunNo: **63855**
Prep Date: Analysis Date: **10/21/2019** SeqNo: **2182845** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	91.4	90	110			
Sulfate	12	0.50	12.50	0	92.3	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63855** RunNo: **63855**
Prep Date: Analysis Date: **10/21/2019** SeqNo: **2182846** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63855** RunNo: **63855**
Prep Date: Analysis Date: **10/21/2019** SeqNo: **2182865** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.2	90	110			
Sulfate	19	0.50	20.00	0	96.9	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63855** RunNo: **63855**
Prep Date: Analysis Date: **10/21/2019** SeqNo: **2182866** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63855** RunNo: **63855**
Prep Date: Analysis Date: **10/21/2019** SeqNo: **2182877** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910582**
30-Oct-19

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL 502542-4

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63855** RunNo: **63855**
Prep Date: Analysis Date: **10/21/2019** SeqNo: **2182877** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.6	90	110			
Sulfate	12	0.50	12.50	0	94.4	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63855** RunNo: **63855**
Prep Date: Analysis Date: **10/21/2019** SeqNo: **2182878** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63855** RunNo: **63855**
Prep Date: Analysis Date: **10/21/2019** SeqNo: **2182889** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.2	90	110			
Sulfate	20	0.50	20.00	0	98.2	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63855** RunNo: **63855**
Prep Date: Analysis Date: **10/21/2019** SeqNo: **2182890** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63855** RunNo: **63855**
Prep Date: Analysis Date: **10/21/2019** SeqNo: **2182900** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	95.9	90	110			
Sulfate	12	0.50	12.50	0	94.7	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63855** RunNo: **63855**
Prep Date: Analysis Date: **10/21/2019** SeqNo: **2182901** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910582**

30-Oct-19

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL 502542-4

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63855**	RunNo: **63855**
Prep Date:	Analysis Date: **10/21/2019**	SeqNo: **2182901** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63855**	RunNo: **63855**
Prep Date:	Analysis Date: **10/22/2019**	SeqNo: **2182913** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.7	90	110			
Sulfate	20	0.50	20.00	0	98.8	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63855**	RunNo: **63855**
Prep Date:	Analysis Date: **10/22/2019**	SeqNo: **2182914** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63973**	RunNo: **63973**
Prep Date:	Analysis Date: **10/25/2019**	SeqNo: **2189718** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.7	90	110			
Sulfate	12	0.50	12.50	0	94.7	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63973**	RunNo: **63973**
Prep Date:	Analysis Date: **10/25/2019**	SeqNo: **2189719** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63973**	RunNo: **63973**
Prep Date:	Analysis Date: **10/25/2019**	SeqNo: **2189734** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910582**
30-Oct-19

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL 502542-4

Sample ID: **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63973** RunNo: **63973**
Prep Date: Analysis Date: **10/25/2019** SeqNo: **2189734** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	95.9	90	110			
Sulfate	19	0.50	20.00	0	97.2	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63973** RunNo: **63973**
Prep Date: Analysis Date: **10/25/2019** SeqNo: **2189735** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R63973** RunNo: **63973**
Prep Date: Analysis Date: **10/25/2019** SeqNo: **2189737** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R63973** RunNo: **63973**
Prep Date: Analysis Date: **10/25/2019** SeqNo: **2189738** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.1	90	110			
Sulfate	9.7	0.50	10.00	0	96.9	90	110			

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63973** RunNo: **63973**
Prep Date: Analysis Date: **10/25/2019** SeqNo: **2189745** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.6	90	110			
Sulfate	12	0.50	12.50	0	95.1	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63973** RunNo: **63973**
Prep Date: Analysis Date: **10/25/2019** SeqNo: **2189746** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910582**
30-Oct-19

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL 502542-4

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63973**	RunNo: **63973**
Prep Date:	Analysis Date: **10/25/2019**	SeqNo: **2189746** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63973**	RunNo: **63973**
Prep Date:	Analysis Date: **10/25/2019**	SeqNo: **2189759** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.6	90	110			
Sulfate	19	0.50	20.00	0	97.3	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63973**	RunNo: **63973**
Prep Date:	Analysis Date: **10/25/2019**	SeqNo: **2189761** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63973**	RunNo: **63973**
Prep Date:	Analysis Date: **10/25/2019**	SeqNo: **2189772** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.1	90	110			
Sulfate	12	0.50	12.50	0	95.2	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63973**	RunNo: **63973**
Prep Date:	Analysis Date: **10/25/2019**	SeqNo: **2189773** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63973**	RunNo: **63973**
Prep Date:	Analysis Date: **10/25/2019**	SeqNo: **2189784** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910582**

30-Oct-19

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL 502542-4

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63973**	RunNo: **63973**
Prep Date:	Analysis Date: **10/25/2019**	SeqNo: **2189784** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.4	90	110			
Sulfate	20	0.50	20.00	0	97.7	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63973**	RunNo: **63973**
Prep Date:	Analysis Date: **10/25/2019**	SeqNo: **2189785** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63973**	RunNo: **63973**
Prep Date:	Analysis Date: **10/25/2019**	SeqNo: **2189799** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.6	90	110			
Sulfate	12	0.50	12.50	0	95.7	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63973**	RunNo: **63973**
Prep Date:	Analysis Date: **10/25/2019**	SeqNo: **2189800** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63973**	RunNo: **63973**
Prep Date:	Analysis Date: **10/26/2019**	SeqNo: **2189811** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.6	90	110			
Sulfate	20	0.50	20.00	0	98.3	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63973**	RunNo: **63973**
Prep Date:	Analysis Date: **10/26/2019**	SeqNo: **2189812** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910582**
30-Oct-19

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL 502542-4

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63973** RunNo: **63973**
Prep Date: Analysis Date: **10/26/2019** SeqNo: **2189812** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63973** RunNo: **63973**
Prep Date: Analysis Date: **10/26/2019** SeqNo: **2189824** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.0	90	110			
Sulfate	12	0.50	12.50	0	96.2	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63973** RunNo: **63973**
Prep Date: Analysis Date: **10/26/2019** SeqNo: **2189825** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63973** RunNo: **63973**
Prep Date: Analysis Date: **10/26/2019** SeqNo: **2189833** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.6	90	110			
Sulfate	20	0.50	20.00	0	98.4	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63973** RunNo: **63973**
Prep Date: Analysis Date: **10/26/2019** SeqNo: **2189834** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910582**
30-Oct-19

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL 502542-4

Sample ID: **MB-48105**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **48105**	RunNo: **63664**
Prep Date: **10/11/2019**	Analysis Date: **10/14/2019**	SeqNo: **2175366** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-48105**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **48105**	RunNo: **63664**
Prep Date: **10/11/2019**	Analysis Date: **10/14/2019**	SeqNo: **2175367** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910582**

30-Oct-19

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL 502542-4

Sample ID: **MB-48165**	SampType: **MBLK**	TestCode: **SM 4500 Norg C: TKN**
Client ID: **PBW**	Batch ID: **48165**	RunNo: **63735**
Prep Date: **10/15/2019**	Analysis Date: **10/16/2019**	SeqNo: **2178453** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	1.0								

Sample ID: **LCS-48165**	SampType: **LCS**	TestCode: **SM 4500 Norg C: TKN**
Client ID: **LCSW**	Batch ID: **48165**	RunNo: **63735**
Prep Date: **10/15/2019**	Analysis Date: **10/16/2019**	SeqNo: **2178454** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10	1.0	10.00	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: WIPP | Work Order Number: 1910582 | RcptNo: 1

Received By: JK | 10/10/2019 8:45:00 AM

Completed By: Anne Thorne | 10/10/2019 10:44:02 AM | Anne Thorne

Reviewed By: 10/10/19

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	FedEx		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____ 10/10/19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

CUSTODY SEALS INTACT ON SAMPLE BOTTLES/at 10/10/19

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.7	Good	Yes			

ENVIRONMENTAL CHAIN-OF-CUSTODY / REQUEST FOR ANALYSIS RECORD

Date Samples Shipped 10-9-19
Lab Contact Andy Freeman (HEAL)
Project Contact HWN Khaing
Project Contact Phone (575) 234-8972

CofC/RFA Control **No. 10638**
Carrier/Waybill Number Fed Ex 8116-0153-0384
Lab PO Number 50254-4

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

Lab Report Delivery to:
PO Box 2078 Mail Stop 452-09
Carlsbad, NM 88221-2078

HEAL # 1910582

Sample Number	Date/Time Collected	Sample Type	Sample Quantity	Container Type	Preservative	Requested Analysis
EC-SL2-20191009 -1,3	10-9-19 1007	Sewage	1 Liter	Plastic	≤ 4 °C	Nitrate 001
2,3	1004		500 mL		H_2SO_4 to pH≤2, ≤4°C	TKN 002
3,3	1000				≤ 4 °C	Surfate, Chloride, TDS 003
EC-ELB-20191009- 1,2	0947					004
ELB 2,2	0947					005
ELC 1,1	0939					006
H-19 1,1	0921					007
Blk 1,1	1055					008

Special Instruction Comments: Do Nitrate (1 Liter setting, Lagoon 2) within 48 hrs of collection time (10-9-19 @ 1007)

Possible Hazards Nonhazard ____ Radiological ____ Sewage X Other ____ Sample Disposal: Return To Client ____ Disposal By Lab X

Signatures: (Name, Signature, Date and Time) **Laboratory Note Any Sample Discrepancies on "Special Instruction/Comment Line"

1. Relinquished By: Jerome Hernandez 10-9-19 1145
   Received By: Juan Rojas 10-10-19 8:45
2. Relinquished By: ____
   Received By: ____
3. Relinquished By: ____
   Received By: ____
4. Relinquished By: ____
   Received By: ____

WP 02-EM3001- Environmental Monitoring

Temp = 0.6 + 0.1 = 0.7°C

WHITE - Original to accompany samples

PINK - Field copy

NICHOLS PRINTING INC.

05373

Salt Pond Sump Leak Detection Water Level Measurement Field Data Sheet

From July 1, 2019 to December 31 Year 2019

Pond Name	Date	Time	Water Depth (ft)	Does Water Need Pumping? (Y/N)	Initials	Comments
Salt Storage Pond 2 Sump	7/10/19	0723	43.37		JT	
Salt Storage Pond 3 Sump	7/11/19	0729	32.69		JT	
Salt Storage Pond 2 Sump	8/12/19	0939	42.70		JT	
Salt Storage Pond 3 Sump	8/12/19	0943	32.98		JT	
Salt Storage Pond 2 Sump	9/24/19	1202	41.35		JT	
Salt Storage Pond 3 Sump	9/24/19	1206	33.39		JT	
Salt Storage Pond 2 Sump					RJ	AREA UNDER CONSTRUCTION
Salt Storage Pond 3 Sump	11/6/19	1457	33.44		RJ	
Salt Storage Pond 2 Sump	10/9/19	0932	40.20		RJ	
Salt Storage Pond 3 Sump	10/9/19	0836	32.63		RJ	
Salt Storage Pond 2 Sump	12/4/19	1103	39.10		RJ	
Salt Storage Pond 3 Sump	12/4/19	1058	31.79		RJ	

Performer: Print Name: John Thurston Signature:

Performer: Print Name: Richard Jimenez Signature:

Performer: Print Name: Signature:

05374

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

October 21, 2019

Hnin Khaing
Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8966
FAX:

RE: ENVIRONMENTAL 502542-4 OrderNo.: 1910588

Dear Hnin Khaing:

Hall Environmental Analysis Laboratory received 8 sample(s) on 10/10/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Workorder Sample Summary

WO#: **1910588**
21-Oct-19

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL 502542-4

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1910588-001	WR-SSP1-20191009-1.1		10/9/2019 8:41:00 AM	10/10/2019 8:45:00 AM	Aqueous
1910588-002	WR-SSP2-20191009-1.1		10/9/2019 8:58:00 AM	10/10/2019 8:45:00 AM	Aqueous
1910588-003	WR-SSP3-20191009-1.1		10/9/2019 8:49:00 AM	10/10/2019 8:45:00 AM	Aqueous
1910588-004	WR-SWP1-20191009-1.1		10/9/2019 8:22:00 AM	10/10/2019 8:45:00 AM	Aqueous
1910588-005	WR-SWP2-20191009-1.2		10/9/2019 8:11:00 AM	10/10/2019 8:45:00 AM	Aqueous
1910588-006	WR-SWP2-20191009-2.2		10/9/2019 8:11:00 AM	10/10/2019 8:45:00 AM	Aqueous
1910588-007	WR-SWP3-20191009-1.1		10/9/2019 8:28:00 AM	10/10/2019 8:45:00 AM	Aqueous
1910588-008	WR-BLK-20191009-1.1		10/9/2019 9:03:00 AM	10/10/2019 8:45:00 AM	Aqueous

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **1910588**
Date: **10/21/2019**

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL 502542-4

All analytes reported are associated with passing CCVs.

METHOD: 300.0

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: none
Analysis: 300.0

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Calibration: All acceptance criteria were met.
2. Blanks: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Spikes: All acceptance criteria were met.
5. Samples: All acceptance criteria were met.

METHOD: SM2540C

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: SM2540C
Analysis: SM2540C

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Blanks: All acceptance criteria were met.
2. Spikes: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Samples: All acceptance criteria were met.

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: WR-SSP1-20191009-1.1
Project: ENVIRONMENTAL 502542-4
Collection Date: 10/9/2019 8:41:00 AM
Lab ID: 1910588-001 **Matrix:** AQUEOUS **Received Date:** 10/10/2019 8:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	138000	10000	10000		mg/L	2E+	10/14/2019 9:08:01 PM	A63681
Sulfate	2000	6.69	50.0		mg/L	100	10/15/2019 10:25:05 P	A63720
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **JMT**	
Total Dissolved Solids	243000	2000	2000	*D	mg/L	1	10/14/2019 1:07:00 PM	48105

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: WR-SSP2-20191009-1.1
Project: ENVIRONMENTAL 502542-4
Collection Date: 10/9/2019 8:58:00 AM
Lab ID: 1910588-002 **Matrix:** AQUEOUS **Received Date:** 10/10/2019 8:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	182000	10000	10000		mg/L	2E+	10/15/2019 11:16:32 P	A63720
Sulfate	7580	33.4	250		mg/L	500	10/15/2019 11:03:40 P	A63720
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **JMT**	
Total Dissolved Solids	331000	2000	2000	*D	mg/L	1	10/14/2019 1:07:00 PM	48105

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: WR-SSP3-20191009-1.1
Project: ENVIRONMENTAL 502542-4
Collection Date: 10/9/2019 8:49:00 AM
Lab ID: 1910588-003 **Matrix:** AQUEOUS **Received Date:** 10/10/2019 8:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	199000	10000	10000		mg/L	2E+	10/14/2019 9:59:28 PM	A63681
Sulfate	40900	669	5000		mg/L	1E+	10/15/2019 11:29:24 P	A63720
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **JMT**	
Total Dissolved Solids	395000	2000	2000	*D	mg/L	1	10/14/2019 1:07:00 PM	48105

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: WR-SWP1-20191009-1.1
Project: ENVIRONMENTAL 502542-4
Collection Date: 10/9/2019 8:22:00 AM
Lab ID: 1910588-004 **Matrix:** AQUEOUS **Received Date:** 10/10/2019 8:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	301	50.0	50.0		mg/L	100	10/14/2019 10:25:11 P	A63681
Sulfate	46.3	0.669	5.00		mg/L	10	10/15/2019 11:42:15 P	A63720
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **JMT**	
Total Dissolved Solids	858	40.0	40.0	*D	mg/L	1	10/14/2019 1:07:00 PM	48105

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: WR-SWP2-20191009-1.2
Project: ENVIRONMENTAL 502542-4
Collection Date: 10/9/2019 8:11:00 AM
Lab ID: 1910588-005 **Matrix:** AQUEOUS **Received Date:** 10/10/2019 8:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	125	5.00	5.00		mg/L	10	10/14/2019 11:03:47 P	A63681
Sulfate	8.52	0.669	5.00		mg/L	10	10/15/2019 11:55:07 P	A63720
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **JMT**	
Total Dissolved Solids	391	20.0	20.0		mg/L	1	10/14/2019 1:07:00 PM	48105

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: WR-SWP2-20191009-2.2
Project: ENVIRONMENTAL 502542-4
Collection Date: 10/9/2019 8:11:00 AM
Lab ID: 1910588-006 **Matrix:** AQUEOUS **Received Date:** 10/10/2019 8:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	124	5.00	5.00		mg/L	10	10/14/2019 11:29:30 P	A63681
Sulfate	8.38	0.669	5.00		mg/L	10	10/16/2019 12:07:59 A	A63720
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **JMT**	
Total Dissolved Solids	394	20.0	20.0		mg/L	1	10/14/2019 1:07:00 PM	48105

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: WR-SWP3-20191009-1.1
Project: ENVIRONMENTAL 502542-4
Collection Date: 10/9/2019 8:28:00 AM
Lab ID: 1910588-007 **Matrix:** AQUEOUS **Received Date:** 10/10/2019 8:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	278	50.0	50.0		mg/L	100	10/15/2019 12:08:12 A	A63681
Sulfate	94.7	0.669	5.00		mg/L	10	10/16/2019 12:20:51 A	A63720
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **JMT**	
Total Dissolved Solids	844	20.0	20.0	*	mg/L	1	10/14/2019 1:07:00 PM	48105

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: WR-BLK-20191009-1.1
Project: ENVIRONMENTAL 502542-4
Collection Date: 10/9/2019 9:03:00 AM
Lab ID: 1910588-008 **Matrix:** AQUEOUS **Received Date:** 10/10/2019 8:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	ND	0.500	0.500		mg/L	1	10/15/2019 12:21:04 A	A63681
Sulfate	0.159	0.0669	0.500	J	mg/L	1	10/16/2019 12:33:43 A	A63720
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **JMT**	
Total Dissolved Solids	ND	20.0	20.0		mg/L	1	10/14/2019 1:07:00 PM	48105

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

DATES REPORT

WO#: **1910588**

21-Oct-19

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL 502542-4

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1910588-001A	WR-SSP1-20191009-1.1	10/9/2019 8:41:00 AM	Aqueous	EPA Method 300.0: Anions			10/14/2019 9:08:01 PM
				EPA Method 300.0: Anions			10/15/2019 10:25:05 PM
				EPA Method 300.0: Anions			10/14/2019 8:55:10 PM
				SM2540C MOD: Total Dissolved Solic		10/11/2019 10:42:38 AM	10/14/2019 1:07:00 PM
1910588-002A	WR-SSP2-20191009-1.1	10/9/2019 8:58:00 AM		EPA Method 300.0: Anions			10/15/2019 11:16:32 PM
				EPA Method 300.0: Anions			10/14/2019 9:20:53 PM
				EPA Method 300.0: Anions			10/14/2019 9:33:45 PM
				EPA Method 300.0: Anions			10/15/2019 11:03:40 PM
				SM2540C MOD: Total Dissolved Solic		10/11/2019 10:42:38 AM	10/14/2019 1:07:00 PM
1910588-003A	WR-SSP3-20191009-1.1	10/9/2019 8:49:00 AM		EPA Method 300.0: Anions			10/14/2019 9:59:28 PM
				EPA Method 300.0: Anions			10/15/2019 11:29:24 PM
				EPA Method 300.0: Anions			10/14/2019 9:46:36 PM
				SM2540C MOD: Total Dissolved Solic		10/11/2019 10:42:38 AM	10/14/2019 1:07:00 PM
1910588-004A	WR-SWP1-20191009-1.1	10/9/2019 8:22:00 AM		EPA Method 300.0: Anions			10/15/2019 11:42:15 PM
				EPA Method 300.0: Anions			10/14/2019 10:12:20 PM
				EPA Method 300.0: Anions			10/14/2019 10:25:11 PM
				SM2540C MOD: Total Dissolved Solic		10/11/2019 10:42:38 AM	10/14/2019 1:07:00 PM
1910588-005A	WR-SWP2-20191009-1.2	10/9/2019 8:11:00 AM		EPA Method 300.0: Anions			10/14/2019 11:03:47 PM
				EPA Method 300.0: Anions			10/14/2019 11:16:38 PM
				EPA Method 300.0: Anions			10/15/2019 11:55:07 PM
				SM2540C MOD: Total Dissolved Solic		10/11/2019 10:42:38 AM	10/14/2019 1:07:00 PM
1910588-006A	WR-SWP2-20191009-2.2			EPA Method 300.0: Anions			10/16/2019 12:07:59 AM
				EPA Method 300.0: Anions			10/14/2019 11:29:30 PM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

DATES REPORT

WO#: **1910588**

21-Oct-19

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL 502542-4

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1910588-006A	WR-SWP2-20191009-2.2	10/9/2019 8:11:00 AM	Aqueous	EPA Method 300.0: Anions			10/14/2019 11:42:22 PM
				SM2540C MOD: Total Dissolved Solic		10/11/2019 10:42:38 AM	10/14/2019 1:07:00 PM
1910588-007A	WR-SWP3-20191009-1.1	10/9/2019 8:28:00 AM		EPA Method 300.0: Anions			10/15/2019 12:08:12 AM
				EPA Method 300.0: Anions			10/16/2019 12:20:51 AM
				EPA Method 300.0: Anions			10/14/2019 11:55:52 PM
				SM2540C MOD: Total Dissolved Solic		10/11/2019 10:42:38 AM	10/14/2019 1:07:00 PM
1910588-008A	WR-BLK-20191009-1.1	10/9/2019 9:03:00 AM		EPA Method 300.0: Anions			10/15/2019 12:21:04 AM
				EPA Method 300.0: Anions			10/15/2019 12:33:55 AM
				EPA Method 300.0: Anions			10/16/2019 12:33:43 AM
				SM2540C MOD: Total Dissolved Solic		10/11/2019 10:42:38 AM	10/14/2019 1:07:00 PM

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910588**

21-Oct-19

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL 502542-4

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A63681**	RunNo: **63681**
Prep Date:	Analysis Date: **10/14/2019**	SeqNo: **2176193** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A63681**	RunNo: **63681**
Prep Date:	Analysis Date: **10/14/2019**	SeqNo: **2176194** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	91.6	90	110			

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A63720**	RunNo: **63720**
Prep Date:	Analysis Date: **10/15/2019**	SeqNo: **2177777** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A63720**	RunNo: **63720**
Prep Date:	Analysis Date: **10/15/2019**	SeqNo: **2177778** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.4	90	110			
Sulfate	9.5	0.50	10.00	0	94.6	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910588**

21-Oct-19

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL 502542-4

Sample ID: **MB-48105**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **48105**	RunNo: **63664**
Prep Date: **10/11/2019**	Analysis Date: **10/14/2019**	SeqNo: **2175366** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-48105**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **48105**	RunNo: **63664**
Prep Date: **10/11/2019**	Analysis Date: **10/14/2019**	SeqNo: **2175367** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Sample ID: **1910588-005ADUP**	SampType: **DUP**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **WR-SWP2-20191009**	Batch ID: **48105**	RunNo: **63664**
Prep Date: **10/11/2019**	Analysis Date: **10/14/2019**	SeqNo: **2175379** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	395	20.0						1.02	10	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: WIPP | Work Order Number: 1910588 | RcptNo: 1

Received By: JR | 10/10/2019 8:45:00 AM

Completed By: Anne Thorne | 10/10/2019 10:59:19 AM

Reviewed By: 10/10/19

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	FedEx		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____ 10/10/19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

CUSTODY SEALS INTACT ON SAMPLE BOTTLES/at 10/10/19

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.0	Good	Yes			

ENVIRONMENTAL CHAIN-OF-CUSTODY / REQUEST FOR ANALYSIS RECORD

Date Samples Shipped 10-9-19
Lab Contact Andy Freeman
Project Contact HNIN Khaing
Project Contact Phone (575) 234-8972
Lab Report Delivery to:
PO Box 2078 Mail Stop 452-09
Carlsbad, NM 88221-2078

CofC/RFA Control **No. 10639**
Carrier/Waybill Number Fed Ex
Lab PO Number 502542-4

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

HEALA 1910588

Sample Number	Date/Time Collected	Sample Type	Sample Quantity	Container Type	Preservative	Requested Analysis
WR-SSP1-20191009-1.1	10-9-19 0841	Infiltation	500mL	Plastic	≤4°C	Sulfate, Chloride, TDS 202
SSP2	0858	Control Ponds				203
SSP3	0849					204
SWP1	0822					205
SWP2 1.2	0811					206
SWP2 2.2	0811					207
SWP3 1.1	0828					208
BLK	0903					

Special Instruction Comments: 7 day hold time

Possible Hazards Nonhazard X Radiological ____ Sewage ____ Other ____ Sample Disposal: Return To Client ____ Disposal By Lab X

Signatures: (Name, Signature, Date and Time) **Laboratory Note Any Sample Discrepancies on "Special Instruction/Comment Line"

1. Relinquished By: Jerome Hernandez 10-9-19 1145
   Received By: Juan Rojas 10-10-19 8:45
2. Relinquished By: ____
   Received By: ____
3. Relinquished By: ____
   Received By: ____
4. Relinquished By: ____
   Received By: ____

WP 02-EM3001- Environmental Monitoring

Temp = 3.9 + 0.1 = 4°C

WHITE - Original to accompany samples

PINK - Field copy

NICHOLS PRINTING INC.

05391

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 01, 2019

Brett Seal
Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8966
FAX

RE: SSW Sampling R32 OrderNo.: 1910966

Dear Brett Seal:

Hall Environmental Analysis Laboratory received 14 sample(s) on 10/17/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Workorder Sample Summary

WO#: **1910966**
01-Nov-19

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R32

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1910966-001	SSWC2811R32N1		10/14/2019 8:38:00 AM	10/17/2019 7:30:00 AM	Aqueous
1910966-002	SSWPZ1R32N1		10/16/2019 12:01:00 PM	10/17/2019 7:30:00 AM	Aqueous
1910966-003	SSWPZ1R32N2		10/16/2019 12:02:00 PM	10/17/2019 7:30:00 AM	Aqueous
1910966-004	SSWPZ1R32N3		10/16/2019 12:05:00 PM	10/17/2019 7:30:00 AM	Aqueous
1910966-005	SSWPZ1R32N4		10/16/2019 12:08:00 PM	10/17/2019 7:30:00 AM	Aqueous
1910966-006	SSWPZ1R32N1EB		10/16/2019 12:22:00 PM	10/17/2019 7:30:00 AM	Aqueous
1910966-007	SSWPZ7R32N1		10/14/2019 12:51:00 PM	10/17/2019 7:30:00 AM	Aqueous
1910966-008	SSWPZ10R32N1		10/14/2019 10:58:00 AM	10/17/2019 7:30:00 AM	Aqueous
1910966-009	SSWPZ11R32N1		10/16/2019 8:48:00 AM	10/17/2019 7:30:00 AM	Aqueous
1910966-010	SSWPZ11R32N1EB		10/14/2019 2:29:00 PM	10/17/2019 7:30:00 AM	Aqueous
1910966-011	SSWPZ12R32N1		10/14/2019 9:48:00 AM	10/17/2019 7:30:00 AM	Aqueous
1910966-012	SSWPZ13R32N1		10/16/2019 1:54:00 PM	10/17/2019 7:30:00 AM	Aqueous
1910966-013	SSWWQSP6AR32N1		10/16/2019 10:27:00 AM	10/17/2019 7:30:00 AM	Aqueous
1910966-014	SSWWQSP6AR32N2		10/16/2019 10:24:00 AM	10/17/2019 7:30:00 AM	Aqueous

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWC2811R32N1
Project: SSW Sampling R32
Collection Date: 10/14/2019 8:38:00 AM
Lab ID: 1910966-001A
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	930	50.0	50.0		mg/L	100	10/18/2019 12:01:47 A	A63795
Sulfate	325	0.669	5.00		mg/L	10	10/17/2019 11:49:26 P	A63795
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	2210	20.0	20.0	*	mg/L	1	10/21/2019 4:22:00 PM	48255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ1R32N1
Project: SSW Sampling R32
Collection Date: 10/16/2019 12:01:00 PM
Lab ID: 1910966-002A
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Chloride	29000	2500	2500		mg/L	5E+	10/21/2019 9:44:21 PM	R63855
Sulfate	1940	6.69	50.0		mg/L	100	10/18/2019 12:26:29 A	A63795
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	54500	2000	2000	*	mg/L	1	10/21/2019 4:22:00 PM	48255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ1R32N2
Project: SSW Sampling R32
Collection Date: 10/16/2019 12:02:00 PM
Lab ID: 1910966-003A
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Chloride	31200	1000	1000		mg/L	2E+	10/21/2019 9:56:46 PM	A63855
Nitrogen, Nitrate (As N)	31.5	0.608	10.0	*	mg/L	100	10/17/2019 2:09:17 PM	R63795
Phosphorus, Orthophosphate (As P)	ND	2.50	5.00		mg/L	10	10/17/2019 1:56:57 PM	R63795
Sulfate	1930	6.69	50.0		mg/L	100	10/17/2019 2:09:17 PM	R63795
SM2320B: ALKALINITY							Analyst: **JRR**	
Bicarbonate (As CaCO3)	286.9	20.00	20.00		mg/L Ca	1	10/21/2019 2:17:12 PM	R63876
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	10/21/2019 2:17:12 PM	R63876
Total Alkalinity (as CaCO3)	286.9	20.00	20.00		mg/L Ca	1	10/21/2019 2:17:12 PM	R63876

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ1R32N3
Project: SSW Sampling R32
Collection Date: 10/16/2019 12:05:00 PM
Lab ID: 1910966-004A
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 6010B: DISSOLVED METALS							Analyst: **rde**	
Calcium	2890	5.99	100		mg/L	100	10/30/2019 1:22:11 PM	A64097
Magnesium	1380	6.06	100		mg/L	100	10/30/2019 1:22:11 PM	A64097
Potassium	29.5	1.14	10.0		mg/L	10	10/30/2019 1:19:53 PM	A64097
Sodium	15100	239	1000		mg/L	1E+	10/30/2019 1:24:24 PM	A64097

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ1R32N4
Project: SSW Sampling R32
Collection Date: 10/16/2019 12:08:00 PM
Lab ID: 1910966-005A
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM 4500 NH3: AMMONIA							Analyst: **OG**	
Nitrogen, Ammonia	ND	0.51	2.0	D	mg/L	2	10/22/2019 6:07:00 PM	R63882
SM 4500 NORG C: TKN							Analyst: **OG**	
Nitrogen, Kjeldahl, Total	ND	1.1	2.0	D	mg/L	1	10/21/2019 2:03:00 PM	48248

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ1R32N1EB
Project: SSW Sampling R32
Collection Date: 10/16/2019 12:22:00 PM
Lab ID: 1910966-006A
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	5.06	0.500	0.500		mg/L	1	10/18/2019 1:03:30 AM	A63795
Sulfate	0.508	0.0669	0.500		mg/L	1	10/18/2019 1:03:30 AM	A63795
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	ND	20.0	20.0		mg/L	1	10/21/2019 4:22:00 PM	48255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ7R32N1
Project: SSW Sampling R32
Collection Date: 10/14/2019 12:51:00 PM
Lab ID: 1910966-007A
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	60000	5000	5000		mg/L	1E+	10/18/2019 4:58:01 AM	A63795
Sulfate	2520	66.9	500		mg/L	1E+	10/18/2019 4:45:40 AM	A63795
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	105000	2000	2000	*	mg/L	1	10/21/2019 4:22:00 PM	48255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ10R32N1
Project: SSW Sampling R32
Collection Date: 10/14/2019 10:58:00 AM
Lab ID: 1910966-008A
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	163	5.00	5.00		mg/L	10	10/18/2019 5:10:21 AM	A63795
Sulfate	205	0.669	5.00		mg/L	10	10/18/2019 5:10:21 AM	A63795
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	921	20.0	20.0	*	mg/L	1	10/21/2019 4:22:00 PM	48255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ11R32N1
Project: SSW Sampling R32
Collection Date: 10/16/2019 8:48:00 AM
Lab ID: 1910966-009A
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Chloride	27200	1000	1000		mg/L	2E+	10/21/2019 10:58:48 P	A63855
Sulfate	1620	6.69	50.0		mg/L	100	10/18/2019 5:59:42 AM	A63795
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	48800	200	200	*	mg/L	1	10/21/2019 4:22:00 PM	48255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ11R32N1EB
Project: SSW Sampling R32
Collection Date: 10/14/2019 2:29:00 PM
Lab ID: 1910966-010A
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	1.47	0.500	0.500		mg/L	1	10/18/2019 6:24:22 AM	A63795
Sulfate	0.536	0.0669	0.500		mg/L	1	10/18/2019 6:24:22 AM	A63795
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	ND	20.0	20.0		mg/L	1	10/21/2019 4:22:00 PM	48255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ12R32N1
Project: SSW Sampling R32
Collection Date: 10/14/2019 9:48:00 AM
Lab ID: 1910966-011A
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	2680	500	500		mg/L	1E+	10/18/2019 7:01:23 AM	A63795
Sulfate	522	6.69	50.0		mg/L	100	10/18/2019 6:49:02 AM	A63795
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	5880	40.0	40.0	*	mg/L	1	10/21/2019 4:22:00 PM	48255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ13R32N1
Project: SSW Sampling R32
Collection Date: 10/16/2019 1:54:00 PM
Lab ID: 1910966-012A
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	156000	5000	5000		mg/L	1E+	10/18/2019 7:26:05 AM	A63795
Sulfate	2780	66.9	500		mg/L	1E+	10/18/2019 7:13:44 AM	A63795
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	243000	2000	2000	*	mg/L	1	10/21/2019 4:22:00 PM	48255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWWQSP6AR32N1
Project: SSW Sampling R32
Collection Date: 10/16/2019 10:27:00 AM
Lab ID: 1910966-013A
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	366	10.0	10.0		mg/L	20	10/17/2019 2:33:58 PM	R63795
Nitrogen, Nitrate (As N)	4.97	0.00608	0.100		mg/L	1	10/17/2019 2:21:37 PM	R63795
Sulfate	1800	3.3	25		mg/L	50	10/18/2019 9:47:50 PM	R63831
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	3450	20.0	20.0	*	mg/L	1	10/21/2019 4:22:00 PM	48255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWWQSP6AR32N2
Project: SSW Sampling R32
Collection Date: 10/16/2019 10:24:00 AM
Lab ID: 1910966-014A
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Nitrate+Nitrite as N	4.46	0.0485	1.00		mg/L	5	10/21/2019 7:52:40 PM	R63855
SM 4500 NORG C: TKN							Analyst: **OG**	
Nitrogen, Kjeldahl, Total	ND	0.57	1.0		mg/L	1	10/21/2019 2:03:00 PM	48248

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910966**
01-Nov-19

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R32

Sample ID: **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63795** RunNo: **63795**
Prep Date: Analysis Date: **10/17/2019** SeqNo: **2180606** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.6	0.50	8.000	0	94.6	90	110			
Nitrogen, Nitrate (As N)	4.8	0.10	4.800	0	101	90	110			
Phosphorus, Orthophosphate (As P	7.4	0.50	8.000	0	92.7	90	110			
Sulfate	19	0.50	20.00	0	94.8	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63795** RunNo: **63795**
Prep Date: Analysis Date: **10/17/2019** SeqNo: **2180607** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R63795** RunNo: **63795**
Prep Date: Analysis Date: **10/17/2019** SeqNo: **2180609** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS-B** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R63795** RunNo: **63795**
Prep Date: Analysis Date: **10/17/2019** SeqNo: **2180617** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	95.0	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	98.5	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.3	90	110			
Sulfate	9.5	0.50	10.00	0	95.5	90	110			

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63795** RunNo: **63795**
Prep Date: Analysis Date: **10/17/2019** SeqNo: **2180618** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910966**
01-Nov-19

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R32

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63795** RunNo: **63795**
Prep Date: Analysis Date: **10/17/2019** SeqNo: **2180618** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	97.2	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	101	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.9	90	110			
Sulfate	12	0.50	12.50	0	95.4	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63795** RunNo: **63795**
Prep Date: Analysis Date: **10/17/2019** SeqNo: **2180619** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63795** RunNo: **63795**
Prep Date: Analysis Date: **10/17/2019** SeqNo: **2180629** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.6	0.50	8.000	0	95.5	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	101	90	110			
Phosphorus, Orthophosphate (As P	7.7	0.50	8.000	0	96.5	90	110			
Sulfate	19	0.50	20.00	0	97.1	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63795** RunNo: **63795**
Prep Date: Analysis Date: **10/17/2019** SeqNo: **2180630** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **1910966-013AMS** SampType: **ms** TestCode: **EPA Method 300.0: Anions**
Client ID: **SSWWQSP6AR32N** Batch ID: **R63795** RunNo: **63795**
Prep Date: Analysis Date: **10/17/2019** SeqNo: **2180631** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910966**

01-Nov-19

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R32

Sample ID: **1910966-013AMS** SampType: **ms** TestCode: **EPA Method 300.0: Anions**

Client ID: **SSWWQSP6AR32N** Batch ID: **R63795** RunNo: **63795**

Prep Date: Analysis Date: **10/17/2019** SeqNo: **2180631** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	0.287	0.500	5.000	0	5.73	75.6	113			JS

Sample ID: **1910966-013AMSD** SampType: **msd** TestCode: **EPA Method 300.0: Anions**

Client ID: **SSWWQSP6AR32N** Batch ID: **R63795** RunNo: **63795**

Prep Date: Analysis Date: **10/17/2019** SeqNo: **2180632** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	ND	0.500	5.000	0	0	75.6	113	200	20	RS

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R63795** RunNo: **63795**

Prep Date: Analysis Date: **10/17/2019** SeqNo: **2180641** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.9	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	98.7	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	96.1	90	110			
Sulfate	12	0.50	12.50	0	94.8	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**

Client ID: **CCB** Batch ID: **R63795** RunNo: **63795**

Prep Date: Analysis Date: **10/17/2019** SeqNo: **2180642** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**

Client ID: **PBW** Batch ID: **A63795** RunNo: **63795**

Prep Date: Analysis Date: **10/17/2019** SeqNo: **2180651** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	0.12	0.50								J

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910966**
01-Nov-19

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R32

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A63795**	RunNo: **63795**
Prep Date:	Analysis Date: **10/17/2019**	SeqNo: **2180652** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.0	90	110			
Sulfate	9.5	0.50	10.00	0	95.0	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63795**	RunNo: **63795**
Prep Date:	Analysis Date: **10/17/2019**	SeqNo: **2180653** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.6	0.50	8.000	0	94.8	90	110			
Nitrogen, Nitrate (As N)	4.8	0.10	4.800	0	101	90	110			
Phosphorus, Orthophosphate (As P	7.8	0.50	8.000	0	97.1	90	110			
Sulfate	19	0.50	20.00	0	94.8	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63795**	RunNo: **63795**
Prep Date:	Analysis Date: **10/17/2019**	SeqNo: **2180654** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63795**	RunNo: **63795**
Prep Date:	Analysis Date: **10/17/2019**	SeqNo: **2180665** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.0	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	98.9	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	96.5	90	110			
Sulfate	12	0.50	12.50	0	94.5	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63795**	RunNo: **63795**
Prep Date:	Analysis Date: **10/17/2019**	SeqNo: **2180666** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910966**
01-Nov-19

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R32

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63795** RunNo: **63795**
Prep Date: Analysis Date: **10/17/2019** SeqNo: **2180666** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63795** RunNo: **63795**
Prep Date: Analysis Date: **10/18/2019** SeqNo: **2180677** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	8.1	0.50	8.000	0	101	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	102	90	110			
Phosphorus, Orthophosphate (As P	7.8	0.50	8.000	0	97.7	90	110			
Sulfate	19	0.50	20.00	0	95.6	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63795** RunNo: **63795**
Prep Date: Analysis Date: **10/18/2019** SeqNo: **2180678** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63795** RunNo: **63795**
Prep Date: Analysis Date: **10/18/2019** SeqNo: **2180689** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.3	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	98.9	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	96.9	90	110			
Sulfate	12	0.50	12.50	0	93.8	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63795** RunNo: **63795**
Prep Date: Analysis Date: **10/18/2019** SeqNo: **2180690** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910966**
01-Nov-19

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R32

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63795** RunNo: **63795**
Prep Date: Analysis Date: **10/18/2019** SeqNo: **2180690** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63795** RunNo: **63795**
Prep Date: Analysis Date: **10/18/2019** SeqNo: **2180701** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.6	0.50	8.000	0	95.1	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	101	90	110			
Phosphorus, Orthophosphate (As P	7.8	0.50	8.000	0	97.7	90	110			
Sulfate	19	0.50	20.00	0	94.5	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63795** RunNo: **63795**
Prep Date: Analysis Date: **10/18/2019** SeqNo: **2180702** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63795** RunNo: **63795**
Prep Date: Analysis Date: **10/18/2019** SeqNo: **2180711** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.6	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	99.0	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	96.9	90	110			
Sulfate	12	0.50	12.50	0	93.7	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63795** RunNo: **63795**
Prep Date: Analysis Date: **10/18/2019** SeqNo: **2180712** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910966**
01-Nov-19

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R32

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **CCB**	Batch ID: **R63795**	RunNo: **63795**							
Prep Date:	Analysis Date: **10/18/2019**	SeqNo: **2180712**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R63831**	RunNo: **63831**							
Prep Date:	Analysis Date: **10/18/2019**	SeqNo: **2181994**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	19	0.50	20.00	0	94.3	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **CCB**	Batch ID: **R63831**	RunNo: **63831**							
Prep Date:	Analysis Date: **10/18/2019**	SeqNo: **2181995**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R63831**	RunNo: **63831**							
Prep Date:	Analysis Date: **10/18/2019**	SeqNo: **2181997**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R63831**	RunNo: **63831**							
Prep Date:	Analysis Date: **10/18/2019**	SeqNo: **2181998**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.2	0.50	10.00	0	92.5	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R63831**	RunNo: **63831**							
Prep Date:	Analysis Date: **10/18/2019**	SeqNo: **2182005**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	12	0.50	12.50	0	93.8	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910966**
01-Nov-19

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R32

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **CCB**	Batch ID: **R63831**	RunNo: **63831**							
Prep Date:	Analysis Date: **10/18/2019**	SeqNo: **2182006**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R63831**	RunNo: **63831**							
Prep Date:	Analysis Date: **10/18/2019**	SeqNo: **2182017**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	19	0.50	20.00	0	95.0	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **CCB**	Batch ID: **R63831**	RunNo: **63831**							
Prep Date:	Analysis Date: **10/18/2019**	SeqNo: **2182018**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R63831**	RunNo: **63831**							
Prep Date:	Analysis Date: **10/18/2019**	SeqNo: **2182029**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	12	0.50	12.50	0	96.8	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **CCB**	Batch ID: **R63831**	RunNo: **63831**							
Prep Date:	Analysis Date: **10/18/2019**	SeqNo: **2182030**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R63831**	RunNo: **63831**							
Prep Date:	Analysis Date: **10/18/2019**	SeqNo: **2182041**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	19	0.50	20.00	0	95.5	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910966**
01-Nov-19

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R32

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **CCB**	Batch ID: **R63831**	RunNo: **63831**							
Prep Date:	Analysis Date: **10/18/2019**	SeqNo: **2182042**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R63831**	RunNo: **63831**							
Prep Date:	Analysis Date: **10/18/2019**	SeqNo: **2182053**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	12	0.50	12.50	0	93.5	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **CCB**	Batch ID: **R63831**	RunNo: **63831**							
Prep Date:	Analysis Date: **10/18/2019**	SeqNo: **2182054**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R63831**	RunNo: **63831**							
Prep Date:	Analysis Date: **10/19/2019**	SeqNo: **2182065**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	19	0.50	20.00	0	95.2	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **CCB**	Batch ID: **R63831**	RunNo: **63831**							
Prep Date:	Analysis Date: **10/19/2019**	SeqNo: **2182066**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R63831**	RunNo: **63831**							
Prep Date:	Analysis Date: **10/19/2019**	SeqNo: **2182077**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	12	0.50	12.50	0	93.7	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910966**
01-Nov-19

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R32

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **CCB**	Batch ID: **R63831**	RunNo: **63831**							
Prep Date:	Analysis Date: **10/19/2019**	SeqNo: **2182078**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R63831**	RunNo: **63831**							
Prep Date:	Analysis Date: **10/19/2019**	SeqNo: **2182081**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	19	0.50	20.00	0	94.2	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **CCB**	Batch ID: **R63831**	RunNo: **63831**							
Prep Date:	Analysis Date: **10/19/2019**	SeqNo: **2182082**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **CCB**	Batch ID: **R63855**	RunNo: **63855**							
Prep Date:	Analysis Date: **10/21/2019**	SeqNo: **2182834**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R63855**	RunNo: **63855**							
Prep Date:	Analysis Date: **10/21/2019**	SeqNo: **2182835**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.3	0.50	8.000	0	91.4	90	110			
Nitrate+Nitrite as N	7.7	0.20	8.000	0	96.5	90	110			

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R63855**	RunNo: **63855**							
Prep Date:	Analysis Date: **10/21/2019**	SeqNo: **2182837**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910966**
01-Nov-19

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R32

Sample ID: **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R63855** RunNo: **63855**
Prep Date: Analysis Date: **10/21/2019** SeqNo: **2182838** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.5	0.50	5.000	0	90.4	90	110			
Nitrate+Nitrite as N	3.3	0.20	3.500	0	93.3	90	110			

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63855** RunNo: **63855**
Prep Date: Analysis Date: **10/21/2019** SeqNo: **2182845** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	91.4	90	110			
Nitrate+Nitrite as N	4.8	0.20	5.000	0	95.9	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63855** RunNo: **63855**
Prep Date: Analysis Date: **10/21/2019** SeqNo: **2182846** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63855** RunNo: **63855**
Prep Date: Analysis Date: **10/21/2019** SeqNo: **2182865** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.2	90	110			
Nitrate+Nitrite as N	8.1	0.20	8.000	0	101	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63855** RunNo: **63855**
Prep Date: Analysis Date: **10/21/2019** SeqNo: **2182866** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63855** RunNo: **63855**
Prep Date: Analysis Date: **10/21/2019** SeqNo: **2182877** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910966**
01-Nov-19

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R32

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R63855**	RunNo: **63855**							
Prep Date:	Analysis Date: **10/21/2019**	SeqNo: **2182877**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.6	90	110			
Nitrate+Nitrite as N	4.9	0.20	5.000	0	98.1	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **CCB**	Batch ID: **R63855**	RunNo: **63855**							
Prep Date:	Analysis Date: **10/21/2019**	SeqNo: **2182878**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R63855**	RunNo: **63855**							
Prep Date:	Analysis Date: **10/21/2019**	SeqNo: **2182889**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.2	90	110			
Nitrate+Nitrite as N	8.2	0.20	8.000	0	102	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **CCB**	Batch ID: **R63855**	RunNo: **63855**							
Prep Date:	Analysis Date: **10/21/2019**	SeqNo: **2182890**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **A63855**	RunNo: **63855**							
Prep Date:	Analysis Date: **10/21/2019**	SeqNo: **2182898**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1000								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **A63855**	RunNo: **63855**							
Prep Date:	Analysis Date: **10/21/2019**	SeqNo: **2182899**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	95.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910966**
01-Nov-19

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R32

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63855** RunNo: **63855**
Prep Date: Analysis Date: **10/21/2019** SeqNo: **2182900** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	95.9	90	110			
Nitrate+Nitrite as N	4.9	0.20	5.000	0	98.6	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63855** RunNo: **63855**
Prep Date: Analysis Date: **10/21/2019** SeqNo: **2182901** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63855** RunNo: **63855**
Prep Date: Analysis Date: **10/22/2019** SeqNo: **2182913** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.7	90	110			
Nitrate+Nitrite as N	8.2	0.20	8.000	0	103	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63855** RunNo: **63855**
Prep Date: Analysis Date: **10/22/2019** SeqNo: **2182914** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910966**
01-Nov-19

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R32

Sample ID: **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A64097**	RunNo: **64097**
Prep Date:	Analysis Date: **10/30/2019**	SeqNo: **2192808** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 6010B: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A64097**	RunNo: **64097**
Prep Date:	Analysis Date: **10/30/2019**	SeqNo: **2192809** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	52	1.0	50.00	0	104	80	120			
Magnesium	52	1.0	50.00	0	104	80	120			
Potassium	52	1.0	50.00	0	103	80	120			
Sodium	50	1.0	50.00	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910966**
01-Nov-19

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R32

Sample ID: **MB**	SampType: **MBLK**	TestCode: **SM 4500 NH3: Ammonia**
Client ID: **PBW**	Batch ID: **R63882**	RunNo: **63882**
Prep Date:	Analysis Date: **10/22/2019**	SeqNo: **2184435** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Ammonia	ND	1.0								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **SM 4500 NH3: Ammonia**
Client ID: **LCSW**	Batch ID: **R63882**	RunNo: **63882**
Prep Date:	Analysis Date: **10/22/2019**	SeqNo: **2184436** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Ammonia	10	1.0	10.00	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910966**
01-Nov-19

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R32

Sample ID: **mb-1 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R63876**	RunNo: **63876**							
Prep Date:	Analysis Date: **10/21/2019**	SeqNo: **2184210**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-1 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R63876**	RunNo: **63876**							
Prep Date:	Analysis Date: **10/21/2019**	SeqNo: **2184211**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	81.36	20.00	80.00	0	102	90	110			

Sample ID: **mb-2 alk**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R63876**	RunNo: **63876**							
Prep Date:	Analysis Date: **10/21/2019**	SeqNo: **2184233**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-2 alk**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R63876**	RunNo: **63876**							
Prep Date:	Analysis Date: **10/21/2019**	SeqNo: **2184234**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.60	20.00	80.00	0	98.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910966**

01-Nov-19

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R32

Sample ID: **MB-48255**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **48255**	RunNo: **63844**
Prep Date: **10/18/2019**	Analysis Date: **10/21/2019**	SeqNo: **2182433** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-48255**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **48255**	RunNo: **63844**
Prep Date: **10/18/2019**	Analysis Date: **10/21/2019**	SeqNo: **2182434** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	999	20.0	1000	0	99.9	80	120			

Sample ID: **1910966-013ADUP**	SampType: **DUP**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **SSWWQSP6AR32N**	Batch ID: **48255**	RunNo: **63844**
Prep Date: **10/18/2019**	Analysis Date: **10/21/2019**	SeqNo: **2182445** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	3470	20.0						0.780	10	*

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910966**

01-Nov-19

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R32

Sample ID: **MB-48248**	SampType: **MBLK**	TestCode: **SM 4500 Norg C: TKN**
Client ID: **PBW**	Batch ID: **48248**	RunNo: **63854**
Prep Date: **10/18/2019**	Analysis Date: **10/21/2019**	SeqNo: **2182771** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	1.0								

Sample ID: **LCS-48248**	SampType: **LCS**	TestCode: **SM 4500 Norg C: TKN**
Client ID: **LCSW**	Batch ID: **48248**	RunNo: **63854**
Prep Date: **10/18/2019**	Analysis Date: **10/21/2019**	SeqNo: **2182772** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10	1.0	10.00	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: WIPP | Work Order Number: 1910966 | RcptNo: 1

Received By: **Desiree Dominguez** 10/17/2019 7:30:00 AM

Completed By: **Anne Thorne** 10/17/2019 8:58:36 AM

Reviewed By: DM 10/17/19

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	FedEx		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 3
(<2 or >12 unless noted)
Adjusted? NO
Checked by: DAD 10/17/19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

16. Additional remarks:

CUSTODY SEALS INTACTON SAMPLE BOTTLES/at 10/17/19

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.9	Good	Yes			

05426

CHAIN OF CUSTODY RECORD

No. 1356

Page 1 of 2

Project Number:	Project Name:
T502542-2	SSW Sampling R32

Sampler(s): Brett Seal, Allen Hall

Analytical Laboratory: HEAL Albuquerque NM

Sample Date	Sample Time	Matrix	Sample Number	Total Number of Containers	TDS	Chlorides	Sulfate	Anion	Cation	TKN	Comments
~~10/15/19~~		SSW	~~SSWC2507R32N1~~	1	x	x	x				
10/14/19	0838	SSW	SSWC2811R32N1		x	x	x				1910966-001
10/14/19	1201		SSWPZ1R32N1		x	x	x				002
10/16/19	1202		SSWPZ1R32N2					x			Cl, NO_3, CO_3, SO_4, PO_4 003
10/16/19	1205		SSWPZ1R32N3						x		~~10/17/19~~ Na, K, Ca, Mg 004
10/16/19	1208		SSWPZ1R32N4							x	NH_3 A 10/17/19 005
10/16/19	1222		SSWPZ1R32N1EB		x	x	x				Equip Blank 006
~~BS 10/15/19~~			~~SSWPZ5R32N1~~		x	x	x				
~~BS 10/15/19~~			~~SSWPZ5R32N1D~~		x	x	x				
~~BS 10/15/19~~			~~SSWPZ5R32N1EB~~		x	x	x				Equip Blank
~~BS 10/15/19~~			~~SSWPZ6R32N1~~		x	x	x				
10/14/19	1251		SSWPZ7R32N1		x	x	x				007
~~BS 10/15/19~~			~~SSWPZ9R32N1~~		x	x	x				
10/14/19	1058		SSWPZ10R32N1		x	x	x				008

Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)
10/16/19 1359	10/17/19 7:30		
Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received at Laboratory: (Signature, Date/Time)

Requested Turnaround Time: 30 Days

☑ Routine ☐ Rush _____

Sample Disposal:

☐ Return to Client ☑ Disposal by Lab

Carrier / Airbill No.: 8075 2092 4622

Sample Receipt Remarks:

Results To:
Brett Seal
RES
PO Box 2078, MS 452-09
Carlsbad, NM 88221-2078
Phone: 575-706-6034 FAX: 575-234-6003
EDD: Brett.Seal@WIPP.WS

Special Instructions:
High TDS: PZ-7, 11, 9, 6, 5, 13, 1
Report all data to 3 Sig figs
1.1 - 0.2 = 0.9°C FedEx

WHITE – Analytical Laboratory
DI – Deionized Water
GW – Groundwater
YELLOW – Field Copy
AF – Air Filter(s)
AN – Animal(s)
PINK – Record Copy
SE – Sediment
SO – Soil
SW – Surface Water
VG – Vegetation

Form CofC/RFA, Rev. 0 – NICHOLS PRINTING, INC.

CHAIN OF CUSTODY RECORD

No. 1357

Page 2 of 2

Project Number:	Project Name:
TSO2542-2	SSW Sampling R32

Sampler(s): Brett Seal, Allen Hall

Sample Date	Sample Time	Matrix	Sample Number	Total Number of Containers	TDS	Chloride	Sulfate	Nitrate	TKN					Comments
10/16/19	0848	SSW	SSWPZ11R32N1	1	x	x	x							19109bk-009
10/14/19	1429		SSWPZ11R32N1EB		x	x	x							Equip Blank -010
10/14/19	0948		as 10/15/19 PSSWPZ12R32N1		x	x	x							-011
10/16/19	1354		SSWPZ13R32N1		x	x	x							-012
10/16/19	1027		SSWWQSP6AR32N1		x	x	x	x						USE FOR MS/MSD -013
10/16/19	1024		SSWWQSP6AR32N2					x	x					-014

Requested Analyses

Analytical Laboratory: HEAL Albuquerque NM

Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)
10/16/19 1359	10/17/19 7:30		
Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received at Laboratory: (Signature, Date/Time)

Requested Turnaround Time: 30 Days

☑ Routine ☐ Rush _____

Sample Disposal:

☐ Return to Client ☑ Disposal by Lab

Carrier / Airbill No.: 8075 2095 4622

Sample Receipt Remarks:

Special Instructions: 1.1 - 0.2 = 0.9°C Fed Ex

Results To:

Brett Seal
RES
PO Box 2078, MS 452-09
Carlsbad, NM 88221-2078
Phone: 575-706-6034 FAX: 575-234-6003
EDD: Brett.Seal@WIPP.WS

WHITE – Analytical Laboratory
DI – Deionized Water
GW – Groundwater

YELLOW – Field Copy
AF – Air Filter(s)
AN – Animal(s)

PINK – Record Copy
SE – Sediment
SO – Soil

SW – Surface Water
VG – Vegetation

Form CofC/RFA, Rev. 0 – NICHOLS PRINTING, INC.

05428

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 01, 2019

Brett Seal
Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8966
FAX

RE: SSW Sampling R32 OrderNo.: 1910A68

Dear Brett Seal:

Hall Environmental Analysis Laboratory received 6 sample(s) on 10/18/2019 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Workorder Sample Summary

WO#: **1910A68**
01-Nov-19

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R32

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1910A68-001	SSW C2507R32N1		10/17/2019 9:38:00 AM	10/18/2019 9:30:00 AM	Aqueous
1910A68-002	SSW PZ5R32N1		10/17/2019 12:18:00 PM	10/18/2019 9:30:00 AM	Aqueous
1910A68-003	SSW PZ5R32N1B		10/17/2019 12:20:00 PM	10/18/2019 9:30:00 AM	Aqueous
1910A68-004	SSW PZ5R32N1EB		10/17/2019 12:30:00 PM	10/18/2019 9:30:00 AM	Aqueous
1910A68-005	SSW PZ6R32N1		10/17/2019 10:48:00 AM	10/18/2019 9:30:00 AM	Aqueous
1910A68-006	SSW PZ6R32N1		10/17/2019 7:55:00 AM	10/18/2019 9:30:00 AM	Aqueous

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSW C2507R32N1
Project: SSW Sampling R32
Collection Date: 10/17/2019 9:38:00 AM
Lab ID: 1910A68-001A
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Chloride	3900	500	500	*	mg/L	1E+	10/22/2019 11:27:18 P	R63881
Sulfate	670	6.7	50	*	mg/L	100	10/22/2019 11:14:26 P	R63881
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	8560	100	100	*	mg/L	1	10/22/2019 4:39:00 PM	48287

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSW PZ5R32N1
Project: SSW Sampling R32
Collection Date: 10/17/2019 12:18:00 PM
Lab ID: 1910A68-002A
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Chloride	6700	500	500	*	mg/L	1E+	10/23/2019 2:01:39 AM	A63881
Sulfate	540	6.7	50	*	mg/L	100	10/23/2019 1:48:47 AM	A63881
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	12800	100	100	*	mg/L	1	10/22/2019 4:39:00 PM	48287

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSW PZ5R32N1B
Project: SSW Sampling R32
Collection Date: 10/17/2019 12:20:00 PM
Lab ID: 1910A68-003A
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	6700	500	500	*	mg/L	1E+	10/24/2019 11:58:27 P	R63954
Sulfate	610	1.3	10	*	mg/L	20	10/23/2019 3:21:19 PM	R63920
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	12700	40.0	40.0	*	mg/L	1	10/22/2019 4:39:00 PM	48287

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSW PZ5R32N1EB
Project: SSW Sampling R32
Collection Date: 10/17/2019 12:30:00 PM
Lab ID: 1910A68-004A
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	0.78	0.50	0.50		mg/L	1	10/23/2019 3:34:11 PM	R63920
Sulfate	ND	0.067	0.50		mg/L	1	10/23/2019 3:34:11 PM	R63920
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	ND	20.0	20.0		mg/L	1	10/22/2019 4:39:00 PM	48287

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSW PZ6R32N1
Project: SSW Sampling R32
Collection Date: 10/17/2019 10:48:00 AM
Lab ID: 1910A68-005A
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	16000	500	500	*	mg/L	1E+	10/23/2019 4:12:47 PM	R63920
Sulfate	1000	6.7	50	*	mg/L	100	10/23/2019 3:59:55 PM	R63920
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	28100	200	200	*	mg/L	1	10/22/2019 4:39:00 PM	48287

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSW PZ6R32N1
Project: SSW Sampling R32
Collection Date: 10/17/2019 7:55:00 AM
Lab ID: 1910A68-006A
Matrix: Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	100000	5000	5000	*	mg/L	1E+	10/25/2019 12:10:51 A	R63954
Sulfate	4800	67	500	*	mg/L	1E+	10/23/2019 5:04:15 PM	R63920
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	175000	2000	2000	*	mg/L	1	10/22/2019 4:39:00 PM	48287

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910A68**

01-Nov-19

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R32

Sample ID: **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R63881** RunNo: **63881**

Prep Date: Analysis Date: **10/22/2019** SeqNo: **2184354** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.7	90	110			
Sulfate	20	0.50	20.00	0	98.2	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**

Client ID: **CCB** Batch ID: **R63881** RunNo: **63881**

Prep Date: Analysis Date: **10/22/2019** SeqNo: **2184355** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**

Client ID: **PBW** Batch ID: **R63881** RunNo: **63881**

Prep Date: Analysis Date: **10/22/2019** SeqNo: **2184357** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**

Client ID: **LCSW** Batch ID: **R63881** RunNo: **63881**

Prep Date: Analysis Date: **10/22/2019** SeqNo: **2184358** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	95.2	90	110			
Sulfate	9.5	0.50	10.00	0	95.0	90	110			

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R63881** RunNo: **63881**

Prep Date: Analysis Date: **10/22/2019** SeqNo: **2184365** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.6	90	110			
Sulfate	12	0.50	12.50	0	94.5	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**

Client ID: **CCB** Batch ID: **R63881** RunNo: **63881**

Prep Date: Analysis Date: **10/22/2019** SeqNo: **2184366** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910A68**
01-Nov-19

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R32

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63881**	RunNo: **63881**
Prep Date:	Analysis Date: **10/22/2019**	SeqNo: **2184366** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63881**	RunNo: **63881**
Prep Date:	Analysis Date: **10/22/2019**	SeqNo: **2184376** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.1	90	110			
Sulfate	20	0.50	20.00	0	98.1	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63881**	RunNo: **63881**
Prep Date:	Analysis Date: **10/22/2019**	SeqNo: **2184377** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63881**	RunNo: **63881**
Prep Date:	Analysis Date: **10/22/2019**	SeqNo: **2184388** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	95.1	90	110			
Sulfate	12	0.50	12.50	0	94.5	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63881**	RunNo: **63881**
Prep Date:	Analysis Date: **10/22/2019**	SeqNo: **2184389** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63881**	RunNo: **63881**
Prep Date:	Analysis Date: **10/22/2019**	SeqNo: **2184400** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910A68**
01-Nov-19

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R32

Sample ID: **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63881** RunNo: **63881**
Prep Date: Analysis Date: **10/22/2019** SeqNo: **2184400** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.0	90	110			
Sulfate	20	0.50	20.00	0	97.9	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63881** RunNo: **63881**
Prep Date: Analysis Date: **10/22/2019** SeqNo: **2184401** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63881** RunNo: **63881**
Prep Date: Analysis Date: **10/22/2019** SeqNo: **2184412** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	95.0	90	110			
Sulfate	12	0.50	12.50	0	95.1	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63881** RunNo: **63881**
Prep Date: Analysis Date: **10/22/2019** SeqNo: **2184413** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **A63881** RunNo: **63881**
Prep Date: Analysis Date: **10/22/2019** SeqNo: **2184417** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **A63881** RunNo: **63881**
Prep Date: Analysis Date: **10/22/2019** SeqNo: **2184418** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910A68**

01-Nov-19

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R32

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A63881**	RunNo: **63881**
Prep Date:	Analysis Date: **10/22/2019**	SeqNo: **2184418** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.3	90	110			
Sulfate	9.4	0.50	10.00	0	94.0	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63881**	RunNo: **63881**
Prep Date:	Analysis Date: **10/23/2019**	SeqNo: **2184423** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.7	90	110			
Sulfate	20	0.50	20.00	0	98.4	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63881**	RunNo: **63881**
Prep Date:	Analysis Date: **10/23/2019**	SeqNo: **2184424** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63881**	RunNo: **63881**
Prep Date:	Analysis Date: **10/23/2019**	SeqNo: **2184433** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	95.7	90	110			
Sulfate	12	0.50	12.50	0	95.9	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63881**	RunNo: **63881**
Prep Date:	Analysis Date: **10/23/2019**	SeqNo: **2184434** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63920**	RunNo: **63920**
Prep Date:	Analysis Date: **10/23/2019**	SeqNo: **2185713** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910A68**

01-Nov-19

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R32

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63920**	RunNo: **63920**
Prep Date:	Analysis Date: **10/23/2019**	SeqNo: **2185713** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.3	90	110			
Sulfate	20	0.50	20.00	0	98.0	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63920**	RunNo: **63920**
Prep Date:	Analysis Date: **10/23/2019**	SeqNo: **2185714** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R63920**	RunNo: **63920**
Prep Date:	Analysis Date: **10/23/2019**	SeqNo: **2185716** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R63920**	RunNo: **63920**
Prep Date:	Analysis Date: **10/23/2019**	SeqNo: **2185717** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.9	90	110			
Sulfate	9.5	0.50	10.00	0	94.8	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63920**	RunNo: **63920**
Prep Date:	Analysis Date: **10/23/2019**	SeqNo: **2185724** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.7	90	110			
Sulfate	12	0.50	12.50	0	94.6	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63920**	RunNo: **63920**
Prep Date:	Analysis Date: **10/23/2019**	SeqNo: **2185725** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910A68**
01-Nov-19

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R32

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63920** RunNo: **63920**
Prep Date: Analysis Date: **10/23/2019** SeqNo: **2185725** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63920** RunNo: **63920**
Prep Date: Analysis Date: **10/23/2019** SeqNo: **2185736** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.9	90	110			
Sulfate	20	0.50	20.00	0	98.4	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63920** RunNo: **63920**
Prep Date: Analysis Date: **10/23/2019** SeqNo: **2185737** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63920** RunNo: **63920**
Prep Date: Analysis Date: **10/23/2019** SeqNo: **2185748** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.0	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63920** RunNo: **63920**
Prep Date: Analysis Date: **10/23/2019** SeqNo: **2185749** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63920** RunNo: **63920**
Prep Date: Analysis Date: **10/24/2019** SeqNo: **2185760** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.5	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910A68**

01-Nov-19

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R32

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63920**	RunNo: **63920**
Prep Date:	Analysis Date: **10/24/2019**	SeqNo: **2185761** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63920**	RunNo: **63920**
Prep Date:	Analysis Date: **10/24/2019**	SeqNo: **2185767** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.3	90	110			
Sulfate	12	0.50	12.50	0	95.4	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63920**	RunNo: **63920**
Prep Date:	Analysis Date: **10/24/2019**	SeqNo: **2185768** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63954**	RunNo: **63954**
Prep Date:	Analysis Date: **10/24/2019**	SeqNo: **2187295** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.2	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63954**	RunNo: **63954**
Prep Date:	Analysis Date: **10/24/2019**	SeqNo: **2187296** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63954**	RunNo: **63954**
Prep Date:	Analysis Date: **10/24/2019**	SeqNo: **2187312** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.5	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910A68**

01-Nov-19

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R32

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63954**	RunNo: **63954**
Prep Date:	Analysis Date: **10/24/2019**	SeqNo: **2187314** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63954**	RunNo: **63954**
Prep Date:	Analysis Date: **10/24/2019**	SeqNo: **2187330** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.6	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63954**	RunNo: **63954**
Prep Date:	Analysis Date: **10/24/2019**	SeqNo: **2187331** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63954**	RunNo: **63954**
Prep Date:	Analysis Date: **10/24/2019**	SeqNo: **2187345** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.9	0.50	8.000	0	98.1	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63954**	RunNo: **63954**
Prep Date:	Analysis Date: **10/24/2019**	SeqNo: **2187346** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R63954**	RunNo: **63954**
Prep Date:	Analysis Date: **10/24/2019**	SeqNo: **2187355** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910A68**
01-Nov-19

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R32

Sample ID: **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R63954** RunNo: **63954**
Prep Date: Analysis Date: **10/24/2019** SeqNo: **2187356** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	97.5	90	110			

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63954** RunNo: **63954**
Prep Date: Analysis Date: **10/24/2019** SeqNo: **2187357** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.0	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63954** RunNo: **63954**
Prep Date: Analysis Date: **10/24/2019** SeqNo: **2187358** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63954** RunNo: **63954**
Prep Date: Analysis Date: **10/24/2019** SeqNo: **2187369** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.6	0.50	8.000	0	94.5	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R63954** RunNo: **63954**
Prep Date: Analysis Date: **10/24/2019** SeqNo: **2187370** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R63954** RunNo: **63954**
Prep Date: Analysis Date: **10/25/2019** SeqNo: **2187386** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	95.4	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910A68**

01-Nov-19

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R32

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63954**	RunNo: **63954**
Prep Date:	Analysis Date: **10/25/2019**	SeqNo: **2187387** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R63954**	RunNo: **63954**
Prep Date:	Analysis Date: **10/25/2019**	SeqNo: **2187400** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.9	0.50	8.000	0	98.3	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R63954**	RunNo: **63954**
Prep Date:	Analysis Date: **10/25/2019**	SeqNo: **2187402** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910A68**
01-Nov-19

Client: Waste Isolation Pilot Plant
Project: SSW Sampling R32

Sample ID: **MB-48287**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **48287**	RunNo: **63866**
Prep Date: **10/21/2019**	Analysis Date: **10/22/2019**	SeqNo: **2183714** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-48287**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **48287**	RunNo: **63866**
Prep Date: **10/21/2019**	Analysis Date: **10/22/2019**	SeqNo: **2183715** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1000	20.0	1000	0	100	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **WIPP** Work Order Number: **1910A68** RcptNo: **1**

Received By: **Leah Baca** **10/18/2019 9:30:00 AM** Leah Baca

Completed By: **Leah Baca** **10/18/2019 3:57:24 PM** Leah Baca

Reviewed By: ENM 10/18/19

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Client

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
Adjusted? _____
Checked by: YG 10/18/19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.4	Good	Yes			

05448

CHAIN OF CUSTODY RECORD

No. 1358

Page 1 of 1

Project Number:	Project Name:
T502542-2	SSW Sampling R32

Sampler(s): Brett Seal, Allen Hall

Sample Date	Sample Time	Matrix	Sample Number	Total Number of Containers	TDS	Chlorides	Sulfate	Analytical Laboratory / Comments
								HEAL Albuquerque NM
10/17/19	0938	SSW	SSW02507R32N1	1	X	X	X	1910A68-001
10/17/19	1218		SSW PZ5 R32 N1		X	X	X	-002
10/17/19	1220		SSW PZ5R32N1B		X	X	X	-003
10/17/19	1230		SSW PZ5R32N1EB		X	X	X	Equipment Blank -004
10/17/19	1048		SSW PZ6R32N1		X	X	X	-005
10/17/19	0755		SSW PZ9R32N1		X	X	X	-006

Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)
10/17/19 1410			
Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received at Laboratory: (Signature, Date/Time) 4.8-CF=4.4C 10/18/19

Requested Turnaround Time: 30 Days

☐ Routine ☐ Rush _____

Sample Disposal:

☐ Return to Client ☒ Disposal by Lab

Carrier / Airbill No.: 8075 2092 4611

~~8075 8093 4622~~ AH 10/15/19

Sample Receipt Remarks:

Special Instructions: 0930 courier

High TDS: PZ-6, 9, 5

Report all data to 3 sig figs.

Results To: BRETT SEAL

RES
PO Box 2078, MS 452-09
Carlsbad, NM 88221-2078

Phone: 575-706-60034 FAX: 575-234-6003

EDD: Brett.Seal@WIPP.ws

WHITE – Analytical Laboratory
DI – Deionized Water
GW – Groundwater

YELLOW – Field Copy
AF – Air Filter(s)
AN – Animal(s)

PINK – Record Copy
SE – Sediment
SO – Soil

SW – Surface Water
VG – Vegetation

Form CofC/RFA, Rev. 0 – NICHOLS PRINTING, INC.

Table 8 - Monitoring Well Water Levels and Chemical Analyses											
	Field and General Chemistry Parameters								Other	Water Level Monitoring (Ft AMSL)	
Monitoring Site	Sample Date	pH (SU)	Temp. (^{0}C)	Specific Conductivity @25 ^{0}C (µS/cm)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)	9/16/19-9/23/19	12/03/19-12/05/19
PZ-1	10/16/2019	6.43	23.11	97,760	NA	**1,940**	**29,000**	**54,500**	NA	3371.27	3371.19
PZ-2	NS	NS	NS	NS	NS	NS	NS	NS	NS	3370.67	3370.67
PZ-3	NS	NS	NS	NS	NS	NS	NS	NS	NS	3371.17	3371.04
PZ-4	NS	NS	NS	NS	NS	NS	NS	NS	NS	3366.80	3366.65
PZ-5	10/17/2019	7.34	23.22	75,890	NA	540	**6,700**	**12,800**	NA	3371.86	3371.72
PZ-6	10/17/2019	7.18	22.43	96,270	NA	**1,000**	**16,000**	**28,100**	NA	3370.13	3370.02
PZ-7	10/14/2019	6.27	22.90	100,000	NA	**2,520**	**60,000**	**105,000**	NA	3378.15	3377.88
PZ-9	10/17/2019	6.31	19.81	101,900	NA	**4,800**	**100,000**	**175,000**	NA	3362.89	3362.78
PZ-10	10/14/2019	7.27	22.27	5,713	NA	205	163	921	NA	3368.35	3368.20
PZ-11	10/16/2019	6.57	20.58	103,200	NA	**1,620**	**27,200**	**48,800**	NA	3377.00	3375.22
PZ-12	10/14/2019	6.87	22.05	38,600	NA	522	**2,680**	**5,880**	NA	3357.10	3356.96
PZ-13	10/16/2019	Bailed			NA	**2,780**	**156,000**	**243,000**	NA	3357.21	3357.04
PZ-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	3354.31	3354.24
PZ-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	3382.68	3382.74
C-2811	10/14/2019	7.05	20.69	14,290	NA	325	**930**	**2,210**	NA	3346.84	3347.22
C-2505	NS	NS	NS	NS	NS	NS	NS	NS	NS	3367.96	3367.94
C-2506	NS	NS	NS	NS	NS	NS	NS	NS	NS	3368.62	3368.55
C-2507	10/17/2019	7.12	20.65	48,280	NA	**670**	**3,900**	**8,560**	NA	3365.28	3365.15
WQSP-6A	10/16/2019	6.60	22.82	14,980	4.97	**1,800**	**366**	**3,450**	ND	3195.48	3195.54
Explanation:	NA: Not Analyzed, parameter not required, per permit conditions.										
	NS: Not Sampled, not required per permit conditions										
	PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty using Low-Flow pumps										
	"**Bold**" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply										
	PZ-8 was plugged and abandoned in 2018.										
	ND: Non-detect										
	AMSL: Above Mean Sea Level										

Discharge to Facultative Lagoon System
July through December 2019

Date	Gallons Domestic	Gallons for the Month	Avg. Gal per day
7/1 - 7/7	80,500		
7/8 - 7/14	61,642		
7/15 - 7/21	50,071		
7/22 - 7/28	172,601		
		364,814	13,029
7/29 - 8/4	76,369		
8/4 - 8/11	114,545		
8/12 - 8/18	74,770		
8/19 - 8/25	69,822		
8/26 - 9/1	96,390	431,896	12,340
9/2 - 9/8	45,082		
9/9 - 9/15	127,720		
9/16 - 9/22	55,193		
9/23 - 9/29	91,437		
		319,432	11,408
9/30 - 10/6	92,118		
10/7 - 10/13	86,615		
10/14 - 10/20	87,764		
10/21 - 10/27	29,156		
10/28 - 11/3	70,251	365,904	10,454
11/4 - 11/10	90,790		
11/11 - 11/17	58,971		
11/18 - 11/24	43,409		
11/25 - 12/1	48,199		
		241,369	8,940
12/2 - 12/8	85,011		
12/9 - 12/15	64,932		
12/16 - 12/22	67,944		
12/23 - 12/29	96,601		
12/30 - 12/31	45,376		
		359,864	12,852
	Total Flow	2,083,279	11,384

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 7-1-19 **End Date** : 7-7-19

Location :	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
456, PUMPHOUSE BUILDING	REVIEWER		KT		KT		KT		KT		RP		RP		RP	
	FOT	C/O	LT		LT		LT		LT		QT		QT		QT	

ITEM		MIN	NORM	MAX	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]					①	①		①		①		①		①		①		①	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		②	②		②		②		②		②		②		②	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	65	65		65		65		65		65		65		65	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			50493	80500.3													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			0	0													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	③	③		③		③		③		③		③		③	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.69	.60		1.0		.78		1.0		.5		.78		.68	

NOTES: [A] - RESET meter after taking the reading on Monday
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine below 0.5) or adding chlorine (chlorine above 1.8) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark; IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
① FAILED TO INITIATE - FSM NOTIFIED
② Low Level Alarms Do Not Illuminate
③ O.O.S. AR#162840

APPROVED FOR USE/DATE : 4-3-19

ISSUED

COPY

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 7-8-19 **End Date:** 7-14-19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		PJP				PJP				HJB				HJB	
				FOT	C/O	JB		RJK		RJK		DJ		km		R.T.		Q	
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]					①	①		①		①		①		①		①		①	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		②	②		②		②		②		②		②		②	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	65	65		65		65		65		66		65		65	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		80500	361642													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		0	0													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	③	③		③		③		③		③		③		③	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.68	.76		.62		.84		.86		.57 .22 ④		.72		.83	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Failed to Initiate - FSM notified.
② Low level alarms do not Illuminate
③ COS - AR# 1629840
④ Notified FSM, used ENVIRONMENTAL KIT and reading @ .57 ppm

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 07-15-19 **End Date:** 07-21-19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		E		E		RT		R		BT		BT		BT	
				FOT	C/O	DD		DT		DT		DD		LP		LP		DP	
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						(1) 7/15/19		(1)		(1)		(1)		(1)		(1)		(1)	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		(2)	(2)		(2)		(2)		(2)		(2)		(2)		(2)	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	65	65		65		65		65		65		65		65	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		61642	5007													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		0	0													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	(3)	(3)		(3)		(3)		(3)		(3)		(3)		(3)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.83	.61		.55		.56		1.23		.79		.76		1.17	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
(1) Failed to initiate FSM notified, Tech Support Contacted 7/15/19
(2) Low level alarms do not illuminate
(3) OOS- AR# 1629840

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 7/22/19 End Date: 7/28/19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		RP		RP		DP		MS		[illegible]		[illegible]		PJP	
				FOT	C/O	R.T.		R.T.		~~DP~~ DP 7/23/19		RW		JB		JB		[illegible]	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						(1)		(1)		(1)		(1)		(1)		(1)		(1)	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		(2)	(2)		(2)		(2)		(2)		(4) SEC		(4)		(2)	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	65	65		65		65		65		↓		↓		↓	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		50071	172601													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		0	0													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	(3)	(3)		(3)		(3)		(3)		(3)		(3)		(3)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT						pH 1.17													
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	~~rbl~~	.83		.77		.71		.71		(4) SEC		(4)		.79	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) FAILED TO INITIATE. FSM NOTIFIED. TECH SUPPORT CONTACTED 7/15/19
2- LOW LEVEL ALARMS DO NOT ILLUMINATE.
3- OUT OF SERVICE -(AR 1629840)
~~4- Secured for sub 4 outage~~ BACK IN SERVICE. 7/27/19

APPROVED FOR USE/DATE: [signature] 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 7/29/19 End Date: 8/4/19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O														
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						①		①		①		①		①		①		①	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		② ↓	②		②		①		②		②		②		②	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70		65		65		65				65		65		65	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			172601	763690													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			0	115625													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	③ ↓	③ ↓		③ ↓		③ ↓		③ ↓		③ ↓		③ ↓		③ ↓	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.79	.91		.79		.77		.84		.75		.96		.89	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
① FAILED TO INITIATE. FSM NOTIFIED
② LOW LEVEL ARARMS DO NOT ILLUMINATE.
③ O.O.S. - AR# 1629840

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 8.5.19 **End Date:** 8.11.19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		PJP		PJP		PJP		MB		MB					
				FOT	C/O			JB				JB		8/8/19		JRM 8/9/19		RN	
ITEM		**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①	①		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	65	65		65		65		65		65		65		65	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			76369.0	114545.1													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			11586.28	63637.7													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	②	②		②		②		①		②		②		②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.89	.94		.81		.94		.73		.72		.74		.74	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Low level alarms do not illuminate ② A.R.# 1629840

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 8-12-19 End Date: 8-18-19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		RP		④		⑧		⑧		⑧		⑧		⑧	
				FOT	C/O	JG		[illegible]		[illegible]		mc		KJ		[illegible]		mc	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①	①		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	65	65		65		65		65		65		65		65	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		119545.	74770													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		63637.7	70004.63													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	②	②		②		②		②		②		②		②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.74	.80		.97		.80		.76		.68		.61		.67	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① LOW LEVEL ALARMS DO NOT ILLUMINATE
② AR # 1629840

APPROVED FOR USE/DATE: [signature] 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 8-19-19 End Date: 8-25-19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		KB		KB		[illegible]		[illegible]		RP		RP		RP	
				FOT	C/O	[illegible]		[illegible]		[illegible]		[illegible]		98		93		93	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①	①		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	65	65		65		65		67		67		67 ③		69 ③	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			74770	69822													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			70004.83	62511													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	②	②		②		②		②		②		②		②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.67	.67		gain 6.60		.86		.82		.89		.87		.83	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
① Low level alarms do not illuminate
② AR# 1629840 OOS
③ OUT OF CAL 082419

APPROVED FOR USE/DATE: [signature] 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 8-26-19 End Date: 9-1-19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		KC		ZP		HB				ZP					
				FOT	C/O	GB		EC		97		MCL		GB				JH	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]																
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70		69 ③	68 ③		68 ③		67 ③		64 ③		66 ②		68 ③		65 ③
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			69822	96390													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			62511	62061													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	② ↓	② ↓		② ↓		② ↓		② ↓		② ↓		② ↓		② ↓	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.83	.66		.78		1.06		.82		1.09		.80		.68	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Low level alarms do not illuminate
② OOS AR# 162940
③ out of Cal (082419)

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 9-2-19 **End Date:** 9-8-19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		PJP		PJP		PJP		PJP							
				FOT	C/O	JB		JB						HRT.				R.T.	
ITEM		**MIN**	**NORM**	**MAX**										9-6-19					
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]																
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	65 ②	67 ① ②		64 ① ②		65 ① ②		68 ① ②		66 ① ②		65 ① ②		66 ① ②	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		96390	45082													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		62061	62270													
456-FM-045-001 SEWAGE FLOW METER														JM 9-6-19					
($) SEWAGE FLOW READING		N/A	[B]	230	③	③		③		③		③		③	③	③		③	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.68	.64		.64		.69		1.14		.71		.80		.70	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
① Low level alarms do not illuminate
② Out of Cal. (8-24-19)
③ OOS AR# 1629840

APPROVED FOR USE/DATE: 4-3-19

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 9/9/19 End Date: 9/15/19

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
	REVIEWER		②		②		②		EC ②				EC			
	FOT	C/O	JG		DP	JG	JG		JG				DP		EC	

DP 9/9/19

ITEM	MIN	NORM	MAX	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		①	①		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	66 ②	67 ②		67.0 ②		65.0 ②		67 ②		66 ②		66 ②		66 ②	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		45082	127120													
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		62270	110429													
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	③	③		③		③		③		③		③		③	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.5	[C]	1.8	.70	.67		1.24		1.21		1.53		1.0		1.0		.89	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Low level alarms don't illuminate
② Out of Calibration (8/24/19)
③ OOS AR# 1602940

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 9/16/19 End Date: 9/22/19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O														
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		EV	1		1		1		1		1		1		1	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	66	66 (2)		66 (2)		65 (2)		64 (2)		68 (2)		69 (2)		68 (2)	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			1271720	55193													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			110429	58324													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	005 (3)	005 (3)		005 (3)		005 (3)		005 (3)		005 (3)		005 (3)		005 (3)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.89	.98		.93		1.01		0.92		.72		.65		.61	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) Low level alarms do not illuminate
(2) Out of calibration (8/24/19)
(3) OOS AR# 1629840

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 9-23-19 End Date: 9-29-19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		JEC													
				FOT	C/O									27		27		27	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]																
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	66 (2)	66.23 (2)		65 (2)		65 (2)		65 (2)		66 (2)		CC (2)		68 (2)	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			55193	91437													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			58324	66980													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS (3)	OOS (3)		OOS (3)		OOS (3)		OOS (3)		OOS (3)		OOS (3)		OOS (3)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.61 .98	.62		.72		.65		.3 (4)		.74		.73		.78	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

JCG 9-22-19

COMMENTS:
(1) Low level alarms do not illuminate
(2) out of calibration (8-24-19)
(3) OOS AR # 16298 40
(4) Adding Chlorine to Domestic Water Tank

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 9/30/19 **End Date:** 10/6/19

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

				SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
			DAY															
			SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
			REVIEWER		PJP		PJP		PJP		PJP							
			FOT	C/O	JB		JB		JB		JB							
ITEM		**MIN**	**NORM**	**MAX**														
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓					
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS	[F]		SAT [G]		(1)	(1)		(1)		(1)		(1)		(1)		(1)		(1)
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	68 (2)	66 (2)		68 (2)		68 (2)		68 (2)		66		66		66
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		91437	92118												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		66990	70075												
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING		N/A	[B]	230	0.0.5 (3)	005 (3)		005 (3)		005 (3)		005 (3)		005 (3)		005 (3)		005 (3)
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓
HACH TEST KIT																		
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.78	.72 (4)	.71 (4)		.62 (4)		.71 (4)		.72 (4)		0.0.5/15 .74 .85		.85	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) Low level alarms do not illuminate (2) OUT OF calibration (8.24.19) (3) A.R.# 1629840
(4) READING BEING TAKEN BY SITE ENVIRONMENTAL (JEROME) AND REPORTING TO FSM

APPROVED FOR USE/DATE: 4-3-19

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 10/7/2019 End Date: 10/13/2019

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

				SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
DAY				2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
SHIFT																		
REVIEWER					RP		RP		RP		RP							
FOT				C/O					JG									
ITEM		MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL					10/13/2019													
CONTROL PANEL ALARMS	[F]		SAT [G]		①	①		①		①		①		①		①		①
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	66	65		65		65		65		65		65		65
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		92118	86615												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		70075	62584												
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING		N/A	[B]	230	OOS ②	OOS ③		OOS ③		OOS ④		OOS ③		OOS ③		OOS ③		OOS ③
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓
HACH TEST KIT																		
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.85	.83		.77		.79		.82		.79		.81		.77

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
① Low level alarms do not illuminate
② Out of calibration (8/24/19)
③ AR# 1629840
④ Reading being taken by Site Env. & reporting to FSM

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 10/14/19 End Date: 10/20/19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		[illegible]		[illegible]		[illegible]		27		PJP		PJP		PJP	
				FOT	C/O	[illegible]		R.T.		[illegible]		R.T.		JB		GB		JB	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]			(1)	(1)	(1)		(1)		(1)		(1)		(1)		(1)	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70		65	65	64		63		62		65		65		65	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]			86615	87764												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]			62584	60203												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230		(OOS)(3) ↓	(OOS)(3) ↓	(OOS)(3) ↓		(OOS)(3) ↓		(OOS)(3) ↓		(OOS)(3) ↓		(OOS)(3) ↓		(OOS)(3) ↓	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8		.77	1.5	1.3		1.49		1.27		1.32		1.32		1.25	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) Low level alarms do not illuminate
(3) ARH 1629840

APPROVED FOR USE/DATE: [signature] 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 10/21/19 **End Date:** 10/27/19

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

	MIN	NORM	MAX	SUN	MON 1	MON 2	TUES 1	TUES 2	WED 1	WED 2	THURS 1	THURS 2	FRI 1	FRI 2	SAT 1	SAT 2	SUN 1	SUN 2
DAY				2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
SHIFT																		
REVIEWER																		
FOT				C/O	EC		EC				MC				JG			
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]			①		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70		65	63	63		63		64		65		65		65	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]			87764	29156												
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]			60203	62672												
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230		OOS ②	OOS ②	OOS ②		OOS ③		OOS ③		OOS ③		OOS ③		OOS ③	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000										.93					
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.5	[C]	1.8		1.25	1.10	1.14		.86		.98		8745		.91		.85	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① LOW LEVEL ALARMS DO NOT ILLUMINATE.
③ ② AR# 1629840

JG 10/25/19

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 10/28/19 **End Date:** 11/3/19

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
DAY	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
SHIFT															
REVIEWER		PP		PP		MB		JM		JM		JM		MB	
FOT	C/O	JB		EM		mc		JM		OT DV		OT JM		mc	

ITEM	MIN	NORM	MAX	SUN 2	MON 1	MON 2	TUES 1	TUES 2	WED 1	WED 2	THURS 1	THURS 2	FRI 1	FRI 2	SAT 1	SAT 2	SUN 1	SUN 2
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]																		
456-CP-010-01 CONTROL PANEL					✓		✓		✓		✓		✓		✓		✓	
CONTROL PANEL ALARMS [F]		SAT [G]																
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	① 65	① 62		① 65		① 64		① 64		① 65,		① 64		① 65	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		29156	70251													
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		62672	63840													
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	C.O.S ②	OOS ②		OOS ②		OOS ②		OOS ②		OOS ②		OOS ②		OOS ②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000															
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.5	[C]	1.8	.85	.69		.71		.82		1.01		.89		.93		.91	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

Accidentally started filling out on Sat. night. MC

COMMENTS: ① Low level alarm doesn't illuminate ② A.R.# 1629840

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 11/4/2019 End Date: 11/10/2019

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		R		R		R		RP		64		64		64	
				FOT	C/O	80		JG		✓		80		64 / 190		80		80	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		(1)	(1)		(1)		(1)		(1)		(1)		(1)		(1)	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	65	65		65		64		65		65		65		65	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		70251	90790													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		63540	61230													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	005 (2)	005 (2)		005 (2)		005 (2)		005 (2)		005 (2)		005 (2)		005 (2)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.91	.77		1.01		.82		.73		1.5		1.8		1.7	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) Low level alarm doesn't illuminate AR# 1930290
(2) AR# 1629540

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 11 11 19 **End Date:** 11 17 19

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

				SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
		DAY		2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
		SHIFT																
		REVIEWER																
		FOT		C/O	DT JSM		OT RT.		OT JM/E		OT JSM							
ITEM	MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]													DP 4/14/19					
456-CP-010-01 CONTROL PANEL					✓		✓		✓		✓		✓		✓		✓	
CONTROL PANEL ALARMS [F]		SAT [G]																
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70		① 64		① 61		① 64		① 64		① 65		① 66		① 65	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		90740	58971													
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		61230	47976													
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230															
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000															
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.5	[C]	1.8	1.7	1.4		1.3		1.3		1.4		1.0		1.0		1.1	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① LOW LEVEL ALARM ABSENT ILLUMINATE AR # 1930290
② AR# 1629840

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 11-18-19 End Date: 11-24-19

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
	REVIEWER		BA		BA		BA		BA		CT		RP		RP	
	FOT	C/O	DT DP		SAK		97		DP		80		JG		80	

ITEM	MIN	NORM	MAX	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]			①	①	①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70		65	62	62		65		65		65		65		65	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]			58971	43409												
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]			47816	60537												
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230		OOS②	OOS②	OOS②		OOS②		OOS②		OOS②		OOS②		OOS②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000		↓	↓	↓		↓		↓		↓		↓		↓	
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.5	[C]	1.8		1.1	.8	1.1		.99		.89		.93		.91		1.01	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① - DELINQUENT PM
② - NOT WORKING - FSM NOTIFIED

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 11-25-19 End Date: 12-1-19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		MB		BH		BH		BH		MB		MB		MB	
				FOT	C/O	JB		GB		JB		RA		R.T.		KM		R.T.	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①	①		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	65	65		64		64		65		66		66		66	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			43409	48199													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			60537	25923													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	005 ②	005 ②		005 ②		005 ②		005 ②		005 ②		005 ②		005 ②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	1.01	.82		.88		.88		.71		.68		.64		.65	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Delinquent PM ② NOT working

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 12/2/2019 End Date: 12/8/2019

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		(2)		(3)		(1)		(4)							
				FOT	C/O	20		1		20		1							
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		(1)	(1)		(1)		(1)		(1)		(1)		(1)		(1)	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	66	65		65		65		63		65		64		66	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			482199	85011													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			259234	60122													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	005 (2)	005 (2)		005 (1)		005 (2)		005 (2)		005 (2)		005 (2)		005 (2)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.65	.77		.78		.69		.62		.60		.51		.50	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: 1. DELINQUENT PM
2. NOT WORKING

APPROVED FOR USE/DATE: 4-3-19

EA04AD3008-11-0
Rev. 8

April 2, 2019
Page 1 of 1

05474

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY Start Date: 12-9-19 End Date: 12-15-19

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		NT		HB		HB		ZT		DP					
				FOT	C/O	Jcm		R.T.				DT		JB		QB		QB	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓				✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①	①		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	66	66		64		65		64		64		64		65	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		85011	64932													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		46022	63109													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS ②	0.03 ①		OOS ②		OOS ②		OOS ②		OOS ②		OOS ②		OOS ②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.50	.77		.66		.87		.89		.87		.87		.53	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: 1) Delinquent PM
2) not working

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 12/16/19 End Date: 12/22/19

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

				SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
			DAY	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
			SHIFT															
			REVIEWER															
			FOT	C/O														
ITEM		**MIN**	**NORM**	**MAX**														
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS	[F]		SAT [G]															
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	① 65	① 64	① 65		① 64		① 62		① 64		① 65		① 65	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		64932	67944												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		63109	64398												
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING		N/A	[B]	230	OOS ② ↓	OOS ② ↓	OOS ② ↓		OOS ② ↓		OOS ② ↓		OOS ② ↓		OOS ② ↓		OOS ② ↓	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000														
HACH TEST KIT																		
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.53	0.69	.74		.72		.70		.61		.66		.60	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① DELINQUENT PM 4R# 1623089
② NOT WORKING

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 12/23/19 End Date: 12/29/19

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
	REVIEWER		PJP		PJP		PJP		PJP		[illegible]		[illegible]		[illegible]	
	FOT	C/O	JB		GB		[illegible]		[illegible]		[illegible]		[illegible]		DT	

ITEM	MIN	NORM	MAX	SUN 2	MON 1	MON 2	TUES 1	TUES 2	WED 1	WED 2	THURS 1	THURS 2	FRI 1	FRI 2	SAT 1	SAT 2	SUN 1	SUN 2
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]																
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	① 65	① 65		✓ 62		✓ 64		✓ 66		① 65.7		① 65		① 64.5	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		67944	96601													
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		64338	76672													
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	OOS ②	OOS ②		OOS ②		OOS ②		OOS ②		0.0.5 ②		0.0.5 ②		OOS ②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000															
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.5	[C]	1.8	.60	.67		1.18		1.03		.89		.92		.53		.82	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Low level alarm does not illuminate
② OOS

APPROVED FOR USE/DATE: [signature] 4-3-19

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 12/30/2019 End Date: 12/31/2019

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		ZP		ZP											
				FOT	C/O	14		11											
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓											
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]			(1)	(1)		(1)										
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70		64.5	65.1		64										
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]			92601	45376												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]			76672	62614												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230		(2)	(2)		(2)										
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000		OOS	OOS		OOS										
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8		.82	.82		.84										

N/A

New Year

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: 1. LOW LEVEL ALARM DOES NOT ILLUMINATE
2. OOS

APPROVED FOR USE/DATE: 4-3-19

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221
July 31, 2020

Ms. Michelle Hunter, Bureau Chief
New Mexico Environment Department
Ground Water Quality Bureau
Harold Runnels Building
1190 Saint Francis Drive
P.O. Box 5469
Santa Fe, NM 87502

Subject: Semi-Annual Discharge Monitoring Report for January 1 through June 30, 2020, Discharge Permit 831

Dear Ms. Hunter:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Discharge Monitoring Report, including the required enclosures on compact disc, for the period of January 1 through June 30, 2020. This report is required by Discharge Permit 831.

If you have any questions about this report or require any additional information, please contact me at (575) 706-0072.

Sincerely,

Michael R. Brown, Director
Environmental Protection Division

Enclosures (2)

cc: w/o enclosures
R. Maestas, NMED *ED
A. Young, NMED ED
CBFO M&RC
*ED denotes electronic distribution

CBFO:OEP:MRB:MC:20-0257:UFC 5486.00

05479

cc: w/o enclosures
R. Knerr, CBFO *ED
J. Adkins, CBFO ED
M. Navarrete, CBFO ED
R. Patterson, CBFO ED
A. Ward, CBFO ED

cc: w/o enclosures
D. Cook, NWP ED
S. Dunagan, NWP ED
O. Franco, NWP ED
M. Gonzales, NWP ED
E. Jaquez, NWP ED
S. Strong, NWP ED
T. Taulbee, NWP ED
R. Taylor, NWP ED

cc: w/o enclosures
R. Chavez, RES ED
K. Day, RES ED
J. Farnsworth, RES ED
S. Harper, RES ED
J. Haschets, RES ED
W. Jaco, RES ED
S. Jones, RES ED
S. Kouba, RES ED
L. Ramos, RES ED
R. Salness, RES ED
J. Vajda, RES ED
A. Waldram, RES ED
*ED denotes electronic distribution

Waste Isolation Pilot Plant Semi-Annual Discharge Monitoring Report for Discharge Permit DP-831 for Reporting Period January 1, 2020 through June 30, 2020

U.S. Department of Energy

August 2020

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR
DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JANUARY 1, 2020 THROUGH JUNE 30, 2020

REPORTING REQUIREMENTS OF DP-831 OPERATIONAL PLAN

Part B. Applicable to the Facultative Lagoon System

Condition 8. *– The permittee shall measure the thickness of the sludge blanket in each pond of the Facultative Lagoon System once within the effective term of this Discharge Permit, but before the end of 2018. When sludge accumulation exceeds 1/3 of the total depth of any pond, the permittee shall remove the sludge in a manner, which is protective of the pond liner. Removed solids shall be contained, transported, and disposed of in accordance with all local, state, and federal regulations. The permittee shall maintain solids blanket measurements and solids disposal manifests for solids transported from the facility for off-site disposal. The permittee shall submit all measurements and manifests to NMED in the semi-annual monitoring report immediately following the solids thickness measurement.*

Sludge measurements were performed on the Facultative Lagoon System ponds in 2017. The measurements were submitted to the NMED in the second semi-annual report for 2017. This completes the requirement to sample the sludge once within the effective term of this discharge permit.

Part D. Applicable to the Storm Water Runoff Impoundments in Contact with Salt Stockpiles (Salt Storage Ponds 1, 2, and 3) and Salt Stockpiles (Salt Cells 1, 2, and 3).

Condition 9. *– The permittee shall measure the thickness of the solids blanket in each impoundment once within the effective term of this Discharge Permit, but before the end of 2018. Removed solids shall be contained, transported, and disposed of in accordance with all local, state, and federal regulations. The permittee shall maintain solids blanket measurements and solids disposal manifests for solids transported from the facility for off-site disposal. The permittee shall submit all measurements and manifests to NMED in the semi-annual monitoring report immediately following the solids thickness measurement.*

Sludge measurements were performed on Salt Storage Ponds 1, 2 and 3 in 2018. The measurement results were submitted to the NMED in the first semi-annual report for 2018. The Salt Storage Pond 2 was the only Pond in need of sludge removal. The request for proposal for the removal of sludge from Salt Storage Pond 2 is undergoing a second round of bidding and should be awarded toward the end of the summer 2020.

Condition 10. *– The permittee shall inspect the leak detection systems for Salt Storage Ponds 2 and 3 on a monthly basis for the presence of liquid. The permittee shall keep a log of the inspection findings and repairs made. The inspection log, including a statement whether or not liquids were observed in the leak detection systems, shall be submitted to NMED in the semi-annual monitoring reports.*

Monthly inspections of the Salt Storage Pond 2 and 3 leak detection systems were performed during the reporting period. Water was observed in both of the leak detection systems. Very little water was found in the sump of Salt Storage Pond 2. This is likely due to the very low water level in the pond as it was being prepared for salt removal. Therefore minimal water accumulated since it was last pumped in March. In addition, precipitation has be negligible for this reporting period.

The sump of Salt Storage Pond 3 was pumped in March 2020, yielding 16,000 gals. Due to this volume, the calculated average leakage rate, since it was last pumped in December 2019 is 182 gpd. The Action Leakage Rate for Salt Storage Pond 3 is 1,880 gallons per day. The leakage rate was well below the Action Leakage Rate using EPA Standard EPA 530-R-92-004, NTIS #PB 92-128 214. Therefore, no excessive leakage rate was determined. The inspection log can be found on the accompanying compact disc (CD) as a portable document format (pdf) file named "Salt Pond Sump Inspection 1st Half 2020.pdf."

There were no repairs required to the leak detection system during this reporting period.

Condition 11. *– The permittee shall conduct regular maintenance of the earthen cover on the Salt Cell 1, and SPDV material pile. Inspections shall be conducted monthly and after storm events of 2 inches or greater in a 24-hour period to evaluate potential erosion and vegetation success of the cover. In the event of significant erosion or failure of vegetative success, the permittee shall provide a plan and schedule for repair within 90 days of discovery. General observations and cover repair shall be reported to NMED.*

The monthly inspections of the earthen cover of the Salt Cell 1 and the Site and Preliminary Design Validation (SPDV) material pile resulted in the following observations. Repair of the Salt Cell 1 liner was completed by August 31, 2019. However, minor holes have been detected in the liner of the water conveyance around Salt Cell 1. This conveyance is a lined trough to channel waster to Salt Storage Pond 1, in the event of substantial precipitation. An Action Request was written to address these holes.

Preliminary corrective measures are being finalized for the soil covering and the liner of the SPDV Pile. A request for proposal to correct the soil covering is being developed. The scope required additional detail than originally estimated, and thus an anticipated start date is not projected at time this report is being submitted. Therefore, this scope of work has not been offered for bid.

There were no rain events of 2 inches or greater in a 24-hour period in this reporting period.

REQUIREMENTS OF DP-831 MONITORING AND REPORTING SECTION

Part B. Applicable to the Facultative Sewage Lagoon System

Condition 15. *– The volume of domestic influent discharged to the Facultative lagoon System shall be measured monthly using a totalizing flow meter on the influent line to the system or the totalizing meter that measures total domestic water usage. Volumes of other authorized discharges to the Facultative Lagoon System shall be calculated by a time/volume method or volumetric measurement of the transport container(s). NMED may require comprehensive laboratory analyses of such wastewater prior to discharge when NMED determines that additional information is needed. Monthly meter readings, the units of measurement, monthly discharge volumes and other volumetric calculations for the previous 6-month period shall be submitted to NMED semi-annually in the monitoring reports.*

Table 1 shows the volume of water discharged to the Facultative Lagoon System for this reporting period. Discharged water volume is based on total domestic water use. No miscellaneous non-hazardous water was discharged to Evaporation Lagoons B or C.

Table 1 – Discharge to Facultative Lagoon System

Month (2020)	Volume (gallons)
January	320,068
February	311,147
March	193,513
April	285,960
May	428,727
June	226,932
Total	**1,766,347**

Weekly meter readings of the domestic water meter are found on the accompanying CD as a pdf file named "Water Discharge to Facultative System 1st Half of 2020.pdf."

Condition 16. *– The permittee shall collect a wastewater sample on a semi-annual basis (once every six months) from the influent to the Facultative Lagoon System. The grab sample shall be analyzed for TKN, NO_3-N, SO_4, TDS, and Cl. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.*

Samples were collected from the Settling Lagoon 2 influent, which is the influent to the Facultative Lagoon System. Analytical Results are shown in Table 2.

Table 2 – Facultative Lagoon System Influent Analytical Data

Analyte	Sample Date	Settling Lagoon 2 Concentration (mg/L)
TKN	04/22/19	130
NO_3-N	04/22/19	ND
SO_4	04/22/19	50.7
TDS	04/22/19	650
Cl	04/22/19	97.8

TKN: Total Kjeldahl nitrogen
TDS: Total dissolved solids
ND: Not detected, analyte below the method detection limit

Laboratory analytical results and QA/QC Summary Report for the Facultative Lagoon System are found as a pdf file on the accompanying CD named "Facultative Lagoon and H-19 Analytical and QA-QC.pdf."

Part C. Applicable to the Evaporation Pond H-19 and Storm Water Impoundments Not in Contact with Salt Stockpiles (Storm Water Ponds 1, 2, and 3)

Condition 17. *– The volume and origin of all wastewater discharged to the Evaporation Pond H-19 that is derived from miscellaneous non-hazardous sources shall be measured monthly and reported to NMED. Discharge volumes to the Evaporation Pond H-19 shall be calculated by a time/volume method or volumetric measurement of the transport container(s). NMED may require comprehensive laboratory analyses of such wastewater prior to discharge when NMED determines that additional information is needed. Monthly discharge volumes and other volumetric calculations for the previous 6-month period shall be submitted to NMED semi-annually in the monitoring reports.*

Table 3 shows the volume of miscellaneous non-hazardous water discharged to Evaporation Pond H-19 for this reporting period. This water is from groundwater well pumping (GW), condensate from the Exhaust Shaft ductwork (ES), and Waste Shaft sump water (WS).

Table 3 – Discharge to H-19 Evaporation Pond

Month (2020)	Volume (gallons)	Water Origin
January	250	WS
February	8,840	ES & WS
March	0	-
April	0	-
May	2,880	GW, ES & WS
June	11,842	GW & WS
Total	**23,812**	

Condition 18. *– A sample shall be collected semi-annually from the Evaporation Pond H-19 and analyzed for SO_4, Cl, and TDS. Samples shall be collected annually after a significant storm event from each of the storm water ponds, Storm Water Ponds 1, 2, and 3 and analyzed for SO_4, Cl, and TDS. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring report.*

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

Evaporation Pond H-19 was not sampled during this reporting period because there was not enough water in the pond at the schedule time for sampling.

No significant storm events occurred during this reporting period. Therefore, samples from the Storm Water Ponds were not taken, as shown in Table 4. Remaining storm water was transferred between Storm Water Ponds to allow for the removal of cattails and sediment in the ponds. Sampling of Evaporation Pond H-19 and Storm Water Ponds 1, 2, and 3 will be attempted in the second half of 2020, and the results reported in the second semi-annual report, which is due February 1, 2021.

Table 4 – Storm Water Ponds and Evaporation Pond H-19 Analytical Data (January to June 2020)

Analyte	Sample Date	Evaporation Pond H-19	Storm Water Pond 1	Storm Water Pond 2	Storm Water Pond 3
SO_4 (mg/L)	NS	NS	NS	NS	NS
Cl (mg/L)	NS	NS	NS	NS	NS
TDS (mg/L)	NS	NS	NS	NS	NS

NS – not sampled during this reporting period.

Condition 19. *– The water depth shall be measured monthly to the nearest tenth of a foot (0.1 ft) in the Storm Water ponds 1, 2, and 3. The approximate volume of storm water shall be calculated and submitted to NMED in the semi-annual monitoring reports.*

Table 5 summarizes the water depths and volumes in the three storm water ponds for the reporting period.

Table 5 – Storm Water Ponds Depths and Volumes

	January 01/15/2020	February 02/18/2020	March 03/30/2020	April 04/20/2020	May 05/12/2020	June 06/24/2020
Storm Water Pond 1						
Water Depth (ft)	0.0	0.0	4.3	0.7	0.0	0.0
Water Volume (gal)	0	0	598,250	97,390	0	0
Storm Water Pond 2						
Water Depth (ft)	1.5	1.3	5.6	2.1	1.4	0.1
Water Volume (gal)	515,529	446,792	1,924,643	721,741	481,161	34,369
Storm Water Pond 3						
Water Depth (ft)	1.7	1.8	0.0	2.0	1.5	0.4
Water Volume (gal)	2,452,069	2,596,308	0	2,884,787	2,163,590	576,957

Storm water was transferred between the Storm Water Ponds to allow for the removal of cattails growing in the ponds and to remove accumulated sediment. This explains the large fluctuations of water levels in the ponds during this reporting period. Pumping of the storm water began in mid-May. A Notice of Intent to discharge and the analytical results of the storm water were sent to the Ground Water Quality Bureau (GWQB). The GWQB agreed to the request to use the uncontaminated storm water for construction and dust-control purposes.

Part D. Applicable to the Storm Water Runoff Impoundments in Contact with Salt Stockpiles (Salt Storage Ponds 1, 2, and 3) and Salt Stockpiles (Salt Cells 1, 2, and 3)

Condition 20. *– A sample shall be collected annually after a significant storm event from each of the Salt Storage Cells 1, 2, and 3 and analyzed for SO_4, Cl, and TDS. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.*

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

There were no significant storm events for this reporting period.

Condition 21. *The water depth shall be measured monthly to the nearest tenth of a foot (0.1 ft) in the Salt Storage Ponds 1, 2, and 3. The approximate volume of storm water shall be calculated and submitted to NMED in the semi-annual monitoring reports.*

Table 6 summarizes the water depths and volumes in the three Salt Storage Ponds for the reporting period. Water depth is derived as the total elevation of water and sediment minus the thickness of sediment. Water volume is a reflection of the total volume of water and sediment minus the volume of sediment in each pond.

Salt Storage Pond 2 has been void of water on the surface of the salt since July 2019.

Table 6 – Salt Storage Ponds Depths and Volumes

	January 01/15/2020	**February 02/18/2020**	**March 03/30/2020**	**April 04/20/2020**	**May 05/12/2020**	**June 06/12/2020**
Salt Storage Pond 1						
Water Depth (ft)	0.0	0.1	0.3	0.0	0.0	0.0
Water Volume (gal)	0	113,849	341,548	0	0	0
Salt Storage Pond 2						
Water Depth (ft)	0.0	0.0	0.0	0.0	0.0	0.0
Water Volume (gal)	0	0	0	0	0	0
Salt Storage Pond 3						
Water Depth (ft)	5.8	4.9	5.9	5.7	5.4	4.9
Water Volume (gal)	6,635,582	6,406,769	6,749,989	6,521,176	6,177,956	5,605,923

Ground Water Monitoring and Reports

Condition 22. *– Depth to the water table shall be measured to the nearest hundredth of a foot (0.01 ft) quarterly in the piezometers/monitoring wells:*

- *PZ-1, PZ-2, PZ-3, PZ-4, PZ-5, PZ-6, PZ-7, PZ-8, PZ-9, PZ-10, PZ-11, PZ-12, PZ-13, PZ-14 and PZ-15*
- *C-2505, C-2506, C-2507, C-2811, and WQSP-6A*

For depth to the water in the piezometers and monitoring wells, see Table 7 – Monitoring Well Water Levels and Chemical Analyses.

Figure 1 shows locations of the piezometers and monitoring wells.

Condition 23. *– The permittee shall perform semi-annual ground water sampling in the following piezometers/monitoring wells and analyze the samples for temperature, pH, specific conductance, SO4, TDS, and Cl:*

- *Piezometers: PZ-1, PZ-5, PZ-6, PZ-7, PZ-9, PZ-10, PZ-11, PZ-12, and PZ-13*
- *Monitoring Wells: C-2507, C-2811, and WQSP-6A*

Ground water sample collection, preservation, transport and analysis shall be performed according to the following procedure:

a) Measure the depth-to-most-shallow ground water from the top of the well casing to the nearest hundredth of a foot.
b) Purge three well volumes of water from the well prior to sample collection.
c) Obtain samples from the well for analysis.
d) Properly prepare, preserve and transport samples.
e) Analyze samples in accordance with the methods authorized in this Discharge Permit.

Depth-to-most-shallow ground water measurements, analytical results, including the laboratory QA/QC summary report, and a facility layout map showing the location and number of each well shall be submitted to NMED in the semi-annual monitoring reports.

Water levels in the shallow wells (PZ-1 through PZ-7, PZ-9-PZ-15, C-2811, C-2505, C-2506, and C-2507) were measured in quarterly events from March 5 through 7, 2020, and from June 24 through June 25, 2020. Water levels are included in Table 7 – Monitoring Well Water Levels and Chemical Analyses. These were taken in accordance with quarterly milestones outlined in the Ground Water Monitoring Schedule specified in the Discharge Permit renewal, DP-831, dated July 29, 2014. During the reporting period, the water levels at the shallow subsurface water (SSW) monitoring points showed an average decrease in elevation of 0.41 feet.

The SSW piezometers and monitoring wells, required to be sampled according to Condition 23, were sampled for field and general chemistry parameters from May 18 through May 20, 2020. Results for the field- sampling parameters and laboratory analyses are presented in Table 7.

Laboratory analytical results and QA/QC Summary Report are found on the accompanying CD as a pdf file named "Shallow Surface Water Analytical and QA-QC.pdf".

Condition 24. *– The permittee shall perform semi-annual ground water sampling from monitoring well WQSP-6A and analyzed for TKN and NO3. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.*

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

WQSP-6A was sampled on May 20, 2020. Sulfate, chloride, and total dissolved solids were detected in WQSP-6A samples at concentrations above standards of 20.6.2.3103 NMAC, Standards for Ground Water of 10,000 mg/L TDS Concentration or Less for Human Health and Domestic Water Supply. Although the concentrations were higher than the standards, they are less than background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285). Nitrate was also detected, but did not exceed the standard. Total Kjeldahl Nitrogen was below the detection limit of 1 mg/L. The SSW identified at the WIPP facility has not impacted the Dewey Lake Redbeds Formation groundwater in WQSP-6A, based on the consistency of analyzed parameters in this well to date.

For WQSP-6A analytical results, see Table 7 – Monitoring Well Water Levels and Chemical Analyses.

Laboratory analytical results and the QA/QC Summary Report for WQSP-6A samples are found on the accompanying CD as a pdf file named "Shallow Surface Water Analytical and QA-QC.pdf".

Condition 25. *– Hydrographs shall be submitted annually for all monitoring wells and piezometers covered under Condition 22 of this Discharge Permit. At a minimum, graphs shall include the previous five years of water level data, or for recently installed wells, all data since the well was installed. Data for several wells may be included on one graph.*

The hydrographs of all monitoring wells and piezometers will be included in the second 2020 semi-annual report, which is due February 1, 2021.

Condition 26. *– A potentiometric map for facility area shall be submitted annually. The map shall incorporate the most recent water level data for all monitoring wells and piezometers installed in the shallow subsurface water (SSW).*

The potentiometric map that incorporates the most recent water level data for all monitoring wells and piezometers installed to monitor the shallow subsurface water will be included in the second 2020 semi-annual report which is due February 1, 2021.

Condition 27. *– A single table in a paper and electronic format (EXCEL spreadsheet) of water level measurements and water quality data with only those constituents analyzed and water levels measured*

during a single event shown in columns. Tabulated field measurements to include temperature, pH, and electrical conductivity corrected to 25 degrees Celsius. Monitoring sites shall be shown in rows. The second column shall contain the date of the sampling event. Values exceeding standards shall be bolded. Any constituent not analyzed for a particular site shall be shown as "NA", any site not sampled shall be shown as "NS" with an associated reason, and any site not measured for water levels shall be shown as "NM" with an associated reason.

Table 7 – Monitoring Well Water Levels and Chemical Analyses is included in paper form in this report and in electronic Excel format on the accompanying CD with the file name "Table 7 – Monitoring Well Water Levels and Chemical Analyses." Electrical conductivity is listed as specific conductivity in this table.

Condition 28. *– A single table that includes all available ground water data to date shall be submitted annually. For each monitoring well, the name of the well shall be entered in the far left column in a row by itself. Sampling events, beginning with the earliest event first, shall be entered in subsequent rows with the sampling date in the second column and the corresponding analytical data in columns further to the right. Each new sampling event shall be added as an additional row to the existing spreadsheet with the corresponding date of the sampling event noted in the second column next to the monitoring well name.*

A table that includes all available ground water data to date will be included in the second 2020 semi-annual report which is due February 1, 2021.

Condition 45. *– In the event the permittee implements changes to the wastewater system authorized by this Discharge Permit which result in only a minor effect on the character of the discharge, the permittee shall report such changes (including submission of record drawings, where applicable) as of January 1 and June 30 of each year to the NMED.*

There were no changes to the wastewater system authorized by this Discharge Permit during this reporting period

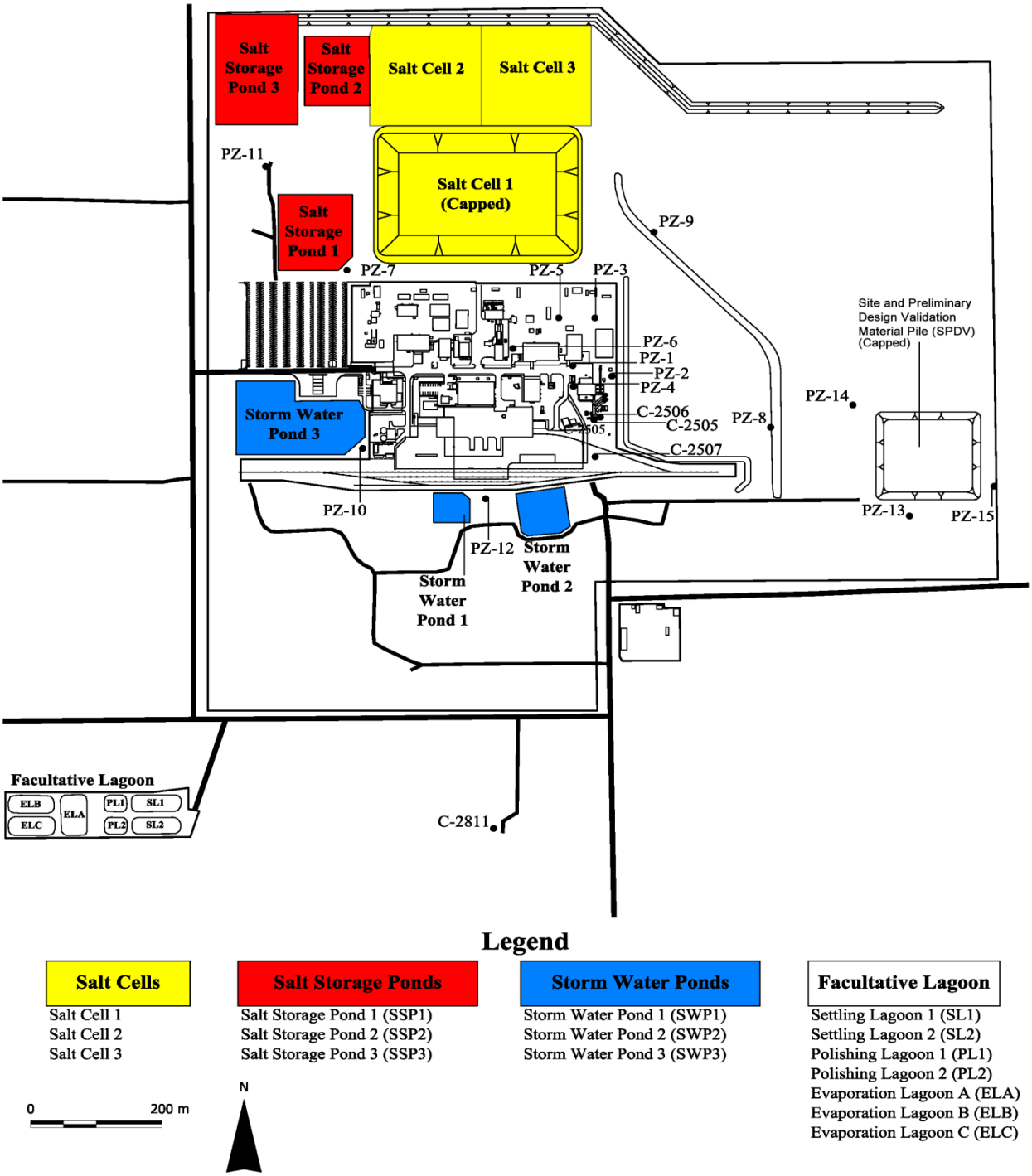


Figure 1 – Well and Pond Locations

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JANUARY 1, 2020 THROUGH JUNE 30, 2020

Table 7 – Monitoring Well Water Levels and Chemical Analyses

	Field and General Chemistry Parameters								Other	Water Level Monitoring (Ft AMSL)	
Monitoring Site	Sample Date	pH (SU)	Temp. (°C)	Specific Conductivity @ 25°C (µS/cm)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)	03/05/20-03/07/20	06/24/20-06/25/20
PZ-1	05/19/20	6.5	25.72	45,800	NA	**2,010**	**28,200**	**50,900**	NA	3371.10	3370.72
PZ-2	NS	NS	NS	NS	NS	NS	NS	NS	NS	3370.55	3370.10
PZ-3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NM	3370.66
PZ-4	NS	NS	NS	NS	NS	NS	NS	NS	NS	3366.54	3366.12
PZ-5	05/19/20	6.99	22.98	69,310	NA	545	**7,340**	**11,900**	NA	3371.62	3371.22
PZ-6	05/19/20	6.82	25.12	94,400	NA	**979**	**14,900**	**26,600**	NA	3369.82	3369.47
PZ-7	05/18/20	6.53	25.02	95,260	NA	**2,750**	**53,900**	**96,100**	NA	3378.68	3377.12
PZ-9	05/19/20	6.36	23.11	97,930	NA	**4,920**	**116,000**	**180,000**	NA	3362.87	3362.73
PZ-10	05/18/20	7.39	23.85	5,628	NA	216	171	988	NA	3367.89	3367.46
PZ-11	05/18/20	6.64	24.05	99,710	NA	**1,620**	**30,100**	**50,600**	NA	3374.57	3374.27
PZ-12	05/18/20	6.86	22.39	40,790	NA	558	**3,630**	**7,100**	NA	3356.77	3356.43
PZ-13	05/19/20	Bailed			NA	**3,200**	**179,000**	**247,000**	NA	3357.12	3356.93
PZ-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	3354.36	3354.28
PZ-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	3383.72	3382.72
C-2811	05/18/20	7.25	20.90	13,760	NA	323	**879**	**2,380**	NA	3346.59	3346.19
C-2505	NS	NS	NS	NS	NS	NS	NS	NS	NS	3367.84	3367.52
C-2506	NS	NS	NS	NS	NS	NS	NS	NS	NS	3368.45	3368.12
C-2507	05/19/20	6.89	23.55	45,800	NA	**624**	**4,230**	**8,430**	NA	3365.10	3364.87
WQSP-6A	05/20/20	6.91	23.07	15,200	4.4 N+N	**1,770**	**314**	**3,460**	ND	3195.61	3195.46

Explanation:
NA: Not Analyzed, parameter not required, per permit conditions.
NM: Not Measured, construction activity.
N+N: Nitrate + Nitrite were reported, did not run separate analysis.
NS: Not Sampled, not required per permit conditions
ND: Non-detect
PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty using Low-Flow pumps
"**Bold**" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply

Ft. AMSL = Feet Above Mean Sea Level

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

April 29, 2020

Hnin Khaing
Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8966
FAX:

RE: ENVIRONMENTAL 502242-4 OrderNo.: 2004998

Dear Hnin Khaing:

Hall Environmental Analysis Laboratory received 5 sample(s) on 4/23/2020 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Workorder Sample Summary

WO#: **2004998**

30-Apr-20

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL 502242-4

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
2004998-001	EC-SL2-20200422-1.4		4/22/2020 9:36:00 AM	4/23/2020 8:00:00 AM	Waste Wate
2004998-002	EC-SL2-20200422-2.4		4/22/2020 9:32:00 AM	4/23/2020 8:00:00 AM	Waste Wate
2004998-003	EC-SL2-20200422-3.4		4/22/2020 9:30:00 AM	4/23/2020 8:00:00 AM	Waste Wate
2004998-004	EC-SL2-20200422-4.4		4/22/2020 9:30:00 AM	4/23/2020 8:00:00 AM	Waste Wate
2004998-005	EC-BLK-20200422-1.1		4/22/2020 9:40:00 AM	4/23/2020 8:00:00 AM	Waste Wate

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **2004998**
Date: **4/29/2020**

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL 502242-4

All analytes reported are associated with passing CCVs.

METHOD: 300.0

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: none
Analysis: 300.0

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Calibration: All acceptance criteria were met.
2. Blanks: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Spikes: All acceptance criteria were met.
5. Samples: All acceptance criteria were met.

METHOD: SM2540C

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: SM2540C
Analysis: SM2540C

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Blanks: All acceptance criteria were met.
2. Spikes: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Samples: All acceptance criteria were met.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: **2004998**
Date: **4/29/2020**

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL 502242-4

METHOD: SM4500 NorgC

HOLDING TIMES: All holding times for Preparation and Analysis were met.

METHOD: Preparations: SM4500 NorgC
Analysis: SM4500 NorgC

PREPARATION: Sample preparation proceeded normally.

ANALYSIS:
1. Blanks: All acceptance criteria were met.
2. Spikes: All acceptance criteria were met.
3. Duplicates: All acceptance criteria were met.
4. Samples: All acceptance criteria were met.

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL 502242-4
Lab ID: 2004998-001A

Client Sample ID: EC-SL2-20200422-1.4
Collection Date: 4/22/2020 9:36:00 AM
Matrix: Waste Water

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Nitrogen, Nitrate (As N)	ND	0.114	0.500		mg/L	5	4/23/2020 4:54:43 PM	R68380

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL 502242-4
Lab ID: 2004998-002A

Client Sample ID: EC-SL2-20200422-2.4
Collection Date: 4/22/2020 9:32:00 AM
Matrix: Waste Water

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM 4500 NORG C: TKN							Analyst: **CJS**	
Nitrogen, Kjeldahl, Total	130	2.4	10	D	mg/L	1	4/25/2020 3:44:00 PM	52071

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL 502242-4
Lab ID: 2004998-003A

Client Sample ID: EC-SL2-20200422-3.4
Collection Date: 4/22/2020 9:30:00 AM
Matrix: Waste Water

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	97.8	2.50	5.00		mg/L	10	4/23/2020 5:19:25 PM	R68380
Sulfate	50.7	2.50	5.00		mg/L	10	4/23/2020 5:19:25 PM	R68380
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	650	200	200	*D	mg/L	1	4/27/2020 12:24:00 PM	52080

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL 502242-4
Lab ID: 2004998-004A

Client Sample ID: EC-SL2-20200422-4.4
Collection Date: 4/22/2020 9:30:00 AM
Matrix: Waste Water

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	98.3	2.50	5.00		mg/L	10	4/23/2020 5:44:07 PM	R68380
Sulfate	51.0	2.50	5.00		mg/L	10	4/23/2020 5:44:07 PM	R68380
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	690	200	200	*D	mg/L	1	4/27/2020 12:24:00 PM	52080

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL 502242-4
Lab ID: 2004998-005A

Client Sample ID: EC-BLK-20200422-1.1
Collection Date: 4/22/2020 9:40:00 AM
Matrix: Waste Water

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Chloride	ND	0.250	0.500		mg/L	1	4/23/2020 6:08:48 PM	R68380
Sulfate	ND	0.250	0.500		mg/L	1	4/23/2020 6:08:48 PM	R68380
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	ND	20.0	20.0		mg/L	1	4/27/2020 12:24:00 PM	52080

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

DATES REPORT

WO#: **2004998**

30-Apr-20

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL 502242-4

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
2004998-001A	EC-SL2-20200422-1.4	4/22/2020 9:36:00 AM	Waste Water	EPA Method 300.0: Anions			4/23/2020 5:07:04 PM
				EPA Method 300.0: Anions			4/23/2020 4:54:43 PM
2004998-002A	EC-SL2-20200422-2.4	4/22/2020 9:32:00 AM		SM 4500 Norg C: TKN		4/24/2020 11:35:32 AM	4/25/2020 3:44:00 PM
2004998-003A	EC-SL2-20200422-3.4	4/22/2020 9:30:00 AM		EPA Method 300.0: Anions			4/23/2020 5:31:47 PM
				EPA Method 300.0: Anions			4/23/2020 5:19:25 PM
				SM2540C MOD: Total Dissolved Solic		4/24/2020 3:58:01 PM	4/27/2020 12:24:00 PM
2004998-004A	EC-SL2-20200422-4.4			EPA Method 300.0: Anions			4/23/2020 5:56:27 PM
				EPA Method 300.0: Anions			4/23/2020 5:44:07 PM
				SM2540C MOD: Total Dissolved Solic		4/24/2020 3:58:01 PM	4/27/2020 12:24:00 PM
2004998-005A	EC-BLK-20200422-1.1	4/22/2020 9:40:00 AM		EPA Method 300.0: Anions			4/23/2020 6:21:08 PM
				EPA Method 300.0: Anions			4/23/2020 6:08:48 PM
				SM2540C MOD: Total Dissolved Solic		4/24/2020 3:58:01 PM	4/27/2020 12:24:00 PM

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2004998**

30-Apr-20

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL 502242-4

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R68380**	RunNo: **68380**							
Prep Date:	Analysis Date: **4/23/2020**	SeqNo: **2365848**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.6	0.50	8.000	0	95.2	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	102	90	110			
Sulfate	19	0.50	20.00	0	96.7	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **CCB**	Batch ID: **R68380**	RunNo: **68380**							
Prep Date:	Analysis Date: **4/23/2020**	SeqNo: **2365849**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R68380**	RunNo: **68380**							
Prep Date:	Analysis Date: **4/23/2020**	SeqNo: **2365851**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R68380**	RunNo: **68380**							
Prep Date:	Analysis Date: **4/23/2020**	SeqNo: **2365852**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.8	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	100	90	110			
Sulfate	9.8	0.50	10.00	0	98.2	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R68380**	RunNo: **68380**							
Prep Date:	Analysis Date: **4/23/2020**	SeqNo: **2365859**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	91.7	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	97.3	90	110			
Sulfate	12	0.50	12.50	0	93.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2004998**
30-Apr-20

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL 502242-4

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R68380** RunNo: **68380**
Prep Date: Analysis Date: **4/23/2020** SeqNo: **2365860** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Sample ID: **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R68380** RunNo: **68380**
Prep Date: Analysis Date: **4/23/2020** SeqNo: **2365871** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.6	0.50	8.000	0	95.5	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	102	90	110			
Sulfate	19	0.50	20.00	0	97.1	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R68380** RunNo: **68380**
Prep Date: Analysis Date: **4/23/2020** SeqNo: **2365872** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **R68380** RunNo: **68380**
Prep Date: Analysis Date: **4/23/2020** SeqNo: **2365890** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.2	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	97.6	90	110			
Sulfate	12	0.50	12.50	0	94.0	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB** Batch ID: **R68380** RunNo: **68380**
Prep Date: Analysis Date: **4/23/2020** SeqNo: **2365892** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2004998**

30-Apr-20

Client: Waste Isolation Pilot Plant

Project: ENVIRONMENTAL 502242-4

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R68380**	RunNo: **68380**
Prep Date:	Analysis Date: **4/23/2020**	SeqNo: **2365917** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.4	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	102	90	110			
Sulfate	20	0.50	20.00	0	99.3	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R68380**	RunNo: **68380**
Prep Date:	Analysis Date: **4/23/2020**	SeqNo: **2365919** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R68380**	RunNo: **68380**
Prep Date:	Analysis Date: **4/23/2020**	SeqNo: **2365926** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.7	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	97.6	90	110			
Sulfate	12	0.50	12.50	0	97.3	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R68380**	RunNo: **68380**
Prep Date:	Analysis Date: **4/23/2020**	SeqNo: **2365927** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2004998**
30-Apr-20

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL 502242-4

Sample ID: **MB-52080**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **52080**	RunNo: **68441**
Prep Date: **4/24/2020**	Analysis Date: **4/27/2020**	SeqNo: **2368096** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-52080**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **52080**	RunNo: **68441**
Prep Date: **4/24/2020**	Analysis Date: **4/27/2020**	SeqNo: **2368097** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2004998**
30-Apr-20

Client: Waste Isolation Pilot Plant
Project: ENVIRONMENTAL 502242-4

Sample ID: **MB-52071**	SampType: **MBLK**	TestCode: **SM 4500 Norg C: TKN**
Client ID: **PBW**	Batch ID: **52071**	RunNo: **68432**
Prep Date: **4/24/2020**	Analysis Date: **4/25/2020**	SeqNo: **2367856** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	1.0								

Sample ID: **LCS-52071**	SampType: **LCS**	TestCode: **SM 4500 Norg C: TKN**
Client ID: **LCSW**	Batch ID: **52071**	RunNo: **68432**
Prep Date: **4/24/2020**	Analysis Date: **4/25/2020**	SeqNo: **2367857** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10	1.0	10.00	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **WIPP** Work Order Number: **2004998** RcptNo: **1**

Received By: **Desiree Dominguez** **4/23/2020 8:00:00 AM** DD

Completed By: **Desiree Dominguez** **4/23/2020 9:07:22 AM** DD

Reviewed By: JB 4/23/20

Chain of Custody

1. Is Chain of Custody sufficiently complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? FedEx

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☐ No ☐ NA ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 1
(<2 or >12 unless noted)
Adjusted? N/A
Checked by: JR 4/23/20

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good				

05508

ENVIRONMENTAL CHAIN-OF-CUSTODY / REQUEST FOR ANALYSIS RECORD

Date Samples Shipped _____
Lab Contact Andy Freeman (HEAL)
Project Contact HWIN Khaing
Project Contact Phone (575) 234-8972

CofC/RFA Control No. 10748
Carrier/Waybill Number Fed Ex 8116-0153-0351
Lab PO Number 502242-4

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

Lab Report Delivery to:
PO Box 2078 Mail Stop 452-09
Carlsbad, NM 88221-2078

HEAL# 2004998

Sample Number	Date/Time Collected	Sample Type	Sample Quantity	Container Type	Preservative	Requested Analysis
EC-SL2-20200422-1.4	4-22-20 0936	Sewage	1 Liter	Plastic	≤4°C	Nitrate
2.4	0932		500 mL		H_2SO_4 to pH≤2, ≤4°C	TKN
3.4	0930				≤4°C	sulfate, Chloride, TDS
4.4	0930					
EC-BLK-20200422-1.1	0940	Blank				

Special Instruction Comments: Do Nitrate (1 Liter settling Lagoon 2) within 48 hrs of Collection time (4-22-2020 @ 0936)

Possible Hazards Nonhazard _____ Radiological _____ Sewage X Other _____ Sample Disposal: Return To Client _____ Disposal By Lab X

Signatures: (Name, Signature, Date and Time) **Laboratory Note Any Sample Discrepancies on "Special Instruction/Comment Line"

1. Relinquished By: Jerome Hernandez 4-22-2020 1220
   Received By: DESIREE Dominguez 4/23/20 8:00
2. Relinquished By: _____
   Received By: _____
3. Relinquished By: _____
   Received By: _____
4. Relinquished By: _____
   Received By: _____

WP 02-EM3001- Environmental Monitoring Temp: 1.3 +0.0 = 1.3°c

WHITE - Original to accompany samples

CANARY - Field copy

NICHOLS PRINTING INC. • 575-885-3313

05509

Salt Pond Sump Leak Detection Water Level Measurement Field Data Sheet

From January to June Year 2020

Pond Name	Date	Time	Water Depth (ft)	Does Water Need Pumping? (Y/N)	Initials	Comments
Salt Storage Pond 2 Sump	2/20/2020	1025	29.93		RJ	
Salt Storage Pond 3 Sump	2/20/2020	1031	32.70		RJ	
Salt Storage Pond 2 Sump	1-14-20	1516	33.70			
Salt Storage Pond 3 Sump	1-14-20	1525	32.67	Y		
Salt Storage Pond 2 Sump	3-12-2020	10:44	29.26			
Salt Storage Pond 3 Sump	3-12-2020	10:57	64.20			Water Was Pumped March 9-12, 2020
Salt Storage Pond 2 Sump	4-8-2020	08:05	28.98			
Salt Storage Pond 3 Sump	4-8-2020	08:15	33.68			
Salt Storage Pond 2 Sump	~~4-1-2020~~ 05-11-2020 ~~14:20~~	~~29~~ 14:30	29.97			
Salt Storage Pond 3 Sump	05-11-2020 ~~14:39~~	14:39	33.86			
Salt Storage Pond 2 Sump	6-25-2020	09:17	32.10			
Salt Storage Pond 3 Sump	6-25-2020	09:31	35.72			

Performer: Print Name: Richie Jimenez Signature: Bill Jones for R. Jimenez

Performer: Print Name: Signature:

Performer: Print Name: Signature:

Due to COVID-19, I filled this form out for Richie Jimenez ~~this~~ with information given me by email.

-B Jones 7-6-2020

05510

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

June 25, 2020

Brett Seal
Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8966
FAX:

RE: SSW Sampling R33 T 514354 2 OrderNo.: 2005954

Dear Brett Seal:

Hall Environmental Analysis Laboratory received 15 sample(s) on 5/21/2020 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

Workorder Sample Summary

WO#: **2005954**
25-Jun-20

CLIENT: Waste Isolation Pilot Plant
Project: SSW Sampling R33 T 514354 2

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
2005954-001	SSWC2811 R33N1		5/18/2020 9:02:00 AM	5/21/2020 7:30:00 AM	Surface Wat
2005954-002	SSWPZ12 R33N1		5/18/2020 10:37:00 AM	5/21/2020 7:30:00 AM	Surface Wat
2005954-003	SSWPZ10 R33N1		5/18/2020 12:01:00 PM	5/21/2020 7:30:00 AM	Surface Wat
2005954-004	SSWPZ7 R33N1		5/18/2020 1:27:00 PM	5/21/2020 7:30:00 AM	Surface Wat
2005954-005	SSWPZ13 R33N1		5/19/2020 9:06:00 AM	5/21/2020 7:30:00 AM	Surface Wat
2005954-006	SSWPZ9 R33N1		5/19/2020 8:38:00 AM	5/21/2020 7:30:00 AM	Surface Wat
2005954-007	SSWPZ1 R33N1		5/19/2020 12:09:00 PM	5/21/2020 7:30:00 AM	Surface Wat
2005954-008	SSWPZ5 R33N1		5/19/2020 3:50:00 PM	5/21/2020 7:30:00 AM	Surface Wat
2005954-009	SSWPZ5 R33N1D		5/19/2020 3:52:00 PM	5/21/2020 7:30:00 AM	Surface Wat
2005954-010	SSWPZ5 R33N1EB		5/19/2020 3:59:00 PM	5/21/2020 7:30:00 AM	Surface Wat
2005954-011	SSWPZ6 R33N1		5/19/2020 1:57:00 PM	5/21/2020 7:30:00 AM	Surface Wat
2005954-012	SSWC2507 R33N1		5/19/2020 10:42:00 AM	5/21/2020 7:30:00 AM	Surface Wat
2005954-013	SSWPZ11 R33N1		5/18/2020 3:37:00 PM	5/21/2020 7:30:00 AM	Surface Wat
2005954-014	SSWPZ11 R33N1EB		5/18/2020 3:47:00 PM	5/21/2020 7:30:00 AM	Surface Wat
2005954-015	SSWWQSP6A R33N1-2		5/20/2020 8:55:00 AM	5/21/2020 7:30:00 AM	Surface Wat

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWC2811 R33N1
Project: SSW Sampling R33 T 514354 2
Collection Date: 5/18/2020 9:02:00 AM
Lab ID: 2005954-001
Matrix: SURFACE W
Received Date: 5/21/2020 7:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	879	25.0	50.0		mg/L	100	5/22/2020 5:57:12 PM	R69121
Sulfate	323	2.50	5.00		mg/L	10	5/22/2020 5:44:48 PM	R69121
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	2380	20.0	20.0	*	mg/L	1	5/27/2020 1:56:00 PM	52650

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ12 R33N1
Project: SSW Sampling R33 T 514354 2
Collection Date: 5/18/2020 10:37:00 AM
Lab ID: 2005954-002
Matrix: SURFACE W
Received Date: 5/21/2020 7:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	3630	50.0	100		mg/L	200	5/27/2020 9:08:19 AM	R69191
Sulfate	558	25.0	50.0		mg/L	100	5/22/2020 6:22:01 PM	R69121
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	7100	20.0	20.0	*	mg/L	1	5/27/2020 1:56:00 PM	52650

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ10 R33N1
Project: SSW Sampling R33 T 514354 2
Collection Date: 5/18/2020 12:01:00 PM
Lab ID: 2005954-003
Matrix: SURFACE W
Received Date: 5/21/2020 7:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	171	2.50	5.00		mg/L	10	5/22/2020 6:34:26 PM	R69121
Sulfate	216	2.50	5.00		mg/L	10	5/22/2020 6:34:26 PM	R69121
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	988	20.0	20.0	*	mg/L	1	5/27/2020 1:56:00 PM	52650

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ7 R33N1
Project: SSW Sampling R33 T 514354 2
Collection Date: 5/18/2020 1:27:00 PM
Lab ID: 2005954-004
Matrix: SURFACE W
Received Date: 5/21/2020 7:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	53900	2500	5000		mg/L	1E+	5/27/2020 9:20:43 AM	R69191
Sulfate	2750	25.0	50.0		mg/L	100	5/22/2020 8:01:18 PM	R69121
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	96100	20.0	20.0	*	mg/L	1	5/27/2020 1:56:00 PM	52650

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ13 R33N1
Project: SSW Sampling R33 T 514354 2
Collection Date: 5/19/2020 9:06:00 AM
Lab ID: 2005954-005
Matrix: SURFACE W
Received Date: 5/21/2020 7:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	179000	2500	5000		mg/L	1E+	5/27/2020 9:33:07 AM	R69191
Sulfate	3200	25.0	50.0		mg/L	100	5/22/2020 8:13:43 PM	R69121
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	247000	2000	2000	*D	mg/L	1	5/27/2020 1:56:00 PM	52650

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ9 R33N1
Project: SSW Sampling R33 T 514354 2
Collection Date: 5/19/2020 8:38:00 AM
Lab ID: 2005954-006
Matrix: SURFACE W
Received Date: 5/21/2020 7:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	116000	2500	5000		mg/L	1E+	5/27/2020 9:45:32 AM	R69191
Sulfate	4920	250	500		mg/L	1000	5/22/2020 8:50:57 PM	R69121
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	180000	2000	2000	*D	mg/L	1	5/27/2020 1:56:00 PM	52650

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ1 R33N1
Project: SSW Sampling R33 T 514354 2
Collection Date: 5/19/2020 12:09:00 PM
Lab ID: 2005954-007
Matrix: SURFACE W
Received Date: 5/21/2020 7:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	28200	1250	2500		mg/L	5000	5/27/2020 9:57:57 AM	R69191
Sulfate	2010	25.0	50.0		mg/L	100	5/22/2020 9:15:46 PM	R69121
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	50900	200	200	*D	mg/L	1	5/27/2020 1:56:00 PM	52650

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ5 R33N1
Project: SSW Sampling R33 T 514354 2
Collection Date: 5/19/2020 3:50:00 PM
Lab ID: 2005954-008
Matrix: SURFACE W
Received Date: 5/21/2020 7:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	7340	125	250		mg/L	500	5/27/2020 10:10:21 AM	R69191
Sulfate	545	25.0	50.0		mg/L	100	5/22/2020 10:05:25 PM	R69121
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	11900	200	200	*D	mg/L	1	5/27/2020 1:56:00 PM	52650

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ5 R33N1D
Project: SSW Sampling R33 T 514354 2
Collection Date: 5/19/2020 3:52:00 PM
Lab ID: 2005954-009
Matrix: SURFACE W
Received Date: 5/21/2020 7:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	7310	125	250		mg/L	500	5/27/2020 10:22:46 AM	R69191
Sulfate	545	25.0	50.0		mg/L	100	5/22/2020 10:30:14 PM	R69121
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	12400	40.0	40.0	*D	mg/L	1	5/27/2020 1:56:00 PM	52650

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ5 R33N1EB
Project: SSW Sampling R33 T 514354 2
Collection Date: 5/19/2020 3:59:00 PM
Lab ID: 2005954-010
Matrix: SURFACE W
Received Date: 5/21/2020 7:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	ND	2.50	5.00		mg/L	10	5/22/2020 10:42:38 PM	R69121
Sulfate	ND	2.50	5.00		mg/L	10	5/22/2020 10:42:38 PM	R69121
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	42.0	40.0	40.0	D	mg/L	1	5/27/2020 1:56:00 PM	52650

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ6 R33N1
Project: SSW Sampling R33 T 514354 2
Collection Date: 5/19/2020 1:57:00 PM
Lab ID: 2005954-011
Matrix: SURFACE W
Received Date: 5/21/2020 7:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	14900	500	1000		mg/L	2000	5/27/2020 11:00:00 AM	R69191
Sulfate	979	25.0	50.0		mg/L	100	5/22/2020 11:19:51 PM	R69121
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	26600	40.0	40.0	*D	mg/L	1	5/27/2020 1:56:00 PM	52650

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWC2507 R33N1
Project: SSW Sampling R33 T 514354 2
Collection Date: 5/19/2020 10:42:00 AM
Lab ID: 2005954-012
Matrix: SURFACE W
Received Date: 5/21/2020 7:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	4230	125	250		mg/L	500	5/27/2020 11:12:24 AM	R69191
Sulfate	624	25.0	50.0		mg/L	100	5/22/2020 11:44:40 PM	R69121
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	8430	40.0	40.0	*D	mg/L	1	5/27/2020 1:56:00 PM	52650

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ11 R33N1
Project: SSW Sampling R33 T 514354 2
Collection Date: 5/18/2020 3:37:00 PM
Lab ID: 2005954-013
Matrix: SURFACE W
Received Date: 5/21/2020 7:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	30100	1250	2500		mg/L	5000	5/27/2020 11:24:49 AM	R69191
Sulfate	1620	25.0	50.0		mg/L	100	5/23/2020 12:59:07 AM	R69121
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	50600	200	200	*D	mg/L	1	5/27/2020 1:56:00 PM	52650

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWPZ11 R33N1EB
Project: SSW Sampling R33 T 514354 2
Collection Date: 5/18/2020 3:47:00 PM
Lab ID: 2005954-014
Matrix: SURFACE W
Received Date: 5/21/2020 7:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	4.28	2.50	5.00	J	mg/L	10	5/23/2020 1:11:31 AM	R69121
Sulfate	ND	2.50	5.00		mg/L	10	5/23/2020 1:11:31 AM	R69121
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	24.0	20.0	20.0		mg/L	1	5/27/2020 1:56:00 PM	52650

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: SSWWQSP6A R33N1-2
Project: SSW Sampling R33 T 514354 2
Collection Date: 5/20/2020 8:55:00 AM
Lab ID: 2005954-015
Matrix: SURFACE W
Received Date: 5/21/2020 7:30:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	314	25.0	50.0		mg/L	100	5/23/2020 1:48:46 AM	R69121
Sulfate	1770	25.0	50.0		mg/L	100	5/23/2020 1:48:46 AM	R69121
Nitrate+Nitrite as N	4.4	0.12	1.0		mg/L	5	5/23/2020 4:05:18 AM	R69121
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	3460	40.0	40.0	*D	mg/L	1	5/27/2020 1:56:00 PM	52650
SM 4500 NORG C: TKN							Analyst: **OG**	
Nitrogen, Kjeldahl, Total	ND	0.24	1.0		mg/L	1	5/29/2020 11:08:00 AM	52752

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

DATES REPORT

WO#: **2005954**

25-Jun-20

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R33 T 514354 2

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
2005954-001A	SSWC2811 R33N1	5/18/2020 9:02:00 AM	Surface Water	EPA Method 300.0: Anions			5/22/2020 5:44:48 PM
				EPA Method 300.0: Anions			5/22/2020 5:57:12 PM
				SM2540C MOD: Total Dissolved Solic		5/22/2020 10:22:53 AM	5/27/2020 1:56:00 PM
2005954-002A	SSWPZ12 R33N1	5/18/2020 10:37:00 AM		EPA Method 300.0: Anions			5/22/2020 6:09:37 PM
				EPA Method 300.0: Anions			5/22/2020 6:22:01 PM
				EPA Method 300.0: Anions			5/27/2020 9:08:19 AM
				SM2540C MOD: Total Dissolved Solic		5/22/2020 10:22:53 AM	5/27/2020 1:56:00 PM
2005954-003A	SSWPZ10 R33N1	5/18/2020 12:01:00 PM		EPA Method 300.0: Anions			5/22/2020 6:34:26 PM
				EPA Method 300.0: Anions			5/22/2020 6:46:50 PM
				SM2540C MOD: Total Dissolved Solic		5/22/2020 10:22:53 AM	5/27/2020 1:56:00 PM
2005954-004A	SSWPZ7 R33N1	5/18/2020 1:27:00 PM		EPA Method 300.0: Anions			5/22/2020 8:01:18 PM
				EPA Method 300.0: Anions			5/27/2020 9:20:43 AM
				EPA Method 300.0: Anions			5/22/2020 7:24:05 PM
				SM2540C MOD: Total Dissolved Solic		5/22/2020 10:22:53 AM	5/27/2020 1:56:00 PM
				SM2540C MOD: Total Dissolved Solic		5/28/2020 10:20:02 AM	5/30/2020 9:34:00 AM
2005954-005A	SSWPZ13 R33N1	5/19/2020 9:06:00 AM		EPA Method 300.0: Anions			5/22/2020 8:13:43 PM
				EPA Method 300.0: Anions			5/22/2020 8:26:07 PM
				EPA Method 300.0: Anions			5/27/2020 9:33:07 AM
				SM2540C MOD: Total Dissolved Solic		5/22/2020 10:22:53 AM	5/27/2020 1:56:00 PM
2005954-006A	SSWPZ9 R33N1	5/19/2020 8:38:00 AM		EPA Method 300.0: Anions			5/22/2020 8:38:32 PM
				EPA Method 300.0: Anions			5/27/2020 9:45:32 AM
				EPA Method 300.0: Anions			5/22/2020 8:50:57 PM
				SM2540C MOD: Total Dissolved Solic		5/22/2020 10:22:53 AM	5/27/2020 1:56:00 PM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

DATES REPORT

WO#: **2005954**

25-Jun-20

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R33 T 514354 2

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
2005954-007A	SSWPZ1 R33N1	5/19/2020 12:09:00 PM	Surface Water	EPA Method 300.0: Anions			5/22/2020 9:03:21 PM
				EPA Method 300.0: Anions			5/22/2020 9:15:46 PM
				EPA Method 300.0: Anions			5/27/2020 9:57:57 AM
				SM2540C MOD: Total Dissolved Solic		5/22/2020 10:22:53 AM	5/27/2020 1:56:00 PM
2005954-008A	SSWPZ5 R33N1	5/19/2020 3:50:00 PM		EPA Method 300.0: Anions			5/22/2020 9:53:00 PM
				EPA Method 300.0: Anions			5/22/2020 10:05:25 PM
				EPA Method 300.0: Anions			5/27/2020 10:10:21 AM
				SM2540C MOD: Total Dissolved Solic		5/22/2020 10:22:53 AM	5/27/2020 1:56:00 PM
2005954-009A	SSWPZ5 R33N1D	5/19/2020 3:52:00 PM		EPA Method 300.0: Anions			5/22/2020 10:17:49 PM
				EPA Method 300.0: Anions			5/22/2020 10:30:14 PM
				EPA Method 300.0: Anions			5/27/2020 10:22:46 AM
				SM2540C MOD: Total Dissolved Solic		5/22/2020 10:22:53 AM	5/27/2020 1:56:00 PM
2005954-010A	SSWPZ5 R33N1EB	5/19/2020 3:59:00 PM		EPA Method 300.0: Anions			5/22/2020 10:42:38 PM
				EPA Method 300.0: Anions			5/22/2020 10:55:02 PM
				SM2540C MOD: Total Dissolved Solic		5/22/2020 10:22:53 AM	5/27/2020 1:56:00 PM
2005954-011A	SSWPZ6 R33N1	5/19/2020 1:57:00 PM		EPA Method 300.0: Anions			5/22/2020 11:07:27 PM
				EPA Method 300.0: Anions			5/22/2020 11:19:51 PM
				EPA Method 300.0: Anions			5/27/2020 11:00:00 AM
				SM2540C MOD: Total Dissolved Solic		5/22/2020 10:22:53 AM	5/27/2020 1:56:00 PM
2005954-012A	SSWC2507 R33N1	5/19/2020 10:42:00 AM		EPA Method 300.0: Anions			5/22/2020 11:32:15 PM
				EPA Method 300.0: Anions			5/27/2020 11:12:24 AM
				EPA Method 300.0: Anions			5/22/2020 11:44:40 PM
				SM2540C MOD: Total Dissolved Solic		5/22/2020 10:22:53 AM	5/27/2020 1:56:00 PM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

DATES REPORT

WO#: **2005954**

25-Jun-20

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R33 T 514354 2

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
2005954-013A	SSWPZ11 R33N1	5/18/2020 3:37:00 PM	Surface Water	EPA Method 300.0: Anions			5/23/2020 12:46:42 AM
				EPA Method 300.0: Anions			5/23/2020 12:59:07 AM
				EPA Method 300.0: Anions			5/27/2020 11:24:49 AM
				SM2540C MOD: Total Dissolved Solic		5/22/2020 10:22:53 AM	5/27/2020 1:56:00 PM
2005954-014A	SSWPZ11 R33N1EB	5/18/2020 3:47:00 PM		EPA Method 300.0: Anions			5/23/2020 1:11:31 AM
				EPA Method 300.0: Anions			5/23/2020 1:23:56 AM
				SM2540C MOD: Total Dissolved Solic		5/22/2020 10:22:53 AM	5/27/2020 1:56:00 PM
2005954-015A	SSWWQSP6A R33N1-2	5/20/2020 8:55:00 AM		EPA Method 300.0: Anions			5/23/2020 1:36:21 AM
				EPA Method 300.0: Anions			5/23/2020 1:48:46 AM
				EPA Method 300.0: Anions			5/23/2020 4:05:18 AM
				SM 4500 Norg C: TKN		5/28/2020 2:49:25 PM	5/29/2020 11:08:00 AM
				SM2540C MOD: Total Dissolved Solic		5/22/2020 10:22:53 AM	5/27/2020 1:56:00 PM

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2005954**

25-Jun-20

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R33 T 514354 2

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R69121**	RunNo: **69121**							
Prep Date:	Analysis Date: **5/22/2020**	SeqNo: **2394914**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.5	90	110			
Sulfate	20	0.50	20.00	0	98.3	90	110			
Nitrate+Nitrite as N	8.2	0.20	8.000	0	102	90	110			

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R69121**	RunNo: **69121**							
Prep Date:	Analysis Date: **5/22/2020**	SeqNo: **2394915**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R69121**	RunNo: **69121**							
Prep Date:	Analysis Date: **5/22/2020**	SeqNo: **2394916**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	98.0	90	110			
Sulfate	9.8	0.50	10.00	0	97.9	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	99.5	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R69121**	RunNo: **69121**							
Prep Date:	Analysis Date: **5/22/2020**	SeqNo: **2394923**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	91.5	90	110			
Sulfate	12	0.50	12.50	0	93.7	90	110			
Nitrate+Nitrite as N	4.8	0.20	5.000	0	96.9	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R69121**	RunNo: **69121**							
Prep Date:	Analysis Date: **5/22/2020**	SeqNo: **2394935**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.6	90	110			
Sulfate	20	0.50	20.00	0	98.3	90	110			
Nitrate+Nitrite as N	8.2	0.20	8.000	0	102	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2005954**

25-Jun-20

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R33 T 514354 2

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R69121**	RunNo: **69121**
Prep Date:	Analysis Date: **5/22/2020**	SeqNo: **2394947** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	91.6	90	110			
Sulfate	12	0.50	12.50	0	93.7	90	110			
Nitrate+Nitrite as N	4.9	0.20	5.000	0	97.0	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R69121**	RunNo: **69121**
Prep Date:	Analysis Date: **5/23/2020**	SeqNo: **2394959** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.6	90	110			
Sulfate	20	0.50	20.00	0	98.4	90	110			
Nitrate+Nitrite as N	8.2	0.20	8.000	0	102	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R69121**	RunNo: **69121**
Prep Date:	Analysis Date: **5/23/2020**	SeqNo: **2394969** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	91.5	90	110			
Sulfate	12	0.50	12.50	0	93.8	90	110			
Nitrate+Nitrite as N	4.9	0.20	5.000	0	97.0	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R69191**	RunNo: **69191**
Prep Date:	Analysis Date: **5/27/2020**	SeqNo: **2398233** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	95.8	90	110			

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R69191**	RunNo: **69191**
Prep Date:	Analysis Date: **5/27/2020**	SeqNo: **2398236** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2005954**

25-Jun-20

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R33 T 514354 2

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R69191**	RunNo: **69191**							
Prep Date:	Analysis Date: **5/27/2020**	SeqNo: **2398237**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	91.1	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R69191**	RunNo: **69191**							
Prep Date:	Analysis Date: **5/27/2020**	SeqNo: **2398245**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	91.9	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R69191**	RunNo: **69191**							
Prep Date:	Analysis Date: **5/27/2020**	SeqNo: **2398256**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.6	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R69191**	RunNo: **69191**							
Prep Date:	Analysis Date: **5/27/2020**	SeqNo: **2398268**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.1	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R69191**	RunNo: **69191**							
Prep Date:	Analysis Date: **5/27/2020**	SeqNo: **2398279**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.4	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R69191**	RunNo: **69191**							
Prep Date:	Analysis Date: **5/27/2020**	SeqNo: **2398291**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.1	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2005954**

25-Jun-20

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R33 T 514354 2

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R69191**	RunNo: **69191**							
Prep Date:	Analysis Date: **5/27/2020**	SeqNo: **2398303**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.3	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R69191**	RunNo: **69191**							
Prep Date:	Analysis Date: **5/28/2020**	SeqNo: **2398315**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.7	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R69191**	RunNo: **69191**							
Prep Date:	Analysis Date: **5/28/2020**	SeqNo: **2398327**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	96.9	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R69191**	RunNo: **69191**							
Prep Date:	Analysis Date: **5/28/2020**	SeqNo: **2398339**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	93.0	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R69191**	RunNo: **69191**							
Prep Date:	Analysis Date: **5/28/2020**	SeqNo: **2398345**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2005954**

25-Jun-20

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R33 T 514354 2

Sample ID: **MB-52650**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **52650**	RunNo: **69167**
Prep Date: **5/22/2020**	Analysis Date: **5/27/2020**	SeqNo: **2397080** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-52650**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **52650**	RunNo: **69167**
Prep Date: **5/22/2020**	Analysis Date: **5/27/2020**	SeqNo: **2397081** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1040	20.0	1000	0	104	80	120			

Sample ID: **2005954-015ADUP**	SampType: **DUP**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **SSWWQSP6A R33N**	Batch ID: **52650**	RunNo: **69167**
Prep Date: **5/22/2020**	Analysis Date: **5/27/2020**	SeqNo: **2397103** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	3500	40.0						1.38	10	*D

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2005954**

25-Jun-20

Client: Waste Isolation Pilot Plant

Project: SSW Sampling R33 T 514354 2

Sample ID: **MB-52752** SampType: **MBLK** TestCode: **SM 4500 Norg C: TKN**

Client ID: **PBW** Batch ID: **52752** RunNo: **69244**

Prep Date: **5/28/2020** Analysis Date: **5/29/2020** SeqNo: **2400194** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	1.0								

Sample ID: **LCS-52752** SampType: **LCS** TestCode: **SM 4500 Norg C: TKN**

Client ID: **LCSW** Batch ID: **52752** RunNo: **69244**

Prep Date: **5/28/2020** Analysis Date: **5/29/2020** SeqNo: **2400195** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10	1.0	10.00	0	102	80	120			

Sample ID: **2005954-015AMS** SampType: **MS** TestCode: **SM 4500 Norg C: TKN**

Client ID: **SSWWQSP6A R33N** Batch ID: **52752** RunNo: **69244**

Prep Date: **5/28/2020** Analysis Date: **5/29/2020** SeqNo: **2400201** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10	1.0	10.00	0	101	75	125			

Sample ID: **2005954-015AMSD** SampType: **MSD** TestCode: **SM 4500 Norg C: TKN**

Client ID: **SSWWQSP6A R33N** Batch ID: **52752** RunNo: **69244**

Prep Date: **5/28/2020** Analysis Date: **5/29/2020** SeqNo: **2400202** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10	1.0	10.00	0	104	75	125	2.74	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **WIPP** Work Order Number: **2005954** RcptNo: **1**

Received By: **Desiree Dominguez** **5/21/2020 7:30:00 AM** DD

Completed By: **Leah Baca** **5/21/2020 3:31:59 PM** Leah SBaca

Reviewed By: JR 5/22/20

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	FedEx		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☑	No ☐	NA ☐
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 1 (<2 or >12 unless noted)

Adjusted? NO

Checked by: SPA 5.22.20

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.3	Good	Yes			

05537

No. 1361

CHAIN OF CUSTODY RECORD

Page 1 of 2

Project Number:	Project Name:
TS14254-2	SSW Sampling R33

Sampler(s): Bratt Seal, Allen Hall

Sample Date	Sample Time	Matrix	Sample Number	Total Number of Containers	TDS	Chloride	Sulfate						Comments
05/18/2020	0902	SSW	SSWC2811 R33 N1	1	X	X	X						-001
05/18/2020	1037		SSW PZ12 R33 N1		X	X	X						-002
05/18/2020	1201		SSW PZ10 R33 N1		X	X	X						-003
05/18/2020	1327		SSW PZ7 R33 N1		X	X	X						-004
05/19/2020	0906		SSW PZ13 R33 N1		X	X	X						-005
~~05/18/2020~~ 05/19/2020	0838		SSW PZ9 R33 N1		X	X	X						-006
05/19/2020	1209		SSW PZ1 R33 N1		X	X	X						-007
05/19/2020	1550		SSW PZ5 R33 N1		X	X	X						-008
05/19/2020	1552		SSW PZ5 R33 N1D		X	X	X						-009
05/19/2020	1559		SSW PZ5 R33 N1EB		X	X	X						Equip Blank -010
05/19/2020	1357		SSW PZ6 R33 N1		X	X	X						-011
05/19/2020	1042		SSW C2507 R33 N1		X	X	X						-012
05/18/2020	1537		SSW PZ11 R33 N1		X	X	X						-013
05/18/2020	1547	"	SSW PZ11 R33 N1EB	"	X	X	X						Equip Blank -014

Analytical Laboratory: HEAL Albuquerque NM 2005954

Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)
Allen Hall 05/20/2020 1155			
Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received at Laboratory: (Signature, Date/Time)
			5/21/20 7:30

Requested Turnaround Time: 30 Days

☒ Routine ☐ Rush _____

Sample Disposal:

☐ Return to Client ☒ Disposal by Lab

Carrier / Airbill No.: FEDEX 8131 0130 5468

Sample Receipt Remarks: 3.4 - 0.1 = 3.3°C

Results To:

Bratt Seal
RES
PO Box 2078, MS 452-09
Carlsbad, NM 88221-2078
Phone: 575-706-6034 FAX: 575-234-6003
EDD: Bratt.Seal@WIPP.WS

Special Instructions:

High TDS: PZ-7, 11, 9, 6 5, 13, 1

Report all data to 3 Sig figs

WHITE – Analytical Laboratory
DI – Deionized Water
GW – Groundwater

YELLOW – Field Copy
AF – Air Filter(s)
AN – Animal(s)

PINK – Record Copy
SE – Sediment
SO – Soil

SW – Surface Water
VG – Vegetation

Form CofC/RFA, Rev. 0 – NICHOLS PRINTING, INC.

CHAIN OF CUSTODY RECORD

No. 1362

Page 2 of 2

Project Number:	Project Name:
T514354-2	SSW Sampling R33

Sampler(s): Brett Seal, Allen Hall

Sample Date	Sample Time	Matrix	Sample Number	Total Number of Containers	TDS	Chloride	Sulfate	Nitrate	TKN					Analytical Laboratory / Comments
														HEAL Albuquerque NM 2005954
05/20/2020	0855	SSW	SSWWQSP6AR33N1	1	x	x	x	x						use for MS/MSD -015 ~~-014~~
05/20/2020	0857	SSW	SSWWQSP6AR33N2	1				x	x					-015

Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)
Allen Hall 05/20/2020 1157			
Relinquished By: (Signature, Date/Time)	**Received By: (Signature, Date/Time)**	**Relinquished By: (Signature, Date/Time)**	**Received at Laboratory: (Signature, Date/Time)**
			IDB 5/21/20/7:30

Requested Turnaround Time: 30 Days

☒ **Routine** ☐ **Rush** _____

Sample Disposal:

☐ **Return to Client** ☒ **Disposal by Lab**

Carrier / Airbill No.: FEDEX

8131 0130 5468

Sample Receipt Remarks: 3.4 - 0.1 = 3.3°c

Special Instructions:

Results To:

Brett Seal
RES
PO Box 2078, MS 452-09
Carlsbad, NM 88221-2078

Phone: 575-706-6034 FAX: 575-234-6003

EDD: Brett.Seal@WIPP.ws

WHITE – Analytical Laboratory
DI – Deionized Water
GW – Groundwater

YELLOW – Field Copy
AF – Air Filter(s)
AN – Animal(s)

PINK – Record Copy
SE – Sediment
SO – Soil

SW – Surface Water
VG – Vegetation

Form CofC/RFA, Rev. 0 – NICHOLS PRINTING, INC.

Table 7 - Monitoring Well Water Levels and Chemical Analyses

	Field and General Chemistry Parameters							
Monitoring Site	Sample Date	pH (SU)	Temp. (^{o} C)	Specific Conductivity @ 25^{o} C (µS/cm)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)
PZ-1	05/19/20	6.5	25.72	45,800	NA	**2,010**	**28,200**	**50,900**
PZ-2	NS	NS	NS	NS	NS	NS	NS	NS
PZ-3	NS	NS	NS	NS	NS	NS	NS	NS
PZ-4	NS	NS	NS	NS	NS	NS	NS	NS
PZ-5	05/19/20	6.99	22.98	69,310	NA	545	**7,340**	**11,900**
PZ-6	05/19/20	6.82	25.12	94,400	NA	**979**	**14,900**	**26,600**
PZ-7	05/18/20	6.53	25.02	95,260	NA	**2,750**	**53,900**	**96,100**
PZ-9	05/19/20	6.36	23.11	97,930	NA	**4,920**	**116,000**	**180,000**
PZ-10	05/18/20	7.39	23.85	5,628	NA	216	171	988
PZ-11	05/18/20	6.64	24.05	99,710	NA	**1,620**	**30,100**	**50,600**
PZ-12	05/18/20	6.86	22.39	40,790	NA	558	**3,630**	**7,100**
PZ-13	05/19/20	Bailed			NA	**3,200**	**179,000**	**247,000**
PZ-14	NS	NS	NS	NS	NS	NS	NS	NS
PZ-15	NS	NS	NS	NS	NS	NS	NS	NS
C-2811	05/18/20	7.25	20.90	13,760	NA	323	**879**	**2,380**
C-2505	NS	NS	NS	NS	NS	NS	NS	NS
C-2506	NS	NS	NS	NS	NS	NS	NS	NS
C-2507	05/19/20	6.89	23.55	45,800	NA	**624**	**4,230**	**8,430**
WQSP-6A	05/20/20	6.91	23.07	15,200	4.4 N+N	**1,770**	**314**	**3,460**

Explanation:
NA: Not Analyzed, parameter not required, per permit conditions.
NM: Not Measured, construction activity.
N+N: Nitrate + Nitrite were reported, did not run separate analysis.
NS: Not Sampled, not required per permit conditions
ND: Non-detect
PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty usi
"**Bold**" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Wate

Other	Water Level Monitoring (Ft AMSL)			
TKN (mg/L)	03/05/20-03/07/20	06/24/20-06/25/20		
NA	3371.10	3370.72		-0.38
NS	3370.55	3370.10		-0.45
NS	NM	3370.66		0.00
NS	3366.54	3366.12		-0.42
NA	3371.62	3371.22		-0.40
NA	3369.82	3369.47		-0.35
NA	3378.68	3377.12		-1.56
NA	3362.87	3362.73		-0.14
NA	3367.89	3367.46		-0.43
NA	3374.57	3374.27		-0.30
NA	3356.77	3356.43		-0.34
NA	3357.12	3356.93		-0.19
NS	3354.36	3354.28		-0.08
NS	3383.72	3382.72		-1.00
NA	3346.59	3346.19		-0.40
NS	3367.84	3367.52		-0.32
NS	3368.45	3368.12		-0.33
NA	3365.10	3364.87		-0.23
ND	3195.61	3195.46		-0.15
			AVG	-0.41

ng Low-Flow pumps

er Supply

Discharge to Facultative Lagoon System
July through December 2019

Date	Gallons Domestic	Gallons for the Month	Avg. Gal per day
1/1 - 1/5	96,601		
1/6 - 1/12	56,111		
1/13 - 1/19	64,721		
1/20 - 1/26	44,509		
1/27 - 2/2	58,126	320,068	9,699
2/3 - 2/9	118,764		
2/10 - 2/16	35,911		
2/17 - 2/23	38,563		
2/23 - 3/1	117,909		
		311,147	11,112
3/2 - 3/8	59,658		
3/9 - 3/15	0	*	
3/16 - 3/22	69,075		
3/23 - 3/29	64,780		
		193,513	9,215
3/30 - 4/5	65,089		
4/6 - 4/12	47,317		
4/13 - 4/21	38,299		
4/20 - 4/26	135,255		
		285,960	10,213
4/27 - 5/3	100,221		
5/4 - 5/10	93,676		
5/11 - 5/17	86,479		
5/18 - 5/24	93,274		
5/25 - 5/31	55,077	428,727	12,249
6/1 - 6/7	60,392		
6/8 - 6/14	47,174		
6/15 - 6/21	57,287		
6/22 - 6/28	62,079		
		226,932	8,105
	Total Flow	1,766,347	9,652

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 1/1/2020 End Date: 1/5/2020

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER						R		R		BA		BA		BA	
				FOT	C/O					M		M		MA		MA		M	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]										✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①	NA				①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	64.5					69		64.71		65.8		65.7		66	
456-FIY-010-001 WATER FLOW METER			96601		mk 12/29/19														
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		OOS ②	New Year													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]																
456-FM-045-001 SEWAGE FLOW METER			76672																
($) SEWAGE FLOW READING		N/A	[B]	230	OOS ②					OOS ②		OOS ②		OOS ②		OOS ②		OOS ②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.82					.87		.79		.83		.81		.52	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
① Low level alarm does not illuminate AR # 1930290
② OOS AR # 1933025

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 1-6-20 End Date: 1-12-20

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		MB		MB		MB		[illegible]		MP		[illegible]		[illegible]	
				FOT	C/O	R.T.		[illegible]		[illegible]		R.T.		JB		JB		[illegible]	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①	①		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	66	65		64.9		65		64		67		65		66	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			9660	56111													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			76672	53533													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS ②	OOS ②		0.0.5 ②		OOS ②		OOS ②		OOS ②		OOS ②		OOS ②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.52	.73		.70		.75		.70		.72		.62		.59	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:

① Low level alarm does not illuminate

② OOS

APPROVED FOR USE/DATE: [signature] 4-3-19

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 1-13-2020 End Date: 1-19-2020

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

		SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
DAY		2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
SHIFT			BT		JP		BT		BT		[illegible]		ZP		ZP	
REVIEWER		C/O	EC		EC		JH		EC		JH		[illegible]		[illegible]	
FOT																

ITEM	MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																	
ALTERNATE CMR [D]																	
456-CP-010-01 CONTROL PANEL				✓		✓		✓		✓		✓		✓		✓	
CONTROL PANEL ALARMS [F]		SAT [G]															
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	① 66	① 65		① 64		① 65		① 65		① 65		① 65		
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)		RESET MONDAY [A]		56111	64721												
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		53533	48640												
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B]	230	OOS ②	OOS ①		OOS ①		OOS ②		OOS ①		OOS ②		OOS ①		
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000														
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.5	[C]	1.8	.59	.51		.56		.52		.69		.55		.61		.68

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Low level alarm does not illuminate
② OOS

APPROVED FOR USE/DATE: [signature] 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 01-20-2020 **End Date:** 01-26-2020

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

		SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
DAY		2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
SHIFT			DJ PP		PIP		PIP		PIP		AB				AB	
REVIEWER		C/O	MC		JB		QB		MA		R.T.		DT DP	DT	DT	
FOT													DP 1/24/20			

ITEM	MIN	NORM	MAX													
458, GUARD & SECURITY BUILDING																
ALTERNATE CMR [D]				✓		✓		✓		✓		✓		✓		
456-CP-010-01 CONTROL PANEL																
CONTROL PANEL ALARMS [F]		SAT [G]														
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	① 65	① 65	① 65	① 64	① 65	① 66	① 65	① 64					
456-FIY-010-001 WATER FLOW METER																
RAW WATER GALLONS (gal)	RESET MONDAY [A]			64721	44509											
DOMESTIC WATER GALLONS (gal)	RESET MONDAY [A]			68640	64615											
456-FM-045-001 SEWAGE FLOW METER																
($) SEWAGE FLOW READING	N/A	[B]	230	OOS ②	OOS ②	OOS ②	OOS ②	OOS ②	OOS ②	OOS ②	OOS ②					
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	↓	↓	↓	↓	↓	↓	↓	↓					
HACH TEST KIT																
COLORIMETER FREE Cl_2 (ppm)	0.5	[C]	1.8	.68	.74	.63	.94	1.04	.79	.73	.73					

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
① LOW LEVEL ALARM DOES NOT ILLUMINATE
② OOS

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 1/27/2020 End Date: 2/2/2020

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		(2)		(2)		(2)		(2)							
				FOT	C/O			DP 1/22/20		JG									
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		(1)	(1)		(1)		(1)		(1)		(1)		(1)		(1)	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	64	63		63		63		66		65		65		65	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			44509	58126.60													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			64615	74390.14													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS (2)	OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.73	.79		.77		.53		1.1		.91		.89		.85	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) Low level alarm does not illuminate
(2) AR 1933025 for sewage meter OOS

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 2/3/2020 End Date: 2/9/2020

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		[illegible]		[illegible]		[illegible]		[illegible]		27		PJA		PJP	
				FOT	C/O	[illegible]		RT		[illegible]		[illegible]		JB		ML		JB	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①	①		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	65	65		64		65		65		65		65.6		66	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			58126.60	18764													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			74390.14	61850													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS ②	OOS ②		OOS ②		OOS ②		OOS ②		OOS ②		OOS ②		OOS ②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.85	.86		.85		.80		.82		.92		.87		.52	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Low level alarm does not illuminate
② IAR# 1933025

APPROVED FOR USE/DATE: [signature] 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 2/10/20 End Date: 2/16/20

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
			DAY	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
			SHIFT															
			REVIEWER															
			FOT	C/O														
ITEM	MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]			①		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70		66	65	65		63		64		64		64		64	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]			118764	35911												
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]			61850	55884												
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230		005 ②	005 ②	0062		005 ②		005 ②		005 ②		005 ②		005 ②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000		↓	↓	↓		↓		↓		↓		↓		↓	
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.5	[C]	1.8		.52	.88	.79		.76		.75		.71		.72		021620 .64	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Low Level alarm does not illuminate
② AR# 1933025

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 2/17/2020 End Date: 2/23/2020

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		RP		RP		DJO		AJP		MB		MB		MB	
				FOT	C/O	JB		MC		JB		GB		R.T.		R.T.		JRM	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL					RT 2.10.20														
CONTROL PANEL ALARMS	[F]		SAT [G]		✓①	①		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	64	64		64		64		63		66		65		65	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		35911	38563.0													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		55834	62931.17													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS②	OOS②		OOS②		OOS②		OOS②		OOS②		OOS②		0.0.5.②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.64	.76		.75		.79		.71		.45③		.67		.68	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
① Low level alarm does not illuminate
② AR # 1933025
③ Out of spec. FSM notified, Adding chlorine. CLEARED 2-22-2020

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 2-24-20 End Date: 3-1-20

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
	REVIEWER		(R)		ZP		ZP		ZP		EC BF		EC BF		EC BF	
	FOT	C/O	✓		DP DJ		JG		✓		✓		ZP		JG	

DP 2/24/20

ITEM	MIN	NORM	MAX	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		1	(1)		(1)		(1)		(1)		(1)		(1)		0	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	64	65		65		64		63		66		65		64	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		38963	117909.1													
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		6283.7	6204.6.6													
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	OOS (2)	OOS (2)		OOS (3)		OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000															
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.5	[C]	1.8	.76	.64		.59		.55		.50		.68		.54		.88	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:

① Low level Alarm does not Illuminate
② AR # 1933625

APPROVED FOR USE/DATE: 4-3-19

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 030220 End Date: 030820

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O														
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①	①		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	64	67		65		66		64		65		66		66	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			117909.1	59658													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			62046.6	63830													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS ②	OOS ②		OOS ②		O.O.S ②		OOS ②		OOS ②		OOS ②		OOS ②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.88	.75		.74		.95		.91		.67		.76		.79	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① LOW LEVEL ALARM DOES NOT ILLUMINATE
② AR # 1933025

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 3/9/20 End Date: 3/15/20

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O	JG				JG		JG							
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		0	1		1 3		1 3		1 3		0 2		1		1	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	66	3		3		3		3		3		4		4	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		59658	3													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		638.30	↓													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS ✓	OOS ↓		OOS ↓		OOS ↓		OOS ↓		OOS ✓		OOS ↓		OOS ↓	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.79	.61		.54		.56		.53		.55		.71		.67	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) Low Level Alarm Does not Illuminate
(2) AR# 1933025
(3) NRT due to planned outage.
(4) PIC-010-01 is OOS causing a Low Low Alarm, A.R.# 2035999

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 3-16-2020 End Date: 3-23-2020

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
	REVIEWER		PJP		PJP		~~PJP~~		PJP		YB		YB		YB	
	FOT	C/O	JB		QB T. 3-16-20	@ 3-17-20	~~MK~~		JB		3m		R.T.		OT	

ITEM	MIN	NORM	MAX	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		①	①		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	③	③ 005		005 ③		005 ②		005 ③		0.0.S. ③		005 ③		005 ③	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		59658	69075													
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		63830	76624													
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	005 ②	005 ②		005 ②		005 ②		005 ②		0.0.S. ②		005 ②		005 ②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000															
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.5	[C]	1.8	.67	.52		.65		.71		.54		.64		.55		.60	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① LOW LEVEL ALARM DOES NOT ILLUMINATE.
② AR # 19330254
③ PIC-010-01 005 AR 2035-899

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY Start Date: 3-23-2020 End Date: 3-29-2020

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
			DAY	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
			SHIFT		RP		B		B		RP							
			REVIEWER										JG					
			FOT	C/O														
ITEM	**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]																		
456-CP-010-01 CONTROL PANEL					✓		✓		✓		✓		✓		✓		✓	
CONTROL PANEL ALARMS [F]		SAT [G]																
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70															
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		69075	64780													
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		76524	59079													
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230															
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000															
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.5	[C]	1.8	.60	.65		.61		.68		.66		.56		.25 (4)		.75	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
(1) LOW LEVEL ALARM DOES NOT ILLUMINATE
(2) AR # 1933025
(3) PIC-010-01, OOS, AR # 2035899
(4) NEED to Add CHLORINE, but NO WATER Eng on SITE (Added chlorine PER WE) — Cleared 3-29-20 JG

APPROVED FOR USE/DATE: 4-3-19

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 3/30/2020 **End Date:** 4/5/2020

COPY

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
	REVIEWER		MB		JC		MB		MB		RP		DT			
	FOT	C/O	DT		JC		KM		DT		MA		JB		98	

ITEM	MIN	NORM	MAX	SUN	MON 1	MON 2	TUES 1	TUES 2	WED 1	WED 2	THURS 1	THURS 2	FRI 1	FRI 2	SAT 1	SAT 2	SUN 1	SUN 2
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]			(1)	(1)	(1)		(1)		(1)		(1)		(1)		(1)	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70		OOS (2)	OOS (3)	OOS (3)		0.0.5 (3)		OOS (3)		OOS (3)		OOS (3)		OOS (3)	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]			64780	65089												
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]			59074	59588												
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230		OOS (2)	OOS (2)	OOS (2)		0.0.5 (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000		↓	↓	↓		↓		↓		↓		↓		↓	
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.5	[C]	1.8		.75	.80	.81		.87		.80		0.70		.58		.62	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
(1) Low level alarm does not illuminate
(2) AR # 1933025
(3) PIC-010-01 OOS AR # 2035899
~~(1) n/a~~ DP 8/31/20

APPROVED FOR USE/DATE: [signature] 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 4/6/2020 End Date: 4/12/2020

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		EC		EC		EC		EC		R		R		R	
				FOT	C/O			DT				DT							
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]			(1) 005 (3)	(1) 005 (3)	(1) 005 (3)		(1) 005 (3)		(1) 005 (3)		(1) 005 (3)		(1) 005 (3)		(1) 005 (3)	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70															
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			650894	7317													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			595885	3318													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	(2) 005	(2) 005		(2) 005		(2) 005		(2) 005		(2) 005		(2) 005		(2) 005	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.62	.62		.72		.71		.61		.86		.66		.79	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
(1) LOW LEVEL ALARM DOES NOT ILLUMINATE
(2) AR# 1933025
(3) PIC-010-01 VOS AR# 2035899

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 04-13-2020 End Date: 04-19-2020

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		DT		DS		RP		DT							
				FOT	C/O	9B		JB		9B		RJL		HB3				km	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]			①	①		①		①		①		①		①		①
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70		OOS ③	OOS ③		OOS ③		OOS ③		OOS ③		OOS ③		OOS ③		OOS ③
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]			97317	38299												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]			53318	53143												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230		OOS ②	OOS ②		OOS ②		OOS ②		OOS ②		OOS ②		OOS ②		OOS ②
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000		↓	↓		↓		↓		↓		↓		↓		↓
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8		.79	.77		.62		.71		.69		.83		.83		.93

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:

① LOW LEVEL ALARM DOES NOT ILLUMINATE
② AR#1933025
③ PIC-010-01 VOS AR#2035899

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 4-20-2020 End Date: 4-26-2020

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		B		B		RP		B		EC		EC		EC	
				FOT	C/O	JG				JG				DT				DT	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]			1		1		1		1		1		1		1	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70		005 3	005 3	005 3		005 3		005 3		005 3		005 3		005 3	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		38099	155255													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		53143	55696													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	005 3	005 2		005 2		005 3		005 2		005 2		005 3		005 2	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.83	.67		.82		.69		.67		.65		.58		1.06	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
1. Low level alarm does not illuminate
2. AR # 1933025 Sewage Flow Meter Not working
3. PIC-010-01 V05 AR# 2035899 Digital gauge Not working

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 4/27/2020 End Date: 5/3/2020

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		AB		RB		JR		JR		RP		RP		RP	
				FOT	C/O	JRm				JRm				DP		GB		JB	
ITEM		MIN	NORM	MAX	DP 4/30/20														
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		(1)	(1)		(1)		(1)		(1)		(1)		(1)		(1)	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	OOS (3)	0.0.S (3)		OOS (3)		0.0.S (3)		OOS (3)		OOS (3)		OOS (3)		OOS (3)	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			135255	100221.76													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			53696	60232.76													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS (2)	0.0.S (2)		OOS (2)		0.0.S (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	1.06	1.09		.90		.95		.83		.94		.86		.83	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:

1. Low Level Alarm does not illuminate.
2. AR# 1933025 Sewage Flow meter not working
3. PIC-010-01 005 AR# 2035899 Digital gauge Not Working

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 5-4-2020 End Date: 6-10-2020

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		EC		RV		EC		EC		G		G		G	
				FOT	C/O	RV		DT		D		DT		E		E		E	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①	①		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	005 ④	005 ③		005 ③		005 ⑤		005 ⑦		005 ⑤		005 ⑤		005 ⑧	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			100221	93676													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			60252	80642													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	005 ②	005 ②		005 ②		005 ②		005 ④		005 ②		005 ②		005 ②	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.83	.85		.74		.70		.69		.60		66 .60 5/18/20		.96	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:

1. Low Level Alarm does not Illuminate
2. AR# 1933025 Sewage flow meter not working
3. PIC-010-01 005 AR# 2035899 Digital gauge Not work

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 5-11-2020 **End Date:** 5-17-2020

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

			SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
DAY			2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
SHIFT																	
REVIEWER				DJ		JB		JB		DJ							
FOT			C/O							JB							
ITEM	**MIN**	**NORM** / **MAX**															
458, GUARD & SECURITY BUILDING																	
ALTERNATE CMR [D]				✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																	
CONTROL PANEL ALARMS [F]		SAT [G]		(1)	(1)	(1)		(1)		(1)		(1)		(1)		(1)	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E] 70		OOS (3)	OOS (3)	OOS (3)		OOS (3)		OOS (3)		A.O.S (3)		OOS (3)		OOS (3)	
456-FIY-010-001 WATER FLOW METER																	
RAW WATER GALLONS (gal)		RESET MONDAY [A]		93676	86479												
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		80642	75852												
456-FM-045-001 SEWAGE FLOW METER																	
($) SEWAGE FLOW READING	N/A	[B] 230		OOS (2)	OOS (2)	OOS (2)		OOS (2)		OOS (2)		O.O.S (2)		OOS (2)		OOS (2)	
[NMED, DP-831] **Max 23,000 gal** (Reading × 100)		23,000		↓	↓	↓		↓		↓		↓		↓		↓	
HACH TEST KIT																	
COLORIMETER FREE Cl_2 (ppm)	0.5	[C] 1.8		.96	.95	.87		1.0		.73		.70		.71		.68	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
(1) Low Level Alarm does Not Illuminate
(2) AR# 1933025 Sewage Flow Meter Not Working
(3) PIC-010-01, OOS, AR# 2035899 Digital gauge does not work

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 5/18/20 End Date: 5/24/20

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
	REVIEWER		(B)		(B)		(B)		(B)		RV		EC		EC	
	FOT	C/O	(M)		RP		(M)		(X)		DT		DT		DT	

ITEM	MIN	NORM	MAX	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		(1) OOS (2)	(1) OOS (2)		(1) OOS (2)		(1) OOS (2)		(1) OOS (2)		(1) OOS (2)		(1) OOS (2)		(1) OOS (2)	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70															
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)	RESET MONDAY [A]			864793274														
DOMESTIC WATER GALLONS (gal)	RESET MONDAY [A]			758526784														
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	(3) OOS ↓	(3) OOS ↓		(3) OOS ↓		(3) OOS ↓		(3) OOS ↓		(3) OOS ↓		(3) OOS ↓		(3) OOS ↓	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000															
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.5	[C]	1.8	.68	.68		0.66		.68		.64		1.0		.69		.68	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: 1. Low level alarm does not illuminate.
2. PIC-010-01, OOS AR # 203589 Digital gauge does not work
3. AR # 1933025 Sewage flow meter not working

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 052520 End Date: 053120

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
	REVIEWER		BB		JS		BB		JS		DJ		ZP		ZP	
	FOT	C/O	ST		ST BB		ST		ST BB		JB		JB		MS GB	

ITEM		MIN	NORM	MAX	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]			1		1		1		1		1		1		1	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	60S 2	60S 2		60S 2		60S 2		60S 2		60S 2		60S 2		60S 2	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		93274	55077													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		67684	71136													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	00S 3	00S 3		00S 3		00S 3		00S 3		00S 3		00S 3		00S 3	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.68	.67		.81		.81		.91		.69		.78		.72	

NOTES:
- [A] - RESET meter after taking the reading on Monday.
- [B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
- [C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
- [D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
- [E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
- [F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
- [G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
(1) LOW LEVEL ALARM DOES NOT ILLUMINATE
(2) AR # 2035899 DIGITAL GUAGE OOS
(3) AR # 1933025 FLOW METER NOT WORKING

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 6-1-2020 End Date: 6-7-2020

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		EG		EC		WJ		RJ		②		②		②	
				FOT	C/O	LT		DT		DT		DT		①		①		①	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		④		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]																
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70		① OOS ③	① OOS ②	① OOS ④		① OOS ②		① OOS ③		① OOS ②		① OOS ②		① OOS ②	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			55077	60391.9													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			71136	73045.5													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS ③ ↓	OOS ③ ↓		OOS ③ ↓		OOS ③ ↓		OOS ③ ↓		OOS ③ ↓		OOS ③ ↓		OOS ③ ↓	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.72	.83		.77		.88		.55		.61		.84		.82	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
① Low level Alarm does not Illuminate
② AR# 2035894 Digital gauge OOS
③ AR# 1933025 Flow meter not working
④ CMS outage due to software upgrade

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 6/8/20 End Date: 6/14/20

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		DJ		DJ		DJ		DJ		RP		RP		DJ	
				FOT	C/O	(1)		93		JB		93				Kim		(1)	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		(1)	(1)		(1)		(1)		(1)		(1)		(1)		(1)	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	005 (3)	005 (2)		005 (2)		005 (2)		005 (2)		005 (2)		0.0.5 (2)		005 (2)	
456-FIY-010-001 WATER FLOW METER					60716.9														
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			~~005~~ (3)	47174													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			↓	61223		↓											
456-FM-045-001 SEWAGE FLOW METER					23045.8														
($) SEWAGE FLOW READING		N/A	[B]	230	005 (3)	005 (3)		005 (3)		005 (3)		005 (3)		005 (3)		0.0.5 (3)		005 (3)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.82	.93		.93		.55		.90		.91		1.02		1.04	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
(1) LOW LEVEL ALARM DOES NOT ILLUMINATE
(2) AR# 2035899 DIGITAL GAUGE 005
(3) AR# 1933025 FLOW METER NOT WORKING

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 06-15-2020 End Date: 06-21-2020

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O											EC		EC	
																RJ		RJ	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]																
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70		005	005	005		005		005		005		005		005	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]			47174	57287												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]			61223	64237												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230		005	005	005		005		005		005		005		005	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8		1.04	.97	.71		.98		1.20		1.4		1.08		.98	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
1. Low level alarm does not illuminate
2. AR # 2035899 Digital gauge OOS
3. AR # 1933025 Flow meter not working.

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 6-22-20 End Date: 6-28-20

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O														
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING										DP 6/23/20									
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]																
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70															
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]			57287	62079												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]			64233	66645												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230															
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8		.98	.65	1.12		1.03		1.22		1.12		.76		.53	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
1. Low Level Alarm Does Not illuminate.
2. AR# 2035899 Digital gauge OOS.
3. AR# 1933025 Flow Meter Not Working

APPROVED FOR USE/DATE: 4-3-19

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221
January 29, 2021

Ms. Michelle Hunter, Bureau Chief
New Mexico Environment Department
Ground Water Quality Bureau
Harold Runnels Building
1190 Saint Francis Drive
P.O. Box 5469
Santa Fe, NM 87502

Subject: Semi-Annual Discharge Monitoring Report for July 1 through December 31, 2020, Discharge Permit DP-831

Dear Ms. Hunter:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Discharge Monitoring Report, including the required enclosures on compact disc, for the period of July 1 through December 31, 2020. This report is required by Discharge Permit DP-831.

If you have any questions about this report or require any additional information, please contact me at (575) 706-0072.

Sincerely,

Michael Brown Digitally signed by Michael Brown
Date: 2021.01.28 17:11:55 -07'00'

Michael R. Brown, Director
Office of Environmental Protection

Enclosures (2)

cc: w/o enclosures
R. Maestas, NMED *ED
A. Young, NMED ED
CBFO M&RC
*ED denotes electronic distribution

CBFO:OEP:MRB:MC:21-0201:UFC 5486.00

Waste Isolation Pilot Plant
Semi-Annual Discharge Monitoring Report for Discharge Permit DP-831 for Reporting Period July 1, 2020 through December 31, 2020

U.S. Department of Energy

January 2021

This report has been reviewed and approved by:

Print/Signature	Date

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2020 THROUGH DECEMBER 31, 2020

REPORTING REQUIREMENTS OF DP-831 OPERATIONAL PLAN

Part B. Applicable to the Facultative Lagoon System

Condition 8. *– The permittee shall measure the thickness of the sludge blanket in each pond of the Facultative Lagoon System once within the effective term of this Discharge Permit, but before the end of 2018. When sludge accumulation exceeds 1/3 of the total depth of any pond, the permittee shall remove the sludge in a manner, which is protective of the pond liner. Removed solids shall be contained, transported, and disposed of in accordance with all local, state, and federal regulations. The permittee shall maintain solids blanket measurements and solids disposal manifests for solids transported from the facility for off-site disposal. The permittee shall submit all measurements and manifests to NMED in the semi-annual monitoring report immediately following the solids thickness measurement.*

Sludge measurements were performed on the Facultative Lagoon System ponds in 2017. The measurements were submitted to the New Mexico Environment Department (NMED) in the second semi-annual report for 2017. This completes the requirement to sample the sludge once within the effective term of this discharge permit.

Part D. Applicable to the Storm Water Runoff Impoundments in Contact with Salt Stockpiles (Salt Storage Ponds 1, 2, and 3) and Salt Stockpiles (Salt Cells 1, 2, and 3).

Condition 9. *– The permittee shall measure the thickness of the solids blanket in each impoundment once within the effective term of this Discharge Permit, but before the end of 2018. Removed solids shall be contained, transported, and disposed of in accordance with all local, state, and federal regulations. The permittee shall maintain solids blanket measurements and solids disposal manifests for solids transported from the facility for off-site disposal. The permittee shall submit all measurements and manifests to NMED in the semi-annual monitoring report immediately following the solids thickness measurement.*

The measurement results were submitted to the NMED in the first semi-annual report for 2018. The contract for the removal of sludge from Salt Storage Ponds 2 has been rebid. Salt Cells 1 and 3 do not require sludge removal.

Condition 10. *– The permittee shall inspect the leak detection systems for Salt Storage Ponds 2 and 3 on a monthly basis for the presence of liquid. The permittee shall keep a log of the inspection findings and repairs made. The inspection log, including a statement whether or not liquids were observed in the leak detection systems, shall be submitted to NMED in the semi-annual monitoring reports.*

Monthly inspections of the Salt Storage Pond 2 and 3 leak detection systems were performed during the reporting period. Water was observed in both of the leak detection systems. The sumps of Salt Storage Pond 2 was pumped in October, and Salt Storage Pond 3 was pumped in October and November. A total of 31,350 gallons were pumped from the Salt Storage Pond 2 sump, whereas a total of 18,450 gallons were pumped from the Salt Storage Pond 3 sump. The average leakage rates were calculated to be 99 gallons per day from Salt Storage Pond 2, and 79 gallons per day from Salt Storage Pond 3 since the last time the

sumps were pumped in December 2019 and March 2020 respectively. The Action Leakage Rate for Salt Storage Pond 2 is 706 gallons per day and 1,880 gallons per day for Salt Storage Pond 3. Both of the leakage rates were well below the Action Leakage Rate using U.S. Environmental Agency (EPA) Standard EPA 530-R-92-004, NTIS #PB 92-128 214. Therefore, no excessive leakage rates were determined. Sump water depth can be found in Table 1. The Sump Inspection Log can be found on the CD titled "Salt Pond Sump Inspection Log 2nd Half of 2020.pdf."

Table 1 – Sump Water Depth

Pond	July 7/22/2020	August 8/5/2020	September 9/8/2020	October 10/12/2020	November 11/11/2020	December 12/09/2020
Salt Storage Pond 2 Sump	33.09 ft	33.45 ft	34.56 ft	35.18 ft	35.17 ft	35.12 ft
Salt Storage Pond 3 Sump	36.14 ft	36.76 ft	37.83 ft	38.83 ft	51.41 ft	39.12 ft

There were no repairs required to the leak detection systems during this reporting period.

Condition 11. *– The permittee shall conduct regular maintenance of the earthen cover on the Salt Cell 1, and SPDV material pile. Inspections shall be conducted monthly and after storm events of 2 inches or greater in a 24-hour period to evaluate potential erosion and vegetation success of the cover. In the event of significant erosion or failure of vegetative success, the permittee shall provide a plan and schedule for repair within 90 days of discovery. General observations and cover repair shall be reported to NMED.*

The monthly inspections of the earthen cover of the Salt Cell 1 and the Site and Preliminary Design Validation (SPDV) material pile resulted in the following observations. The soil cover overlying the synthetic liner on both piles was noted as needing minor repair. Some small holes in the liner in the spillway of Salt Cell 1 were also noticed. Action Requests were written to address these irregularities.

There were no rain events of 2 inches or greater in a 24-hour period in this reporting period.

REQUIREMENTS OF DP-831 MONITORING AND REPORTING SECTION

Part B. Applicable to the Facultative Sewage Lagoon System

Condition 15. *– The volume of domestic influent discharged to the Facultative lagoon System shall be measured monthly using a totalizing flow meter on the influent line to the system or the totalizing meter that measures total domestic water usage. Volumes of other authorized discharges to the Facultative Lagoon System shall be calculated by a time/volume method or volumetric measurement of the transport container(s). NMED may require comprehensive laboratory analyses of such wastewater prior to discharge when NMED determines that additional information is needed. Monthly meter readings, the units of measurement, monthly discharge volumes and other volumetric calculations for the previous 6-month period shall be submitted to NMED semi-annually in the monitoring reports.*

Table 2 shows the volume of water discharged to the Facultative Lagoon System for this reporting period. Discharged water volume is based on total domestic water use. No miscellaneous non-hazardous water was discharged to Evaporation Lagoons B or C.

Table 2 – Discharge to Facultative Lagoon System

Month (2020)	Volume (gallons)
July	340,632
August	256,844
September	256,844
October	397,399
November	272,472
December	350,685
Total	**1,874,876**

Weekly meter readings of the domestic water meter are found on the accompanying CD as a pdf file named "Water Discharge to Facultative System 2nd Half of 2020.pdf."

Condition 16. *– The permittee shall collect a wastewater sample on a semi-annual basis (once every six months) from the influent to the Facultative Lagoon System. The grab sample shall be analyzed for TKN, NO_3-N, SO_4, TDS, and Cl. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.*

Samples were collected from the Settling Lagoon 2 influent, which is the influent to the Facultative Lagoon System. Analytical Results are shown in Table 3.

Table 3 – Facultative Lagoon System Influent Analytical Data

Analyte	Sample Date	Settling Lagoon 2 Concentration (mg/L)
TKN	11/11/2020	66
NO_3-N	11/11/2020	0.143
SO_4	11/11/2020	43.3
TDS	11/11/2020	445
Cl	11/11/2020	74

TKN: Total Kjeldahl nitrogen
TDS: Total dissolved solids
NO_3-N: Nitrate-Nitrogen
SO_4: Sulfate
Cl: Chloride

Analytical results and Quality Assurance/Quality Control (QA/QC) Summary Report for the Facultative Lagoon System are found as a pdf file on the accompanying CD named "Facultative Lagoon and H-19 Analytical and QA-QC.pdf."

Part C. Applicable to the Evaporation Pond H-19 and Storm Water Impoundments Not in Contact with Salt Stockpiles (Storm Water Ponds 1, 2, and 3)

Condition 17. *– The volume and origin of all wastewater discharged to the Evaporation Pond H-19 that is derived from miscellaneous non-hazardous sources shall be measured monthly and reported to NMED. Discharge volumes to the Evaporation Pond H-19 shall be calculated by a time/volume method or volumetric measurement of the transport container(s). NMED may require comprehensive laboratory analyses of such wastewater prior to discharge when NMED determines that additional information is needed. Monthly discharge volumes and other volumetric calculations for the previous 6-month period shall be submitted to NMED semi-annually in the monitoring reports.*

Table 4 shows the volume of miscellaneous non-hazardous water discharged to Evaporation Pond H-19 for this reporting period. This water is from Miscellaneous Wastewater (MW), and Waste Shaft sump water (WS).

Table 4 – Discharge to H-19 Evaporation Pond

Month (2020)	Volume (gallons)	Water Origin
July	0	-
August	1,025	MW & WS
September	0	-
October	0	-
November	0	-
December	1,200	WS
Total	**2,225**	

The volumetric calculations for Table 4 can be found on the CD titled "EP H-19 Disposal Report.pdf."

Condition 18. *– A sample shall be collected semi-annually from the Evaporation Pond H-19 and analyzed for SO_4, Cl, and TDS. Samples shall be collected annually after a significant storm event from each of the storm water ponds, Storm Water Ponds 1, 2, and 3 and analyzed for SO_4, Cl, and TDS. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring report.*

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

No significant storm events occurred during this reporting period. There were no storm events of moderate intensity that occurred during this reporting period. Since the Storm Water Ponds and EP H-19 were dry at the time of sampling (see Table 6), no samples from these Ponds were taken, as shown in Table 5.

Table 5 – Storm Water Ponds and Evaporation Pond H-19 Analytical Data (July to December 2020)

Analyte	Sample Date	Evaporation Pond H-19	Storm Water Pond 1	Storm Water Pond 2	Storm Water Pond 3
SO_4 (mg/L)	NA	NS	NS	NS	NS
Cl (mg/L)	NA	NS	NS	NS	NS
TDS (mg/L)	NA	NS	NS	NS	NS

NA – Not Applicable
NS – Not Sampled

Analytical results and QA/QC Summary Report for the Storm Water Ponds are not attached since no samples were taken.

Condition 19. *– The water depth shall be measured monthly to the nearest tenth of a foot (0.1 ft) in the Storm Water ponds 1, 2, and 3. The approximate volume of storm water shall be calculated and submitted to NMED in the semi-annual monitoring reports.*

Table 6 summarizes the water depths and volumes in the three storm water ponds for the reporting period.

Table 6 – Storm Water Ponds Depths and Volumes

	July 07/14/2020	August 08/11/2020	September 09/15/2020	October 10/20/2020	November 11/162020	December 12/16/2020
Storm Water Pond 1						
Water Depth (ft)	0.0	0.0	0.0	0.0	0.0	0.0
Water Volume (gal)	0	0	0	0	0	0
Storm Water Pond 2						
Water Depth (ft)	0.0	0.0	0.0	0.0	0.0	0.0
Water Volume (gal)	0	0	0	0	0	0
Storm Water Pond 3						
Water Depth (ft)	0.0	0.0	0.0	0.0	0.0	0.0
Water Volume (gal)	0	0	0	0	0	0

No rain events occurred during this reporting period at such a rate to accumulate water.

Part D. Applicable to the Storm Water Runoff Impoundments in Contact with Salt Stockpiles (Salt Storage Ponds 1, 2, and 3) and Salt Stockpiles (Salt Cells 1, 2, and 3)

Condition 20. *– A sample shall be collected annually after a significant storm event from each of the Salt Storage Cells 1, 2, and 3 and analyzed for SO_4, Cl, and TDS. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.*

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

No significant storm events occurred during this reporting period. There were no storm events of moderate intensity that occurred during this reporting period. Therefore, no samples from the Storm Water Ponds were taken, as shown in Table 7 as no water had accumulated to sample.

Table 7 – Salt Storage Ponds Analytical Data

Analyte	Salt Storage Pond 1	Salt Storage Pond 2	Salt Storage Pond 3
SO_4 (mg/L)	NS	NS	NS
Cl (mg/L)	NS	NS	NS
TDS (mg/L)	NS	NS	NS

Analytical results and QA/QC Summary Report for Evaporative Pond H-19 are not attached since no samples were taken.

Condition 21. *The water depth shall be measured monthly to the nearest tenth of a foot (0.1 ft) in the Salt Storage Ponds 1, 2, and 3. The approximate volume of storm water shall be calculated and submitted to NMED in the semi-annual monitoring reports.*

Table 8 summarizes the water depths and volumes in the three Salt Storage Ponds for the reporting period.

Table 8 – Salt Storage Ponds Depths and Volumes

	July 07/14/2020	August 08/11/2020	September 09/15/2020	October 10/20/2020	November 11/16/2020	December 12/16/202020
Salt Storage Pond 1						
Water Depth (ft)	0.0	0.0	0.0	0.0	0.0	0.0
Water Volume (gal)	0	0	0	0	0	0
Salt Storage Pond 2						
Water Depth (ft)	0.0	0.0	0.0	0.0	0.0	0.0
Water Volume (gal)	0	0	0	0	0	0
Salt Storage Pond 3						
Water Depth (ft)	4.86	4.1	3.5	3.1	3.1	2.9
Water Volume (gal)	5,605,923	4,460,857	4,004,231	3,546,604	3,546,604	3,317,791

Ground Water Monitoring and Reports

Condition 22. *– Depth to the water table shall be measured to the nearest hundredth of a foot (0.01 ft) quarterly in the piezometers/monitoring wells:*

- *PZ-1, PZ-2, PZ-3, PZ-4, PZ-5, PZ-6, PZ-7, PZ-8, PZ-9, PZ-10, PZ-11, PZ-12, PZ-13, PZ-14 and PZ-15*
- *C-2505, C-2506, C-2507, C-2811, and WQSP-6A*

For depth to the water in the piezometer and monitoring wells, see Table 9 – Monitoring Well Water Levels and Chemical Analyses.

Condition 23. *– The permittee shall perform semi-annual ground water sampling in the following piezometers/monitoring wells and analyze the samples for temperature, pH, specific conductance, SO4, TDS, and Cl:*

- *Piezometers: PZ-1, PZ-5, PZ-6, PZ-7, PZ-9, PZ-10, PZ-11, PZ-12, and PZ-13*
- *Monitoring Wells: C-2507, C-2811, and WQSP-6A*

Ground water sample collection, preservation, transport and analysis shall be performed according to the following procedure:

a) Measure the depth-to-most-shallow ground water from the top of the well casing to the nearest hundredth of a foot.
b) Purge three well volumes of water from the well prior to sample collection.
c) Obtain samples from the well for analysis.
d) Properly prepare, preserve and transport samples.
e) Analyze samples in accordance with the methods authorized in this Discharge Permit.

Depth-to-most-shallow ground water measurements, analytical results, including the laboratory QA/QC summary report, and a facility layout map showing the location and number of each well shall be submitted to NMED in the semi-annual monitoring reports.

Water levels in the shallow wells were obtained September 3-8, 2020 and December 8-9, 2020. Water levels are included in Table 9 – Monitoring Well Water Levels and Chemical Analyses. These were taken in accordance with quarterly milestones outlined in the Ground Water Monitoring Schedule specified in the Discharge Permit renewal, DP-831, dated July 29, 2014. During the reporting period, the water levels at the shallow subsurface water (SSW) monitoring points showed an average decrease in elevation of 0.32 feet. The drop in water elevation over this reporting period is most likely due to below average precipitation rates during 2020.

The SSW piezometers and monitoring wells, required to be sampled according to Condition 23, were sampled for field and general chemistry parameters in November 2020. Five locations were sampled on November 2, 2020, six on November 3, 2020, and one on November 4, 2020. Results for the field sampling parameters and laboratory analyses are presented in Table 9.

Analytical results and QA/QC Summary Report are found on the accompanying CD as a pdf file named "Shallow Surface Water Analytical and QA-QC.pdf."

Condition 24. *– The permittee shall perform semi-annual ground water sampling from monitoring well WQSP-6A and analyzed for TKN and NO3. Samples shall be properly prepared, preserved, transported and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results shall be submitted to NMED in the semi-annual monitoring reports.*

Analytical results, including the laboratory QA/QC summary report, shall be submitted to NMED in the semi-annual monitoring reports.

WQSP-6A was sampled on November 4, 2020. Sulfate, chloride, and total dissolved solids were detected in WQSP-6A samples at concentrations above standards of 20.6.2.3103 NMAC, Standards for Ground Water of 10,000 mg/L TDS Concentration or Less for Human Health and Domestic Water Supply. Although the concentrations were higher than the standards, they are less than background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285). Nitrate was also detected but did not exceed the standard. Total Kjeldahl Nitrogen was below the detection limit of 1 mg/L. The SSW identified at the Waste Isolation Pilot Plant facility has not impacted the Dewey Lake groundwater in WQSP-6A based on the consistency of analyzed parameters in this well.

For WQSP-6A analytical results, see Table 9.

Analytical results and QA/QC Summary Report for WQSP-6A samples are found on the accompanying CD as a pdf file named "Shallow Surface Water Analytical and QA-QC.pdf."

Condition 25. *– Hydrographs shall be submitted annually for all monitoring wells and piezometers covered under Condition 22 of this Discharge Permit. At a minimum, graphs shall include the previous five years of water level data, or for recently installed wells, all data since the well was installed. Data for several wells may be included on one graph.*

The hydrographs of all monitoring wells and piezometers are included in this 2020 semi-annual report (see Attachment 1).

Condition 26. *– A potentiometric map for facility area shall be submitted annually. The map shall incorporate the most recent water level data for all monitoring wells and piezometers installed in the shallow subsurface water (SSW).*

The potentiometric surface for the SSW using December 2020 data is presented in Figure 2. The interpolated contours were generated using *SURFER*, Version 19, surface mapping software by Golden Software. Fifteen data points were used in the contour development, whereas the contours around the SPDV salt pile were estimated by hand.

Condition 27. *– A single table in a paper and electronic format (EXCEL spreadsheet) of water level measurements and water quality data with only those constituents analyzed and water levels measured during a single event shown in columns. Tabulated field measurements to include temperature, pH, and electrical conductivity corrected*

to 25 degrees Celsius. Monitoring sites shall be shown in rows. The second column shall contain the date of the sampling event. Values exceeding standards shall be bolded. Any constituent not analyzed for a particular site shall be shown as "NA", any site not sampled shall be shown as "NS" with an associated reason, and any site not measured for water levels shall be shown as "NM" with an associated reason.

Table 9 – Monitoring Well Water Levels and Chemical Analyses is included in paper form in this report and in electronic Excel format on the accompanying CD. The Excel file name on the CD is "Table 9 – Monitoring Well Water Levels and Chemical Analyses." Electrical conductivity is listed as specific conductivity in this table.

Condition 28. *– A single table that includes all available ground water data to date shall be submitted annually. For each monitoring well, the name of the well shall be entered in the far left column in a row by itself. Sampling events, beginning with the earliest event first, shall be entered in subsequent rows with the sampling date in the second column and the corresponding analytical data in columns further to the right. Each new sampling event shall be added as an additional row to the existing spreadsheet with the corresponding date of the sampling event noted in the second column next to the monitoring well name.*

Available ground water analytical data to date are included in this second semi-annual report for 2020 (see Table 10).

Condition 45. *– In the event the permittee implements changes to the wastewater system authorized by this Discharge Permit which result in only a minor effect on the character of the discharge, the permittee shall report such changes (including submission of record drawings, where applicable) as of January 1 and June 30 of each year to the NMED.*

There were no changes to the wastewater system authorized by this Discharge Permit during this reporting period.

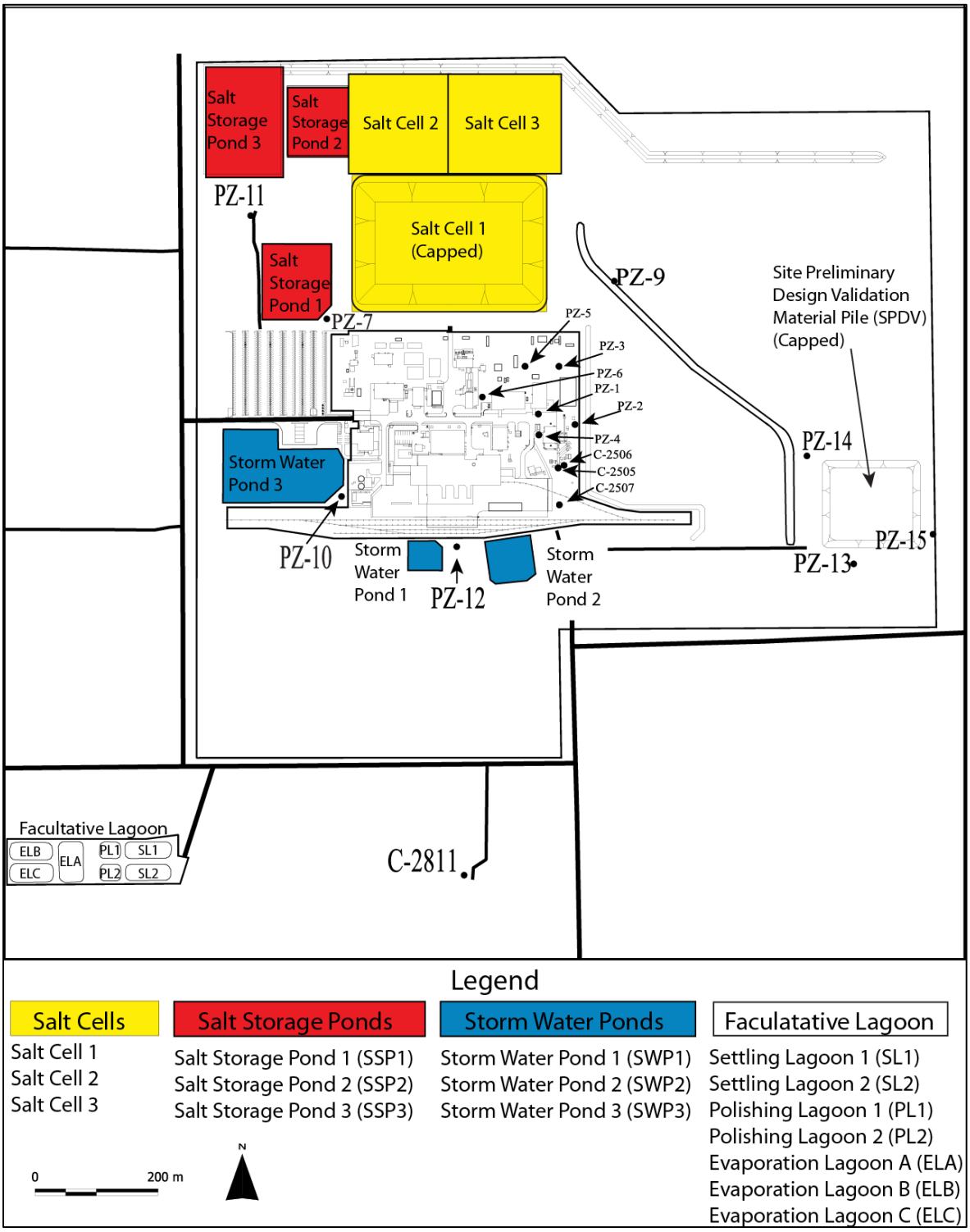


Figure 1 – Well and Pond Locations

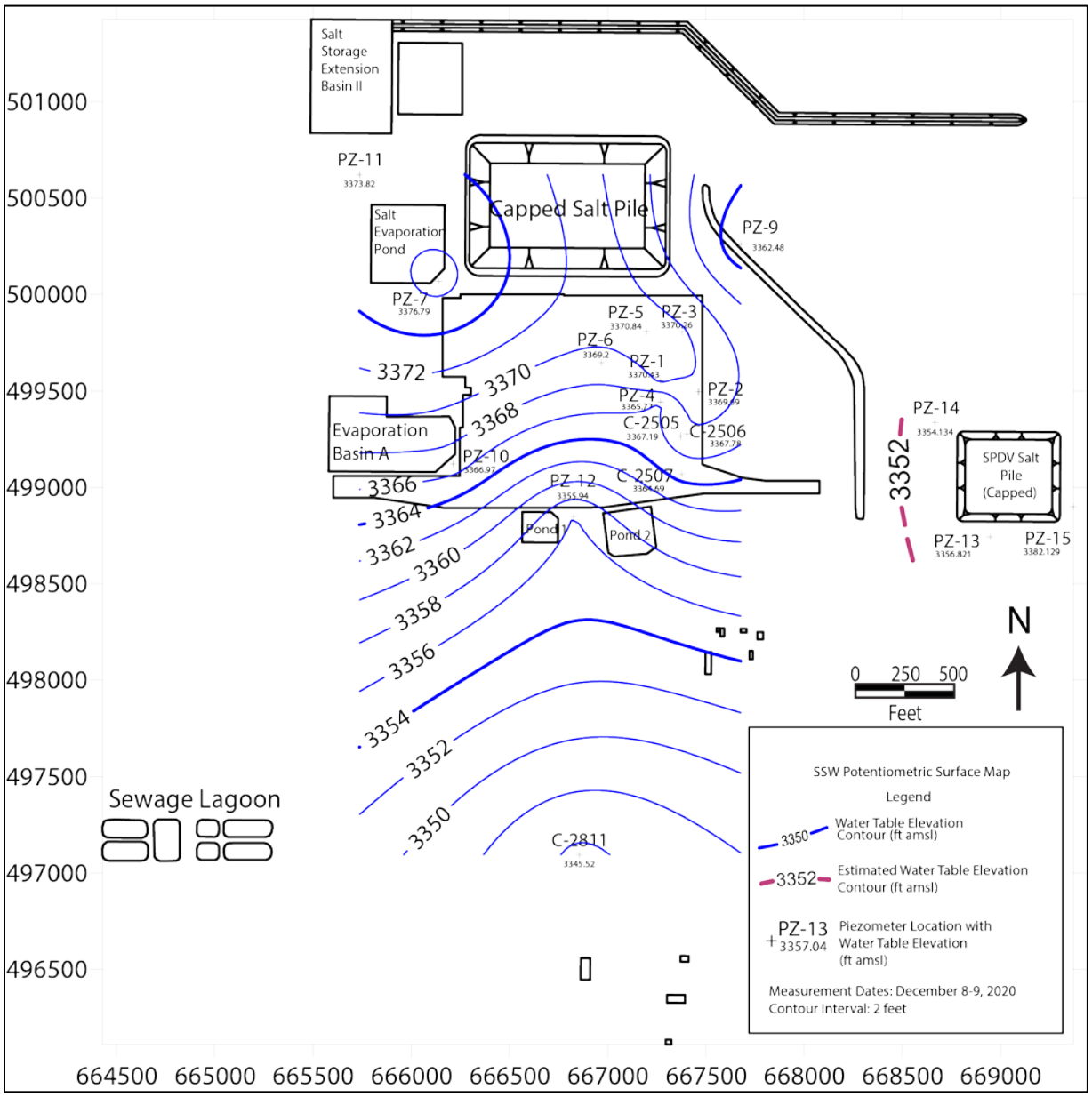


Figure 2 – 2020 Potentiometric Surface Map

WASTE ISOLATION PILOT PLANT
SEMI-ANNUAL DISCHARGE MONITORING REPORT FOR DISCHARGE PERMIT DP-831
FOR REPORTING PERIOD
JULY 1, 2020 THROUGH DECEMBER 31, 2020

Table 9 – Monitoring Well Water Levels and Chemical Analyses

	Field and General Chemistry Parameters								**Other**	**Water Level Monitoring (Ft AMSL)**	
Monitoring Site	Sample Date	pH (SU)	Temp. (^{0}C)	Specific Conductivity @25 ^{0}C (µS/cm)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)	9/3/20-9/8/20	12/8/20-12/9/20
PZ-1	11/3/2020	5.91	22.87	83,610	NA	**1,860**	**20,000**	**47,800**	NA	3370.53	3370.43
PZ-2	NS	NS	NS	NS	NS	NS	NS	NS	NS	3369.87	3369.69
PZ-3	NS	NS	NS	NS	NS	NS	NS	NS	NS	3370.46	3370.26
PZ-4	NS	NS	NS	NS	NS	NS	NS	NS	NS	3365.89	3365.77
PZ-5	11/3/2020	6.75	22.96	68,790	NA	499	**6,620**	**13,500**	NA	3371.01	3370.84
PZ-6	11/3/2020	6.29	22.77	83,650	NA	**1,000**	**13,900**	**24,600**	NA	3369.23	3369.20
PZ-7	11/2/2020	5.84	22.48	77,650	NA	**3,030**	**57,700**	**96,300**	NA	3377.05	3376.79
PZ-9	11/3/2020	6.18	20.91	87,440	NA	**4,480**	**96,200**	**184,000**	NA	3362.75	3362.48
PZ-10	11/2/2020	7.02	21.43	5,016	NA	269	177	1,090	NA	3367.36	3366.97
PZ-11	11/2/2020	6.04	23.24	76,310	NA	**2,000**	**35,700**	**68,500**	NA	3374.33	3373.82
PZ-12	11/2/2020	6.52	21.22	35,470	NA	594	**3,400**	**7,620**	NA	3356.33	3355.94
PZ-13	11/3/2020	Bailed			NA	**3,220**	**162,000**	**255,000**	NA	3356.91	3356.82
PZ-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	3354.17	3354.13
PZ-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	3382.27	3382.13
C-2811	11/2/2020	6.77	20.15	10,480	NA	327	**898**	**2,250**	NA	3346.21	3345.52
C-2505	NS	NS	NS	NS	NS	NS	NS	NS	NS	3367.31	3367.19
C-2506	NS	NS	NS	NS	NS	NS	NS	NS	NS	3367.90	3367.78
C-2507	11/3/2020	6.42	20.76	41,540	NA	**667**	**4,060**	**8,230**	NA	3364.69	3364.49
WQSP-6A	11/4/2020	6.26	22.28	12,060	4.64	**1,850**	**316**	**3,390**	ND	3195.77	3195.40
Explanation:	NA: Not Analyzed, parameter not required, per permit conditions.										
	NS: Not Sampled, not required per permit conditions										
	PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty using Low-Flow pumps										
	"**Bold**" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply										
	ND: Non-detect										
	AMSL: Above Mean Sea Level										

Table 10 –Ground Water Sampling Data

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-1	6/21/2004	<10	1,530	36,300	79,600	0.044	<0.00500
PZ-1	11/9/2004	1.3	6,530	45,700	85,800	0.106	<0.0100
PZ-1	5/17/2005	1.47	2,640	62,300	100,500	0.06	0.077
PZ-1	10/11/2005	2.59	1,950	54,900	74,800	0.043	<0.0100
PZ-1	5/16/2006	<2.5	2,490	62,400	113,000	0.051	<0.0100
PZ-1	10/10/2006	<1.00	1,390	55,300	70,200	<0.0500	<0.0250
PZ-1	5/9/2007	2.7	2,220	63,000	107,000	<0.0500	<0.0250
PZ-1	10/9/2007	<1.00	2,820	83,200	99,500	<0.1000	<0.0250
PZ-1	6/5/2008	<2.0	2,100	57,000	98,000	0.667	0.00218
PZ-1	10/14/2008	NA	2,200	59,000	94,000	NA	NA
PZ-1	5/19/2009	NA	2,200	54,000	96,000	NA	NA
PZ-1	10/19/2009	NA	2,300	66,000	101,000	NA	NA
PZ-1	5/25/2010	NA	2,200	53,000	92,800	NA	NA
PZ-1	10/26/2010	NA	1,800	62,000	96,100	NA	NA
PZ-1	5/24/2011	NA	2,000	51,000	85,200	NA	NA
PZ-1	10/5/2011	NA	2,000	50,000	84,600	NA	NA
PZ-1	5/16/2012	NA	2,100	54,000	82,100	NA	NA
PZ-1	10/2/2012	NA	2,110	48,100	84,200	NA	NA
PZ-1	5/14/2013	NA	1,840	35,800	74,400	NA	NA
PZ-1	10/22/2013	NA	2,050	42,500	100,000	NA	NA
PZ-1	5/13/2014	NA	2,010	44,000	76,000	NA	NA
PZ-1	10/14/2014	NA	2,090	46,700	84,800	NA	NA
PZ-1	5/13/2015	NA	1,830	40,800	73,400	NA	NA
PZ-1	11/10/2015	NA	1,740	37,100	75,800	NA	NA
PZ-1	5/31/2016	NA	1,740	42,900	79,600	NA	NA
PZ-1	9/28/2016	NA	1,940	34,000	67,000	NA	NA
PZ-1	5/31//2017	NA	1,890	37,600	71,200	NA	NA
PZ-1	10/10/2017	NA	1,900	36,100	63,900	NA	NA
PZ-1	5/22/2018	NA	1,860	26,500	54,500	NA	NA
PZ-1	10/16/2018	NA	1,980	35,800	72,000	NA	NA

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-1	5/2/2019	NA	2,160	37,100	63,600	NA	NA
PZ-1	10/16/2019	NA	1,940	29,000	54,500	NA	NA
PZ-1	5/19/2020	NA	2,010	28,200	50,900	NA	NA
PZ-1	11/3/2020	NA	1,860	20,000	47,800	NA	NA
PZ-5	6/21/2004	20.7	1,340	28,800	55,200	0.067	<0.00500
PZ-5	11/9/2004	<2.50	1,820	47800	86,000	0.094	<0.0100
PZ-5	5/17/2005	2.96	3,260	46,000	65,400	0.093	0.067
PZ-5	10/11/2005	5.14	769	14,000	32,800	0.062	<0.0100
PZ-5	5/16/2006	2.56	1,520	18,300	32,600	0.071	<0.0100
PZ-5	10/10/2006	5.04	1,330	28,800	47,400	<0.0500	<0.0250
PZ-5	5/9/2007	4.6	1,640	17,300	32,400	<0.0500	<0.0250
PZ-5	10/9/2007	<1.00	1,880	19,400	28,700	0.071	<0.005
PZ-5	6/5/2008	5.7	1,500	19,000	33,000	0.0801	0.00317
PZ-5	10/14/2008	NA	1,400	13,000	25,000	NA	NA
PZ-5	5/19/2009	NA	1,500	13,000	24,000	NA	NA
PZ-5	10/19/2009	NA	1,600	14,000	20,200	NA	NA
PZ-5	5/25/2010	NA	1,400	13,000	21,900	NA	NA
PZ-5	10/26/2010	NA	1,400	13,000	20,800	NA	NA
PZ-5	5/24/2011	NA	1,200	10,000	18,400	NA	NA
PZ-5	10/4/2011	NA	1,300	13,000	19,800	NA	NA
PZ-5	5/16/2012	NA	1,500	12,000	21,400	NA	NA
PZ-5	10/2/2012	NA	1,340	9,870	18,600	NA	NA
PZ-5	5/15/2013	NA	1,200	9,540	19,200	NA	NA
PZ-5	10/23/2013	NA	1,180	11,400	25,200	NA	NA
PZ-5	5/13/2014	NA	1,180	9,080	18,100	NA	NA
PZ-5	10/14/2014	NA	1,250	13,300	26,500	NA	NA
PZ-5	5/13/2015	NA	1,100	7,380	14,800	NA	NA
PZ-5	11/10/2015	NA	917	7,470	15,200	NA	NA
PZ-5	5/31/2016	NA	970	7,180	14,500	NA	NA
PZ-5	9/28/2016	NA	748	7,170	17,400	NA	NA
PZ-5	5/31/2017	NA	737	4,470	10,300	NA	NA
PZ-5	10/10/2017	NA	638	4,790	11,300	NA	NA

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-5	5/22/2018	NA	585	5,910	12,800	NA	NA
PZ-5	10/16/2018	NA	482	5,870	14,400	NA	NA
PZ-5	5/2/2019	NA	617	7,170	14,500	NA	NA
PZ-5	10/17/2019	NA	540	6,700	12,800	NA	NA
PZ-5	5/19/2020	NA	545	7,340	11,900	NA	NA
PZ-5	11/3/2020	NA	499	6,620	13,500	NA	NA
PZ-6	6/21/2004	21.2	2,860	70,500	134,000	0.017	<0.00500
PZ-6	11/9/2004	4.89	13,000	75,400	113,000	0.06	<0.0100
PZ-6	5/17/2005	4.25	3,610	109,000	160,500	0.05	0.054
PZ-6	10/11/2005	<20.0	2,850	83,800	106,000	0.021	<0.0100
PZ-6	5/16/2006	7.69	3,050	68,800	115,000	<0.0100	<0.0100
PZ-6	10/10/2006	252	2,790	79,800	134,000	<0.0500	<0.0250
PZ-6	5/9/2007	6.65	2,840	73,500	122,500	<0.0500	<0.0250
PZ-6	10/9/2007	<1.00	3,080	81,000	105,000	<0.1000	<0.0250
PZ-6	6/5/2008	6.1	2,100	47,000	81,000	0.0412	0.00259
PZ-6	10/14/2008	NA	2,500	58,000	87,000	NA	NA
PZ-6	5/19/2009	NA	2,700	61,000	89,000	NA	NA
PZ-6	10/19/2009	NA	2,300	50,000	83,600	NA	NA
PZ-6	5/25/2010	NA	2,300	47,000	82,100	NA	NA
PZ-6	10/26/2010	NA	1,900	47,000	72,300	NA	NA
PZ-6	5/24/2011	NA	1,700	37,000	67,700	NA	NA
PZ-6	10/5/2011	NA	1,900	41,000	69,800	NA	NA
PZ-6	5/16/2012	NA	1,800	41,000	67,200	NA	NA
PZ-6	10/2/2012	NA	2,130	52,200	78,700	NA	NA
PZ-6	5/15/2013	NA	2,060	47,900	86,900	NA	NA
PZ-6	10/22/2013	NA	2,120	46,000	90,500	NA	NA
PZ-6	5/13/2014	NA	2,040	46,600	80,800	NA	NA
PZ-6	10/14/2014	NA	2,160	49,800	80,400	NA	NA
PZ-6	5/13/2015	NA	2,180	49,200	77,000	NA	NA
PZ-6	11/10/2015	NA	1,900	37,500	69,200	NA	NA
PZ-6	5/31/2016	NA	1,680	31,000	50,500	NA	NA
PZ-6	9/28/2016	NA	1,330	21,900	43,100	NA	NA

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-6	5/31/2017	NA	1,230	21,000	39,300	NA	NA
PZ-6	10/10/2017	NA	1,260	20,800	37,500	NA	NA
PZ-6	5/22/2018	NA	1,210	18,400	32,300	NA	NA
PZ-6	10/16/2018	NA	1,140	19,900	36,100	NA	NA
PZ-6	5/2/2019	NA	1,160	19,100	32,100	NA	NA
PZ-6	10/17/2019	NA	1,000	16,000	28,100	NA	NA
PZ-6	5/19/2020	NA	979	14,900	26,600	NA	NA
PZ-6	11/3/2020	NA	1,000	13,900	24,600	NA	NA
PZ-7	6/21/2004	20.7	2,620	53,000	109,000	0.041	<0.00500
PZ-7	11/8/2004	2.89	7,460	43,600	80,400	0.088	<0.0100
PZ-7	5/16/2005	4.02	2,530	42,100	65,900	0.082	0.094
PZ-7	10/10/2005	6.37	2,770	61,000	88,000	0.047	<0.0100
PZ-7	5/15/2006	<5.3	3,190	54,100	139,000	0.068	<0.0100
PZ-7	10/9/2006	<1.00	2,890	66,800	81,500	<0.00100	<0.0500
PZ-7	5/7/2007	5.15	3,190	64,800	119,000	<0.0200	0.02
PZ-7	10/8/2007	<1.00	2,660	45,600	65,000	0.064	<0.00500
PZ-7	6/4/2008	5	2,300	49,000	86,000	0.0635	0.00257
PZ-7	10/13/2008	NA	1,700	27,000	42,000	NA	NA
PZ-7	5/18/2009	NA	3,700	76,000	120,000	NA	NA
PZ-7	10/20/2009	NA	4,200	67,000	106,000	NA	NA
PZ-7	5/24/2010	NA	3,000	68,000	103,000	NA	NA
PZ-7	10/25/2010	NA	3,000	75,000	103,000	NA	NA
PZ-7	5/23/2011	NA	2,700	60,000	101,000	NA	NA
PZ-7	10/4/2011	NA	3,100	81,000	116,000	NA	NA
PZ-7	5/15/2012	NA	3,000	64,000	96,600	NA	NA
PZ-7	10/3/2012	NA	4,380	67,500	106,000	NA	NA
PZ-7	5/13/2013	NA	3,050	58,500	112,000	NA	NA
PZ-7	10/22/2013	NA	3,100	61,100	126,000	NA	NA
PZ-7	5/13/2014	NA	2,650	35,400	114,000	NA	NA
PZ-7	10/13/2014	NA	3,530	74,500	136,000	NA	NA
PZ-7	5/12/2015	NA	3,240	68,200	118,000	NA	NA
PZ-7	11/9/2015	NA	2,960	44,900	114,000	NA	NA

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-7	5/24/2016	NA	3,790	75,400	109,000	NA	NA
PZ-7	9/27/2016	NA	2,850	51,600	99,300	NA	NA
PZ-7	5/30/2017	NA	2,890	59,800	111,000	NA	NA
PZ-7	10/9/2017	NA	2,170	36,800	80,100	NA	NA
PZ-7	5/21/2018	NA	2,950	54,600	100,000	NA	NA
PZ-7	10/15/2018	NA	2,600	50,900	108,000	NA	NA
PZ-7	4/29/2019	NA	2,650	60,300	106,000	NA	NA
PZ-7	10/14/2019	NA	2,520	60,000	105,000	NA	NA
PZ-7	5/18/2020	NA	2,750	53,900	96,100	NA	NA
PZ-7	11/3/2020	NA	3,030	57,700	96,300	NA	NA
PZ-8	10/15/2007	0.677	500	7,440	15,000	0.039	<0.00500
PZ-8	6/6/2008	1.8	630	11,000	16,000	0.0655	<0.001
PZ-9	6/21/2004	<20.0	3,740	80,200	140,000	<0.0100	<0.00500
PZ-9	11/9/2004	1.4	14,500	92,400	144,000	0.066	<0.0100
PZ-9	5/17/2005	2.82	5,090	182,000	164,000	0.05	0.071
PZ-9	10/11/2005	<20.0	3,930	85,500	107,000	0.022	<0.0100
PZ-9	5/16/2006	3.01	4,350	84,700	153,000	0.023	<0.0100
PZ-9	10/10/2006	<20.0	3,370	102,000	135,000	<0.0500	<0.0250
PZ-9	5/9/2007	3.28	4,320	89,600	164,000	<0.0500	<0.0250
PZ-9	10/9/2007	<200	4,720	116,000	144,000	<0.0200	<0.0050
PZ-9	6/5/2008	2.2	4,400	87,000	150,000	0.0351	0.00492
PZ-9	10/14/2008	NA	4,100	96,000	140,000	NA	NA
PZ-9	5/19/2009	NA	3,600	94,000	130,000	NA	NA
PZ-9	10/19/2009	NA	4,000	77,000	139,000	NA	NA
PZ-9	5/25/2010	NA	4,400	94,000	144,000	NA	NA
PZ-9	10/26/2010	NA	4,300	95,000	149,000	NA	NA
PZ-9	5/24/2011	NA	4300	83,000	147,000	NA	NA
PZ-9	10/4/2011	NA	4600	99,000	153,000	NA	NA
PZ-9	5/16/2012	NA	4,900	98,000	152,000	NA	NA
PZ-9	10/3/2012	NA	4,440	99,700	141,000	NA	NA
PZ-9	5/14/2013	NA	4,580	82,000	152,000	NA	NA
PZ-9	10/22/2013	NA	4,620	88,200	179,000	NA	NA

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-9	5/13/2014	NA	4,730	83,600	161,000	NA	NA
PZ-9	10/14/2014	NA	5,150	98,600	172,000	NA	NA
PZ-9	5/13/2015	NA	7,090	112,000	175,000	NA	NA
PZ-9	11/10/2015	NA	4,390	84,300	176,000	NA	NA
PZ-9	5/25/2016	NA	5,640	115,000	167,000	NA	NA
PZ-9	9/28/2016	NA	4,860	99,200	353,000	NA	NA
PZ-9	5/30/2017	NA	5,200	113,000	169,000	NA	NA
PZ-9	10/10/2017	NA	4,580	91,900	172,000	NA	NA
PZ-9	5/22/2018	NA	4,790	99,200	180,000	NA	NA
PZ-9	10/16/2018	NA	4,540	100,000	171,000	NA	NA
PZ-9	5/2/2019	NA	5,850	126,000	204,000	NA	NA
PZ-9	10/17/2019	NA	4,800	100,000	175,000	NA	NA
PZ-9	5/19/2020	NA	4,920	116.000	180,000	NA	NA
PZ-9	11/3/2020	NA	4,480	96,200	184,000	NA	NA
PZ-10	6/14/2004	3.81	469	368	1,714	0.02	<0.00500
PZ-10	11/8/2004	3.69	431	353	1,576	<0.0500	<0.0100
PZ-10	5/16/2005	3.63	572	416	1,756	0.044	0.037
PZ-10	10/10/2005	3.34	515	318	1,720	0.015	<0.0100
PZ-10	5/15/2006	3.42	539	460	1,830	0.014	<0.0100
PZ-10	10/9/2006	5.5	549	350	1,600	<0.00100	<0.0500
PZ-10	5/7/2007	14.8	407	274	1,504	<0.0200	0.02
PZ-10	10/8/2007	<1.00	211	186	968	0.026	<0.0050
PZ-10	6/4/2008	4.5	390	300	1,500	0.0144	0.00119
PZ-10	10/13/2008	NA	380	290	1,400	NA	NA
PZ-10	5/18/2009	NA	530	460	1,800	NA	NA
PZ-10	10/20/2009	NA	500	440	1,730	NA	NA
PZ-10	5/24/2010	NA	500	370	1,680	NA	NA
PZ-10	10/25/2010	NA	410	360	1,530	NA	NA
PZ-10	5/23/2011	NA	400	310	1,620	NA	NA
PZ-10	10/4/2011	NA	440	370	1,640	NA	NA
PZ-10	5/15/2012	NA	450	410	1,650	NA	NA
PZ-10	10/1/2012	NA	480	414	1,700	NA	NA

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-10	5/13/2013	NA	426	394	1,580	NA	NA
PZ-10	10/21/2013	NA	434	348	1,710	NA	NA
PZ-10	5/12/2014	NA	471	407	1,840	NA	NA
PZ-10	10/13/2014	NA	178	167	910	NA	NA
PZ-10	5/12/2015	NA	435	370	1,620	NA	NA
PZ-10	11/9/2015	NA	339	255	1,310	NA	NA
PZ-10	5/24/2016	NA	274	200	1,100	NA	NA
PZ-10	9/27/2016	NA	116	113	805	NA	NA
PZ-10	5/30/2017	NA	203	173	998	NA	NA
PZ-10	10/9/2017	NA	161	135	414	NA	NA
PZ-10	5/21/2018	NA	224	193	998	NA	NA
PZ-10	10/15/2018	NA	105	92.8	734	NA	NA
PZ-10	4/29/2019	NA	179	146	874	NA	NA
PZ-10	10/14/2019	NA	205	163	921	NA	NA
PZ-10	5/18/2020	NA	216	171	988	NA	NA
PZ-10	11/2/2020	NA	269	177	1,090	NA	NA
PZ-11	6/21/2004	20.8	2,220	58,100	123,000	<0.0100	<0.00500
PZ-11	11/8/2004	3.15	13,000	84,100	119,000	<0.0500	<0.0100
PZ-11	5/16/2005	4.63	2,890	66,000	100,000	<0.0100	<0.0100
PZ-11	10/10/2005	<20.0	2,950	84,300	129,000	0.013	<0.0100
PZ-11	5/15/2006	<5.3	3,090	71,000	133,000	<0.0100	<0.0100
PZ-11	10/9/2006	<1.00	2,550	85,800	123,000	<0.00100	<0.0500
PZ-11	5/7/2007	3.84	2,620	68,700	135,000	<0.0200	<0.0100
PZ-11	10/8/2007	<1.00	2,970	94,400	108,000	<0.0200	<0.0050
PZ-11	6/4/2008	3.9	2,100	65,000	110,000	0.0149	0.00216
PZ-11	10/13/2008	NA	3,000	79,000	110,000	NA	NA
PZ-11	5/18/2009	NA	2,500	72,000	110,000	NA	NA
PZ-11	10/20/2009	NA	3,200	64,000	112,000	NA	NA
PZ-11	5/24/2010	NA	2,500	69,000	107,000	NA	NA
PZ-11	10/25/2010	NA	2,300	77,000	100,000	NA	NA
PZ-11	5/23/2011	NA	2,000	45,000	80,500	NA	NA
PZ-11	10/3/2011	NA	2,300	65,000	92,200	NA	NA

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-11	5/15/2012	NA	2,400	59,000	93,200	NA	NA
PZ-11	10/3/2012	NA	2,220	53,000	95,600	NA	NA
PZ-11	5/13/2013	NA	2,270	64,800	105,000	NA	NA
PZ-11	10/21/2013	NA	2,360	59,000	123,000	NA	NA
PZ-11	5/12/2014	NA	2,260	45,000	102,000	NA	NA
PZ-11	10/13/2014	NA	2,740	68,800	123,000	NA	NA
PZ-11	5/12/2015	NA	2,590	57,000	105,000	NA	NA
PZ-11	11/9/2015	NA	2,770	59,900	96,400	NA	NA
PZ-11	5/24/2016	NA	2,640	54,900	93,200	NA	NA
PZ-11	9/27/2016	NA	2,240	43,300	82,700	NA	NA
PZ-11	5/30/2017	NA	911	18,000	40,000	NA	NA
PZ-11	10/9/2017	NA	1,710	49,800	61,900	NA	NA
PZ-11	5/21/2018	NA	1,980	36,400	66,300	NA	NA
PZ-11	10/15/2018	NA	1,920	39,000	82,000	NA	NA
PZ-11	4/29/2019	NA	744	15,900	26,300	NA	NA
PZ-11	10/16/2019	NA	1,620	27,200	48,800	NA	NA
PZ-11	5/18/2020	NA	1,620	30,100	50,600	NA	NA
PZ-11	11/3/2020	NA	2,000	35,700	68,500	NA	NA
PZ-12	6/14/2004	11.2	773	5,320	9,700	0.077	<0.00500
PZ-12	11/8/2004	19.8	879	7,170	9,540	0.066	<0.0100
PZ-12	5/16/2005	8.85	679	3,730	5,890	0.051	0.054
PZ-12	10/10/2005	426	805	3,790	7,740	0.02	<0.0100
PZ-12	5/15/2006	20.6	866	4,510	8,790	0.019	<0.0100
PZ-12	10/9/2006	13.2	795	5,340	9,150	<0.00100	<0.0500
PZ-12	5/7/2007	10.8	831	3,780	7,010	<0.0200	0.024
PZ-12	10/8/2007	<1.00	958	4,310	6,200	0.026	<0.0050
PZ-12	6/4/2008	11	760	3,300	6,800	0.0291	0.00132
PZ-12	10/13/2008	NA	850	3,300	7,000	NA	NA
PZ-12	5/18/2009	NA	870	4,600	8,300	NA	NA
PZ-12	10/20/2009	NA	980	6,500	10,100	NA	NA
PZ-12	5/24/2010	NA	990	5,500	10,100	NA	NA
PZ-12	10/25/2010	NA	990	5,800	10,300	NA	NA

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-12	5/23/2011	NA	900	5,600	10,900	NA	NA
PZ-12	10/3/2011	NA	900	6,800	13,100	NA	NA
PZ-12	5/15/2012	NA	620	6,400	9,400	NA	NA
PZ-12	10/1/2012	NA	503	5,290	9,780	NA	NA
PZ-12	5/13/2013	NA	449	3,990	7,610	NA	NA
PZ-12	10/21/2013	NA	415	3,320	8,110	NA	NA
PZ-12	5/12/2014	NA	374	2,490	5,640	NA	NA
PZ-12	10/13/2014	NA	409	2,440	6,100	NA	NA
PZ-12	5/12/2015	NA	665	4,470	8,720	NA	NA
PZ-12	11/9/2015	NA	627	3,450	8,280	NA	NA
PZ-12	5/24/2016	NA	560	2,570	6,100	NA	NA
PZ-12	9/27/2016	NA	548	2,460	6,240	NA	NA
PZ-12	5/30/2017	NA	509	2,470	6,100	NA	NA
PZ-12	10/9/2017	NA	521	2,840	6,740	NA	NA
PZ-12	5/21/2018	NA	576	3,280	7,280	NA	NA
PZ-12	10/15/2018	NA	542	3,270	7,600	NA	NA
PZ-12	4/29/2019	NA	521	2,310	5,340	NA	NA
PZ-12	10/14/2019	NA	522	2,680	5,880	NA	NA
PZ-12	5/18/2020	NA	558	3,630	7,100	NA	NA
PZ-12	11/2/2020	NA	594	3,400	7,620	NA	NA
PZ-13	10/10/2007	12.4	2,670	150,000	245,500	<0.100	<0.00500
PZ-13	6/6/2008	<200	2,600	170,000	240,000	0.0118	0.00316
PZ-13	10/13/2008	NA	2,900	160,000	230,000	NA	NA
PZ-13	5/18/2009	NA	3,300	180,000	240,000	NA	NA
PZ-13	10/20/2009	NA	3,300	170,000	255,000	NA	NA
PZ-13	5/24/2010	NA	3,000	170,000	240,000	NA	NA
PZ-13	10/26/2010	NA	2,900	190,000	246,000	NA	NA
PZ-13	5/24/2011	NA	2,700	150,000	248,000	NA	NA
PZ-13	10/4/2011	NA	3,000	170,000	259,000	NA	NA
PZ-13	5/15/2012	NA	3,300	160,000	252,000	NA	NA
PZ-13	10/2/2012	NA	3,260	170,000	263,000	NA	NA
PZ-13	5/14/2013	NA	3,130	144,000	260,000	NA	NA

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
PZ-13	10/22/2013	NA	3,220	139,000	262,000	NA	NA
PZ-13	5/13/2014	NA	2,900	104,000	265,000	NA	NA
PZ-13	10/14/2014	NA	3,100	179,000	274,000	NA	NA
PZ-13	5/13/2015	NA	3,550	197,000	267,000	NA	NA
PZ-13	11/10/2015	NA	2,980	118,000	233,000	NA	NA
PZ-13	5/25/2016	NA	1,600	168,000	260,000	NA	NA
PZ-13	9/28/2016	NA	2,790	153,000	236,000	NA	NA
PZ-13	5/31/2017	NA	2,730	150,000	251,000	NA	NA
PZ-13	10/10/2017	NA	2,650	134,000	251,000	NA	NA
PZ-13	5/22/2018	NA	2,800	146,000	269,000	NA	NA
PZ-13	10/17/2018	NA	2,650	152,000	263,000	NA	NA
PZ-13	4/30/2019	NA	2,850	156,000	265,000	NA	NA
PZ-13	10/16/2019	NA	2,780	156,000	243,000	NA	NA
PZ-13	5/19/2020	NA	3,200	179,000	247,000	NA	NA
PZ-13	11/3/2020	NA	3,220	162,000	255,000	NA	NA
PZ-14	10/15/2007	1.41	2,140	71,500	106,000	<0.0100	<0.00500
PZ-14	6/6/2008	<100	3,300	130,000	180,000	0.0201	0.00168
PZ-15	10/15/2007	2.97	169	764	2,060	0.022	<0.00500
PZ-15	6/6/2008	12	160	460	1,600	0.00372	<0.001
C-2811	6/14/2004	6.06	299	769	2,022	0.047	<0.00500
C-2811	11/8/2004	7.63	305	1,030	1,996	0.054	<0.0100
C-2811	5/16/2005	6.02	524	1,930	3,740	0.058	0.053
C-2811	10/10/2005	7.48	584	2,250	4,410	0.034	<0.0100
C-2811	5/15/2006	6.94	511	1,760	3,740	0.031	<0.0100
C-2811	10/9/2006	6.05	402	1,310	2,100	<0.00100	<0.0500
C-2811	5/7/2007	5.31	516	1,760	4,205	<0.0200	0.031
C-2811	10/8/2007	<1.00	635	2,980	3,860	0.051	<0.0050
C-2811	6/4/2008	5.7	390	1,300	2,800	0.0017	0.035
C-2811	10/13/2008	NA	320	1,000	2,100	NA	NA
C-2811	5/18/2009	NA	360	1,200	2,300	NA	NA
C-2811	10/20/2009	NA	320	1,000	2,120	NA	NA
C-2811	5/24/2010	NA	340	920	2,090	NA	NA

Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
C-2811	10/25/2010	NA	370	1,100	2,470	NA	NA
C-2811	5/23/2011	NA	350	960	2,370	NA	NA
C-2811	10/3/2011	NA	340	910	2,330	NA	NA
C-2811	5/14/2012	NA	320	810	1,870	NA	NA
C-2811	10/1/2012	NA	337	862	2,100	NA	NA
C-2811	5/13/2013	NA	328	872	2,090	NA	NA
C-2811	10/21/2013	NA	341	838	2,490	NA	NA
C-2811	5/13/2014	NA	297	865	2,250	NA	NA
C-2811	10/14/2014	NA	277	827	2,580	NA	NA
C-2811	5/12/2015	NA	586	1,430	3,460	NA	NA
C-2811	11/9/2015	NA	451	1260	3,300	NA	NA
C-2811	5/24/2016	NA	491	1,210	2,720	NA	NA
C-2811	9/27/2016	NA	422	1,100	2,820	NA	NA
C-2811	5/30/2017	NA	479	1,020	3,100	NA	NA
C-2811	10/9/2017	NA	375	1,110	2,640	NA	NA
C-2811	5/21/2018	NA	347	1,090	2,510	NA	NA
C-2811	10/15/2018	NA	291	864	2,370	NA	NA
C-2811	4/29/2019	NA	348	1,020	2,680	NA	NA
C-2811	10/14/2019	NA	325	930	2,210	NA	NA
C-2811	5/18/2020	NA	323	879	2,380	NA	NA
C-2811	11/2/2020	NA	327	898	2,250	NA	NA
C-2507	6/21/2004	7.55	717	1,300	3,830	0.029	0.028
C-2507	11/9/2004	7.58	824	1,380	3,350	0.08	0.014
C-2507	5/17/2005	7.94	860	1,370	3,340	0.078	0.063
C-2507	10/11/2005	6.13	920	1,630	3,240	0.047	<0.0100
C-2507	5/16/2006	7.37	1,040	1,930	5,300	0.051	<0.0100
C-2507	10/10/2006	2.9	943	3,640	1,740	<0.0500	<0.0250
C-2507	5/9/2007	6.62	1,110	3,060	5,485	<0.0500	<0.0250
C-2507	10/9/2007	<1.00	1,220	3,500	5,540	0.055	0.007
C-2507	6/5/2008	6.9	990	2,800	5,800	0.0637	0.00493
C-2507	10/14/2008	NA	940	2,200	5,100	NA	NA
C-2507	5/19/2009	NA	950	2,600	5,200	NA	NA

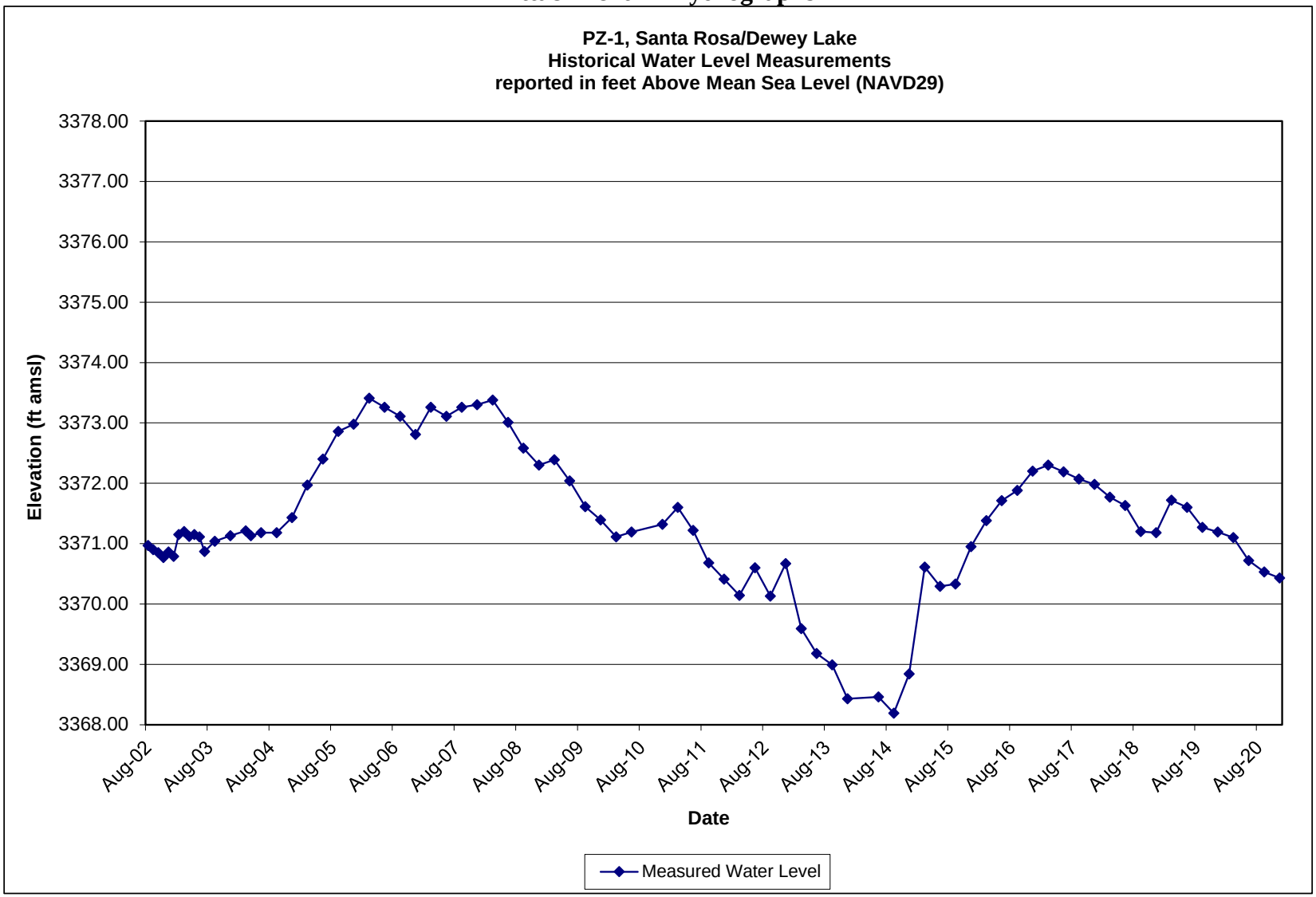
Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Selenium (mg/L)	Chromium (mg/L)
C-2507	10/19/2009	NA	930	3,400	5,710	NA	NA
C-2507	5/25/2010	NA	910	3,500	6,640	NA	NA
C-2507	10/26/2010	NA	980	3,500	7,120	NA	NA
C-2507	5/24/2011	NA	790	3,200	6,190	NA	NA
C-2507	10/5/2011	NA	810	3,400	6,660	NA	NA
C-2507	5/16/2012	NA	800	2,800	5,720	NA	NA
C-2507	10/1/2012	NA	774	2,970	6,790	NA	NA
C-2507	5/14/2013	NA	704	2,820	6,020	NA	NA
C-2507	10/21/2013	NA	692	3,270	8,350	NA	NA
C-2507	5/13/2014	NA	643	2,770	7,590	NA	NA
C-2507	10/14/2014	NA	693	3,830	9,180	NA	NA
C-2507	5/13/2015	NA	683	3,430	7,590	NA	NA
C-2507	11/10/2015	NA	605	2,800	6,850	NA	NA
C-2507	5/31/2016	NA	679	3,110	6,620	NA	NA
C-2507	9/28/2016	NA	626	2,960	7,280	NA	NA
C-2507	5/31/2017	NA	683	3,490	8,020	NA	NA
C-2507	10/10/2017	NA	627	2,890	7,270	NA	NA
C-2507	5/22/2018	NA	638	3,040	6,850	NA	NA
C-2507	10/16/2018	NA	638	3,440	7,870	NA	NA
C-2507	5/19/2019	NA	624	4,230	8,430	NA	NA
C-2507	10/17/2019	NA	670	4,060	8,230	NA	NA
C-2507	5/19/2020	NA	624	4,230	8,430	NA	NA
C-2507	11/3/2020	NA	667	4,060	8,230	NA	NA
WQSP-6A	3/28/1996	3.98	1,810	507	3,920	<0.013	<0.025
WQSP-6A	7/11/1996	2.75	1,971	6,748	4,500	0.02	<0.025
WQSP-6A	4/10/1997	4.64	2,240	675	3,960	0.017	<0.025
WQSP-6A	7/10/1997	4.04	2,560	660	3,840	<0.050	<0.1000
WQSP-6A	6/10/1998	6.19	1,950	644	4,120	0.016	0.0015
WQSP-6A	11/3/1998	11	2,100	770	4,100	0.22	<0.500
WQSP-6A	5/26/1999	7	1,900	540	3,800	<0.100	<0.050
WQSP-6A	11/10/1999	9.4	1,900	540	3,800	<0.050	<0.050
WQSP-6A	5/24/2000	7.5	2,100	530	3,800	0.0129	<0.020

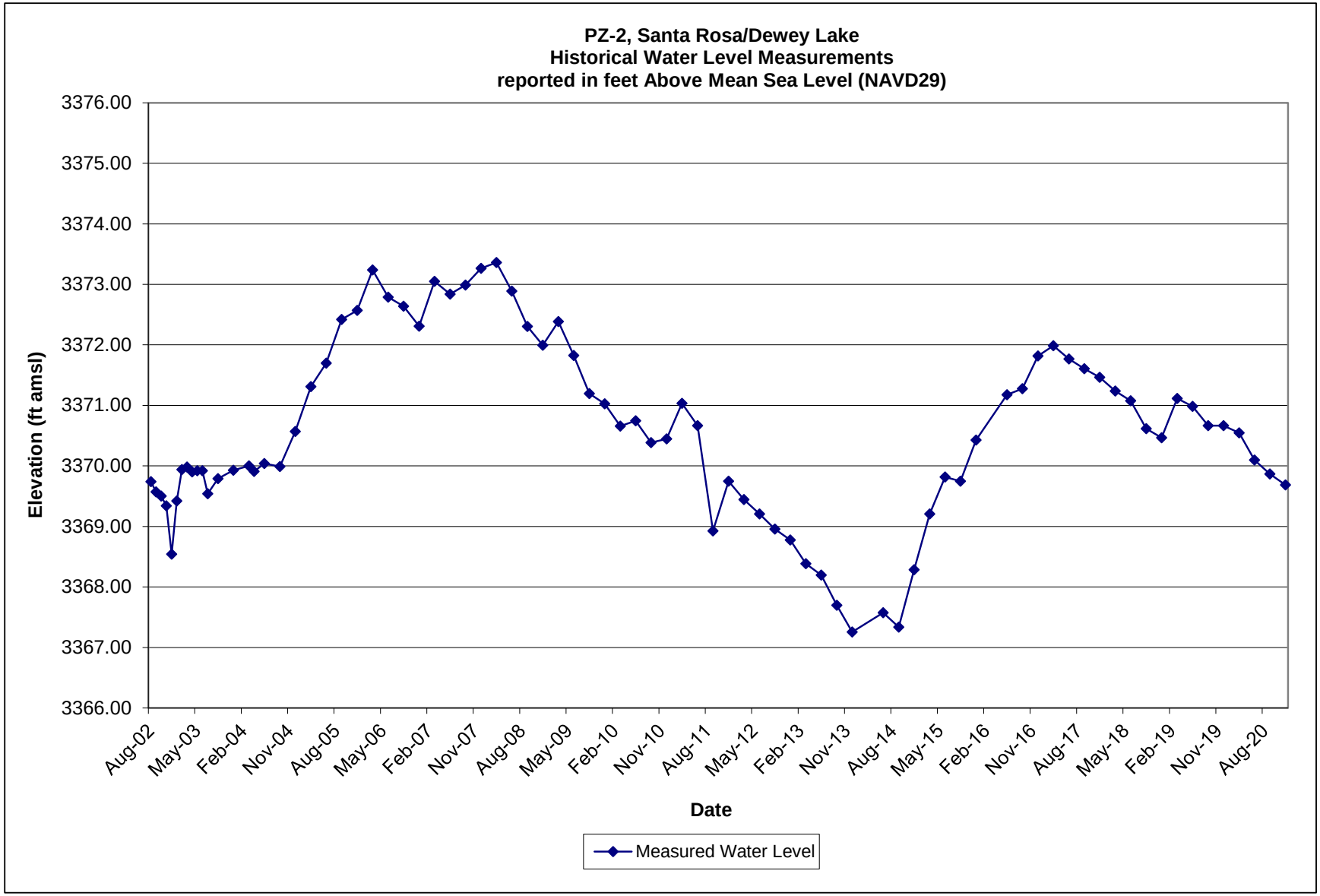
Shallow Subsurface Water Quality Sampling Results							
	General Chemistry Parameters					Trace Metals	
Monitoring Site	**Sample Date**	**Nitrate (mg/L)**	**Sulfate (mg/L)**	**Chloride (mg/L)**	**TDS (mg/L)**	**Selenium (mg/L)**	**Chromium (mg/L)**
WQSP-6A	11/30/2000	6.7	1,900	480	3,700	<0.0130	<0.025
WQSP-6A	6/6/2001	6.37	1,900	536	3,680	0.0385	<0.025
WQSP-6A	11/14/2001	3.67	1,900	414	4,600	<0.050	<0.010
WQSP-6A	5/22/2002	5.52	1,930	487	3,540	<0.050	<0.010
WQSP-6A	11/20/2002	5.61	2,090	419	3,685	<0.050	<0.010
WQSP-6A	5/21/2003	4.74	1,950	384	3,650	<0.123	<0.050
WQSP-6A	11/19/2003	<0.01	1,950	391	3,955	<0.219	<0.025
WQSP-6A	5/26/2004	9.61	1,970	416	3,646	<0.025	<0.025
WQSP-6A	11/17/2004	6.72	1,960	491	3,655	<0.025	<0.025
WQSP-6A	4/20/2005	5.98	1,920	432	3,700	0.057	<0.025
WQSP-6A	10/19/2005	<0.01	1,940	360	3,430	<0.025	<0.025
WQSP-6A	5/3/2006	2.5	2,210	450	3,200	<0.025	<0.025
WQSP-6A	9/20/2006	6	2,120	360	3,515	<0.025	<0.025
WQSP-6A	3/7/2007	5.78	2,170	484	3,355	<0.025	<0.025
WQSP-6A	9/12/2007	5.47	1,950	350	3,400	<0.025	<0.025
WQSP-6A	3/12/2008	4.67	2,090	378	3,400	<0.025	<0.025
Monitoring Site	**Sample Date**	**Nitrate (mg/L)**	**Sulfate (mg/L)**	**Chloride (mg/L)**	**TDS (mg/L)**	**TKN (mg/L)**	**NA: Not Analyzed per permit conditions**
WQSP-6A	9/10/2008	5.69	2,030	348	3,150	< 5	NA
WQSP-6A	3/4/2009	5.9	2,100	350	3,500	<1.0	NA
WQSP-6A	9/10/2009	6.3	2,100	350	3,640	<1.0	NA
WQSP-6A	3/3/2010	6.55	2,145	330	3,545	<1.0	NA
WQSP-6A	9/23/2010	6.34	2,090	321	3,500	<1.0	NA
WQSP-6A	5/26/2011	6.5	2,100	270	3,480	<1.0	NA
WQSP-6A	10/6/2011	5.9	2,100	280	3,450	<1.0	NA
WQSP-6A	5/16/2012	5.4	2,200	310	3,340	<1.0	NA
WQSP-6A	10/2/2012	5.1	2,110	301	3,400	<1.0	NA
WQSP-6A	5/14/2013	5.29	2,260	318	3,420	<1.0	NA
WQSP-6A	10/23/2013	5.85	1,840	284	3,540	<1.0	NA
WQSP-6A	5/14/2014	5.4	1,870	342	3,500	<1.0	NA
WQSP-6A	10/15/2014	5.38	2,000	285	3,360	<1.0	NA

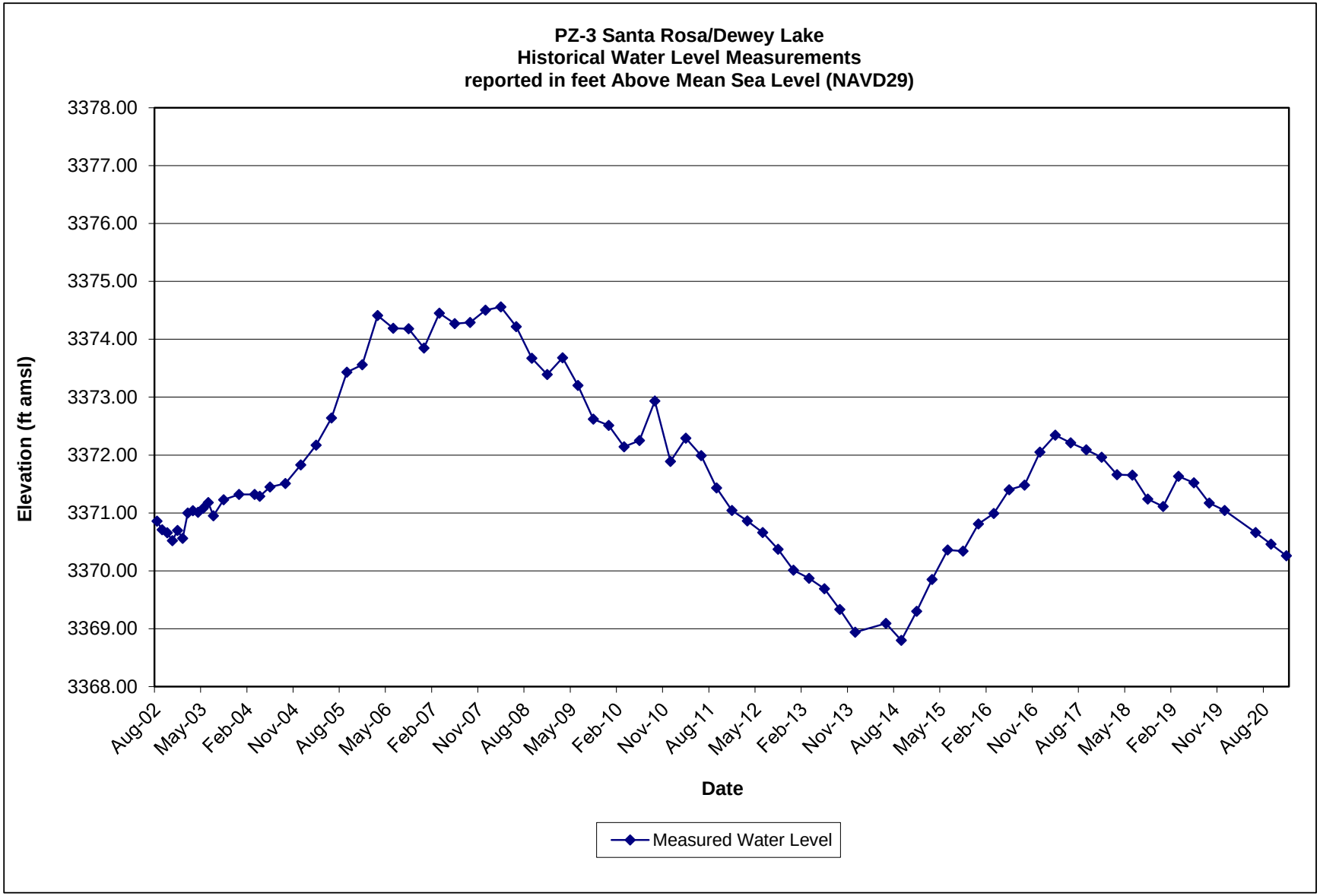
Monitoring Site	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)
WQSP-6A	5/14/2015	5.11	1,940	294	3,520	<1.0
WQSP-6A	11/11/2015	5.45	1,840	296	3,290	<1.0
WQSP-6A	5/25/2016	4.91	1,900	379	3,380	<1.0
WQSP-6A	9/29/2016	5.61	1,860	286	3,490	<1.0
WQSP-6A	6/1/2017	5.27	1,870	322	3,380	<1.0
WQSP-6A	10/11/2017	4.87	1,880	342	3,390	<1.0
WQSP-6A	5/23/2018	4.98[H]	1,770	340	6,850	<1.0
WQSP-6A	10/17/2018	4.46	1,970	300	3,340	<1.0
WQSP-6A	4/30/2019	4.14	1,940	309	3,230	<1.0
WQSP-6A	10/16/2019	4.97	1,800	366	3,450	<1.0
WQSP-6A	5/20/2020	4.97	1,770	314	3,460	<1.0
WQSP-6A	11/4/2020	4.64	1,850	316	3,390	<1.0

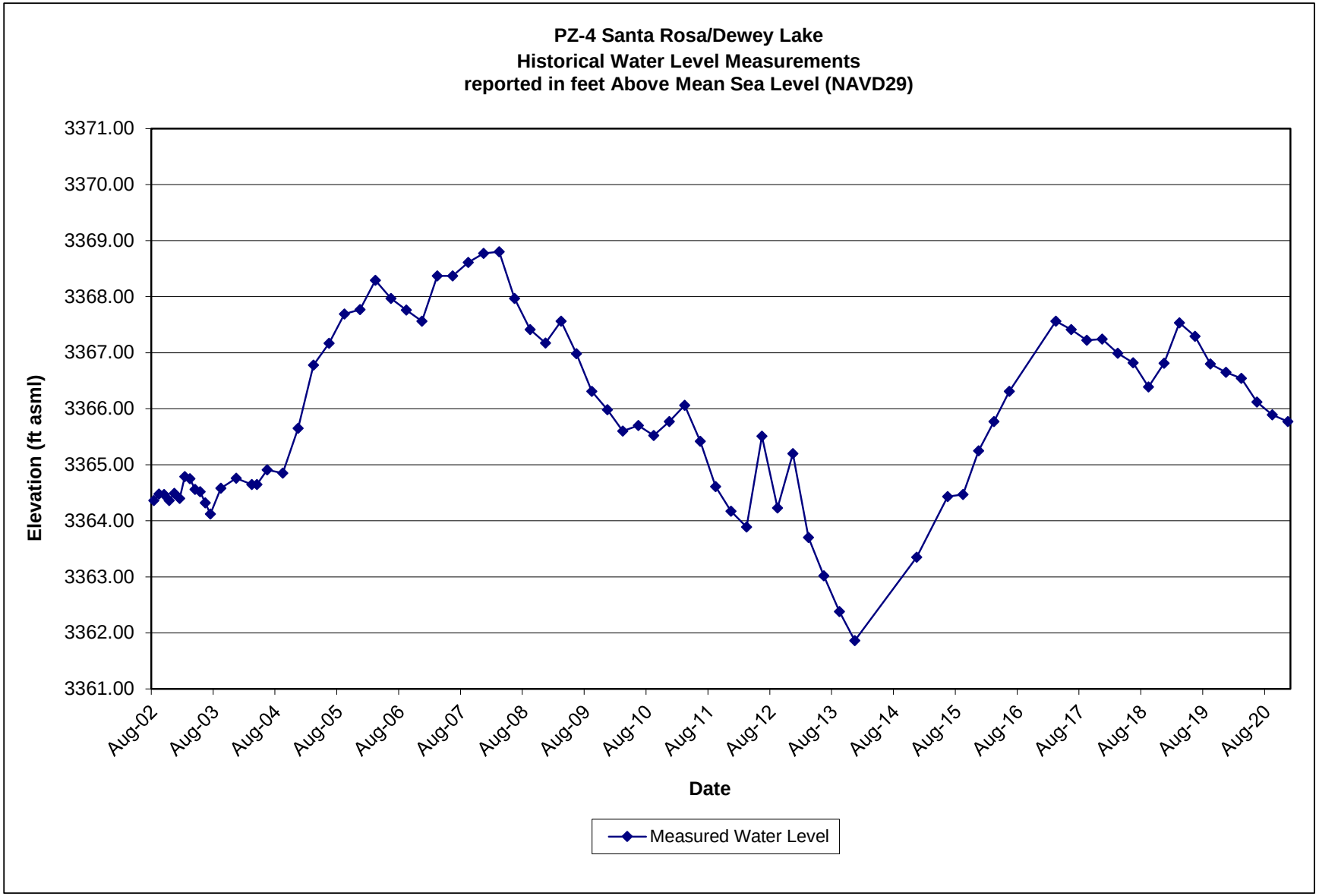
NA: Not Analyzed, parameter not required, per permit conditions.
H: Sample did not meet hold times.

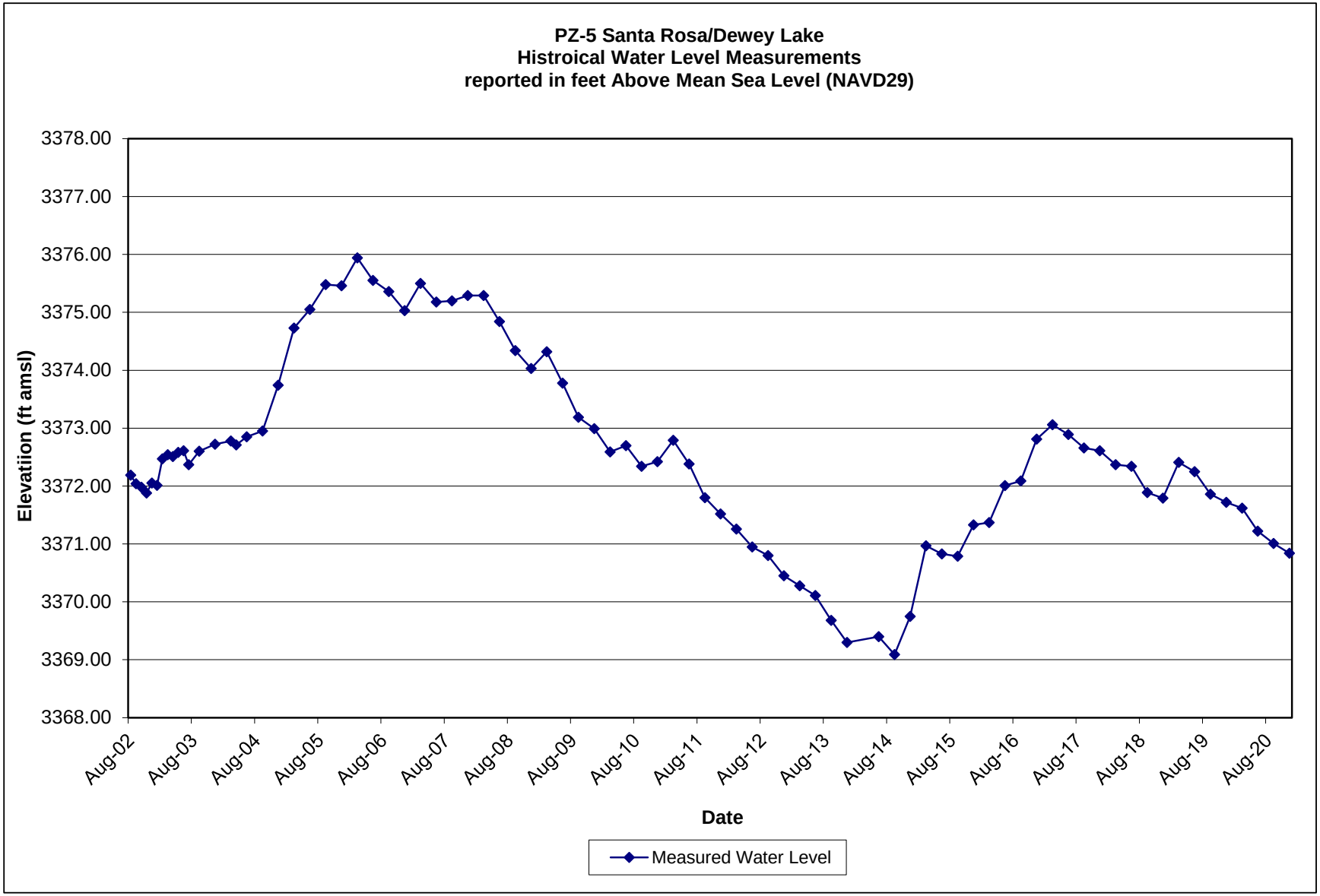
Attachment 1– Hydrographs

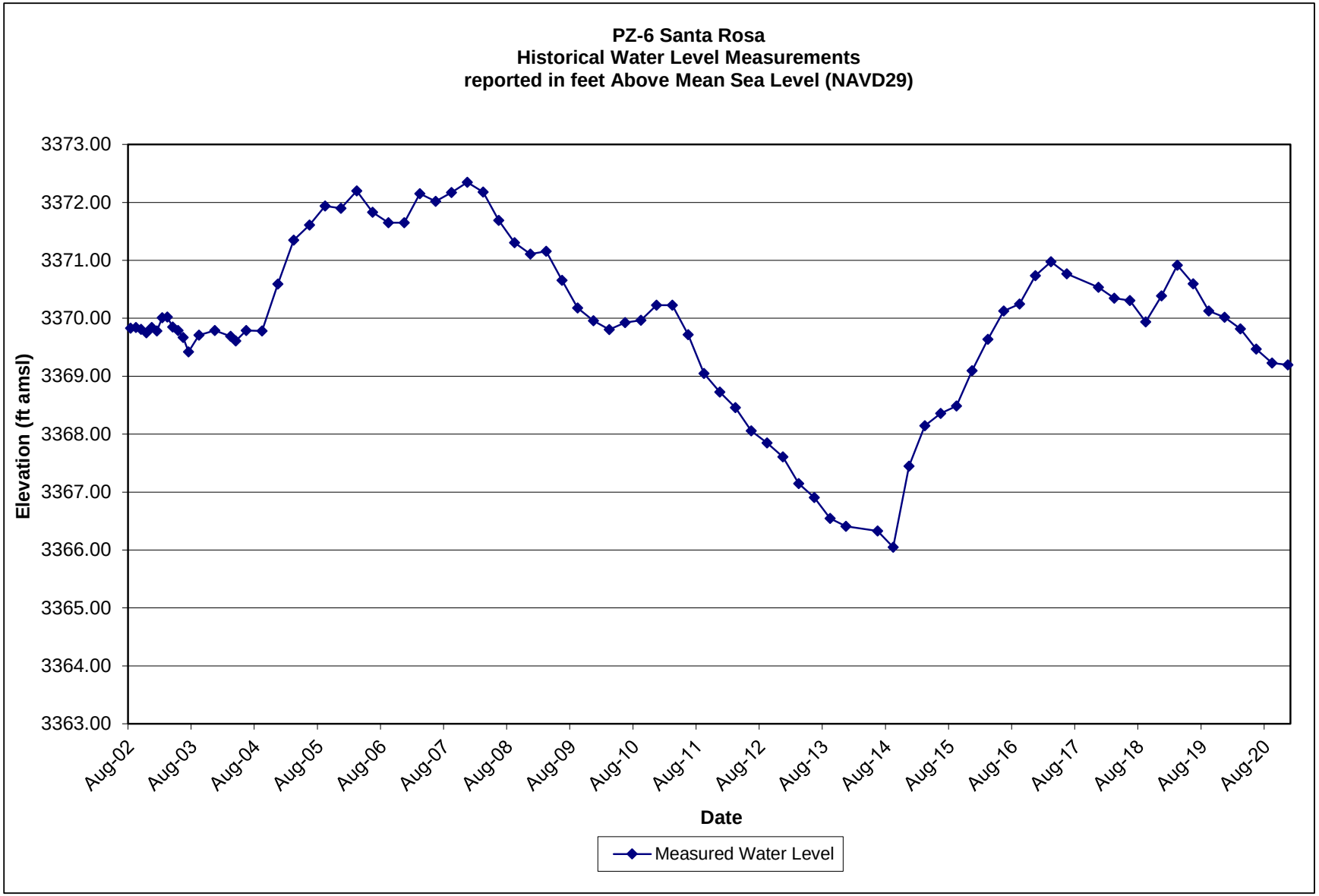


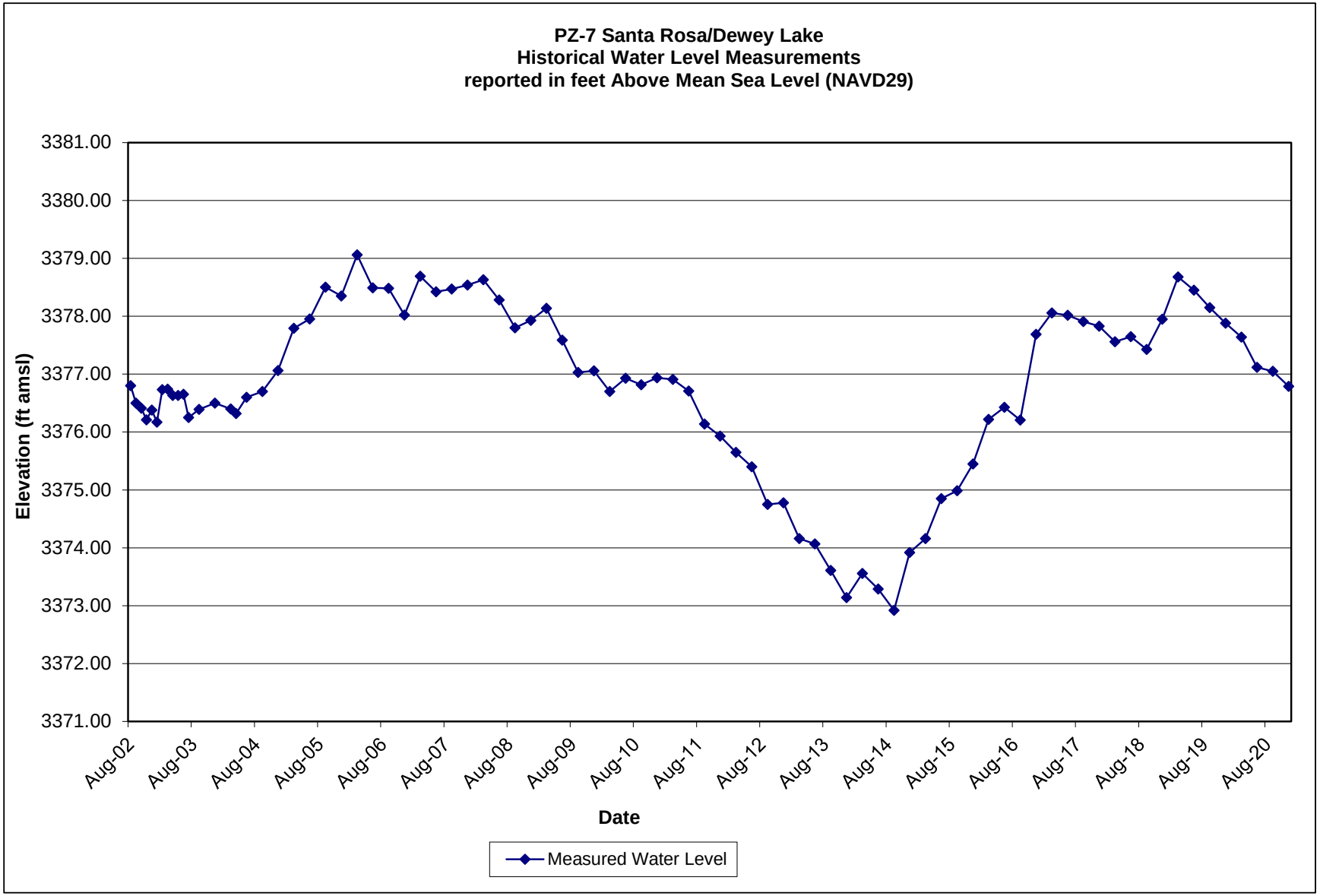

PZ-2, Santa Rosa/Dewey Lake
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3376.00
3375.00
3374.00
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
Aug-02
May-03
Feb-04
Nov-04
Aug-05
May-06
Feb-07
Nov-07
Aug-08
May-09
Feb-10
Nov-10
Aug-11
May-12
Feb-13
Nov-13
Aug-14
May-15
Feb-16
Nov-16
Aug-17
May-18
Feb-19
Nov-19
Aug-20
Date
Measured Water Level

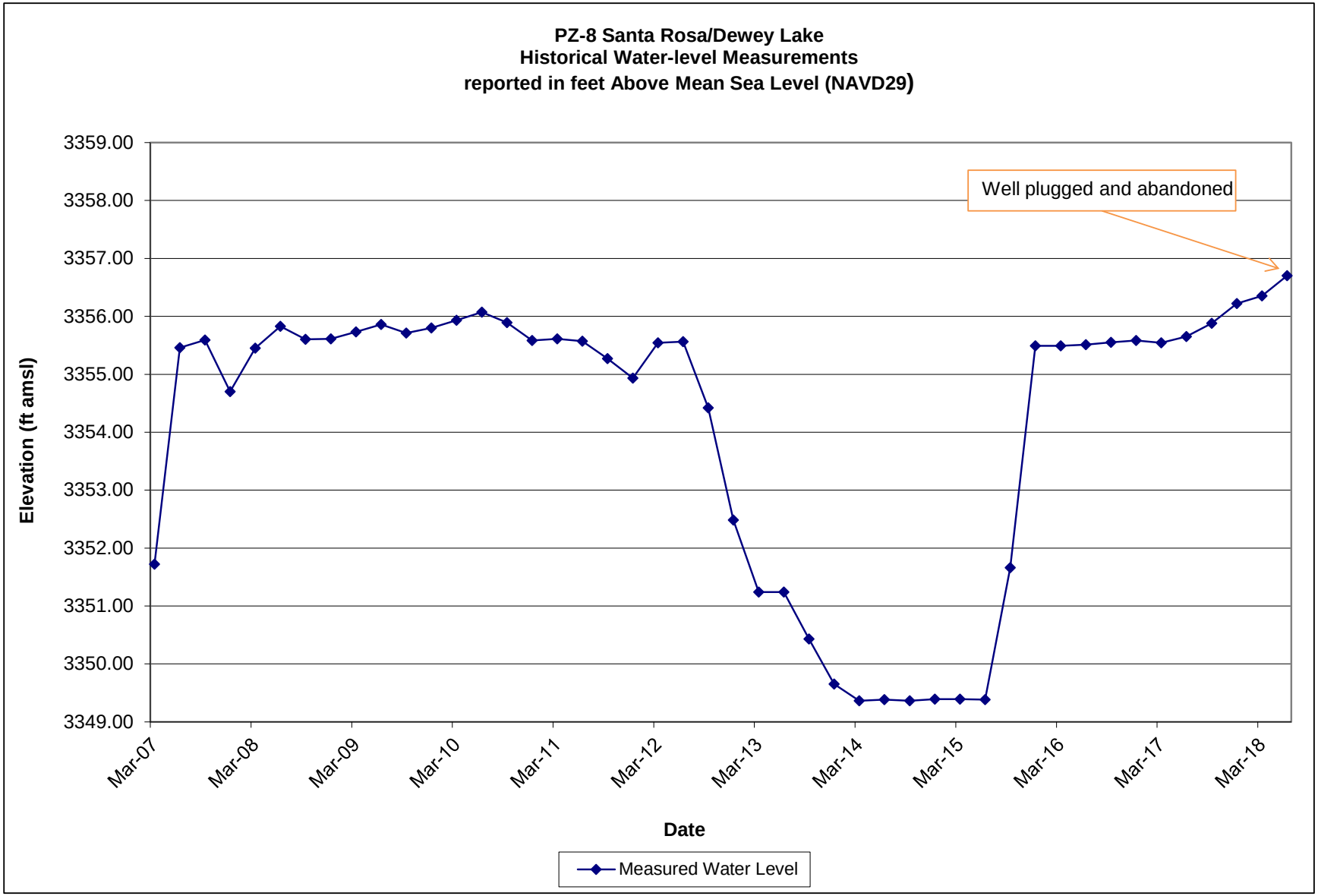

PZ-3 Santa Rosa/Dewey Lake
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3378.00
3377.00
3376.00
3375.00
3374.00
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
Aug-02
May-03
Feb-04
Nov-04
Aug-05
May-06
Feb-07
Nov-07
Aug-08
May-09
Feb-10
Nov-10
Aug-11
May-12
Feb-13
Nov-13
Aug-14
May-15
Feb-16
Nov-16
Aug-17
May-18
Feb-19
Nov-19
Aug-20
Date
Measured Water Level

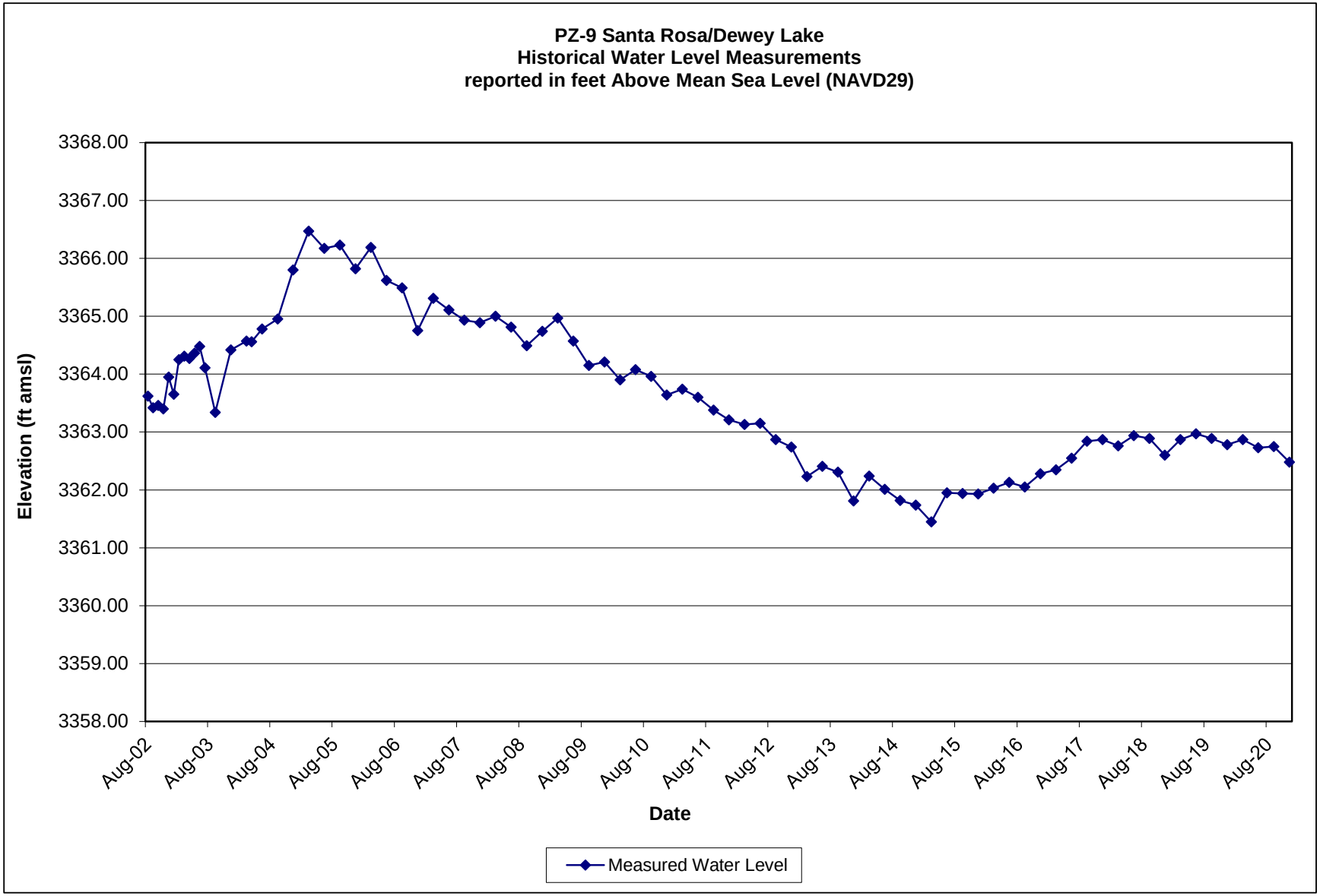

PZ-4 Santa Rosa/Dewey Lake
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft asml)
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
3362.00
3361.00
Aug-02
Aug-03
Aug-04
Aug-05
Aug-06
Aug-07
Aug-08
Aug-09
Aug-10
Aug-11
Aug-12
Aug-13
Aug-14
Aug-15
Aug-16
Aug-17
Aug-18
Aug-19
Aug-20
Date
Measured Water Level

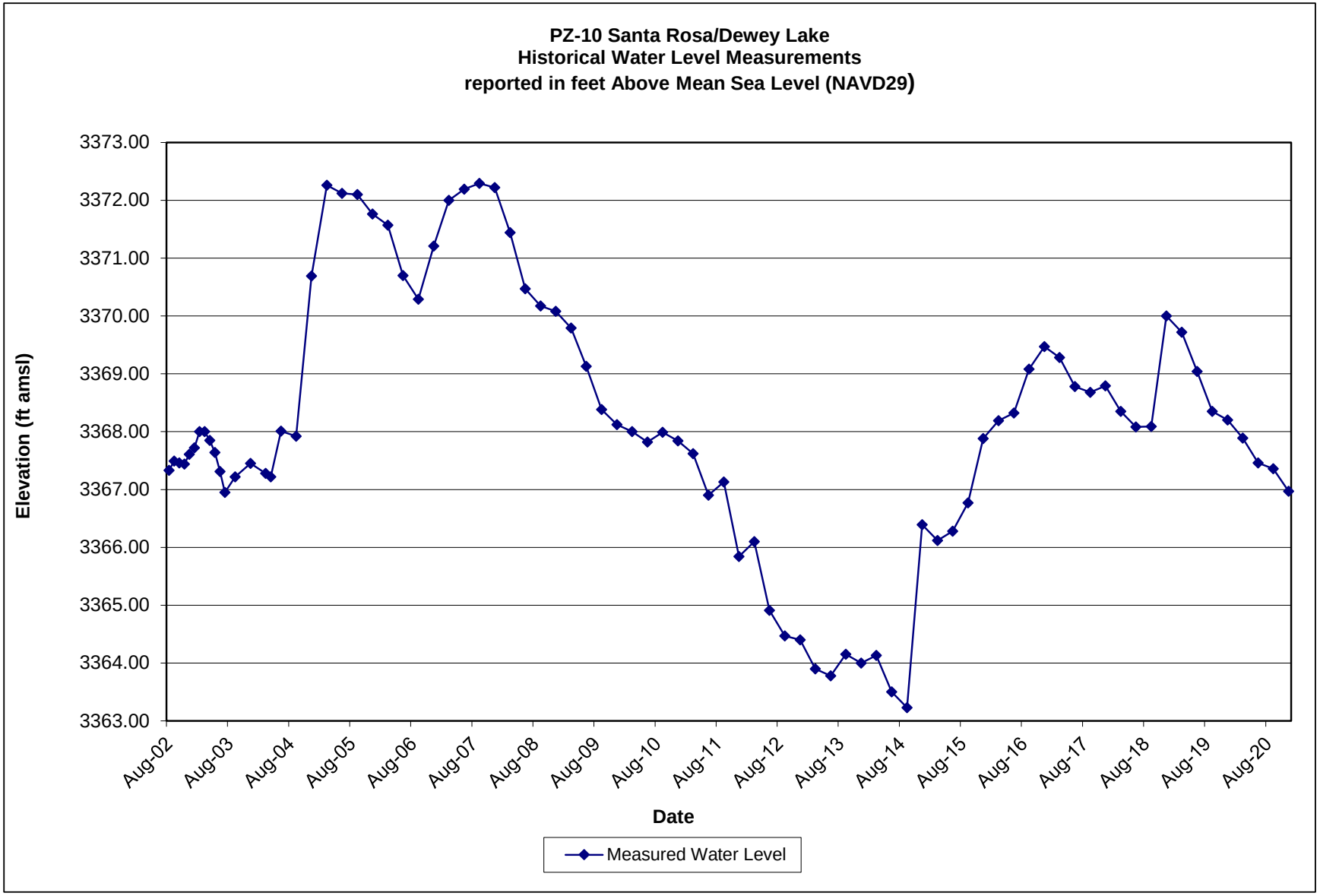

PZ-5 Santa Rosa/Dewey Lake
Histroical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevatiion (ft amsl)
3378.00
3377.00
3376.00
3375.00
3374.00
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
Aug-02
Aug-03
Aug-04
Aug-05
Aug-06
Aug-07
Aug-08
Aug-09
Aug-10
Aug-11
Aug-12
Aug-13
Aug-14
Aug-15
Aug-16
Aug-17
Aug-18
Aug-19
Aug-20
Date
Measured Water Level

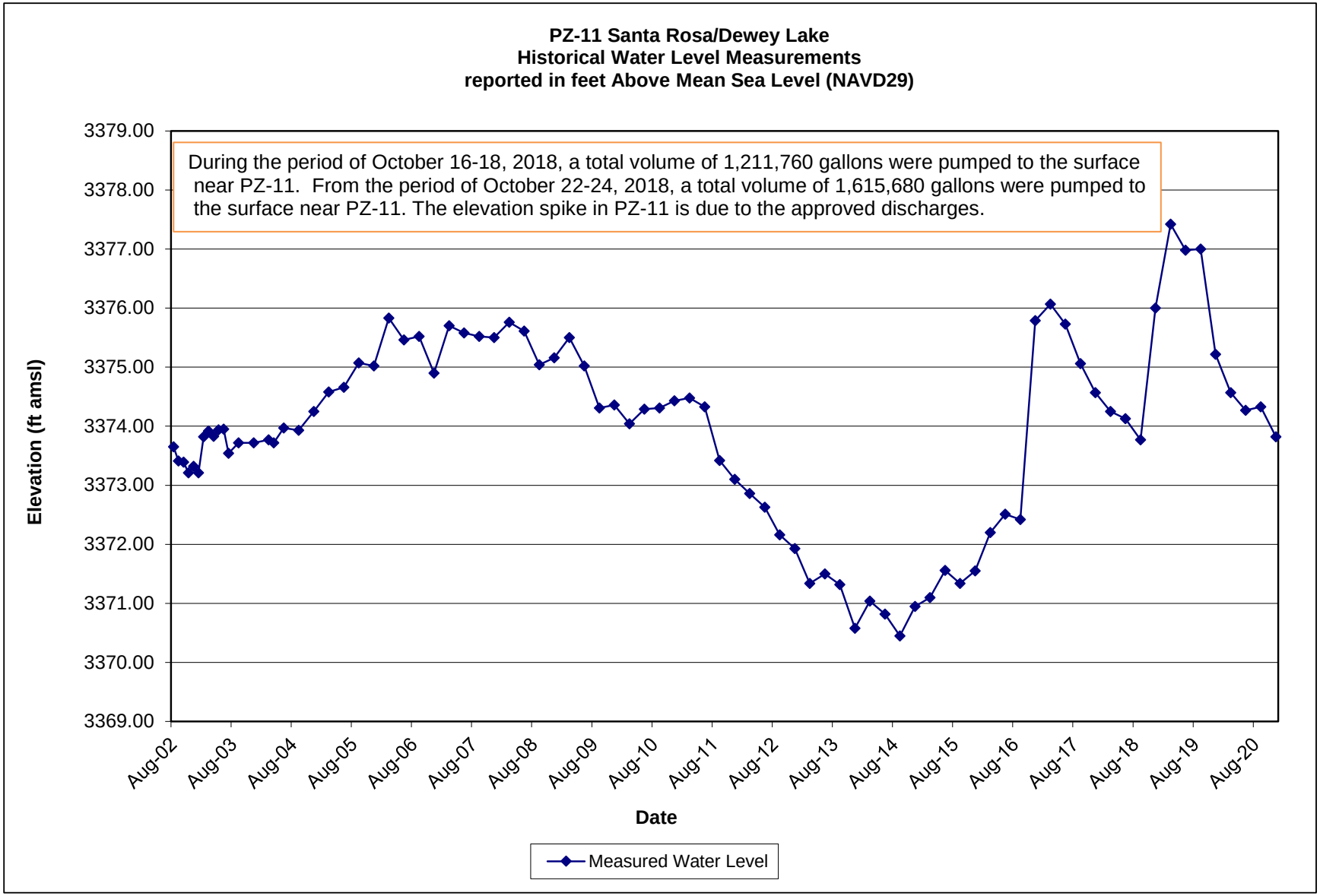

PZ-6 Santa Rosa
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
Aug-02
Aug-03
Aug-04
Aug-05
Aug-06
Aug-07
Aug-08
Aug-09
Aug-10
Aug-11
Aug-12
Aug-13
Aug-14
Aug-15
Aug-16
Aug-17
Aug-18
Aug-19
Aug-20
Date
Measured Water Level

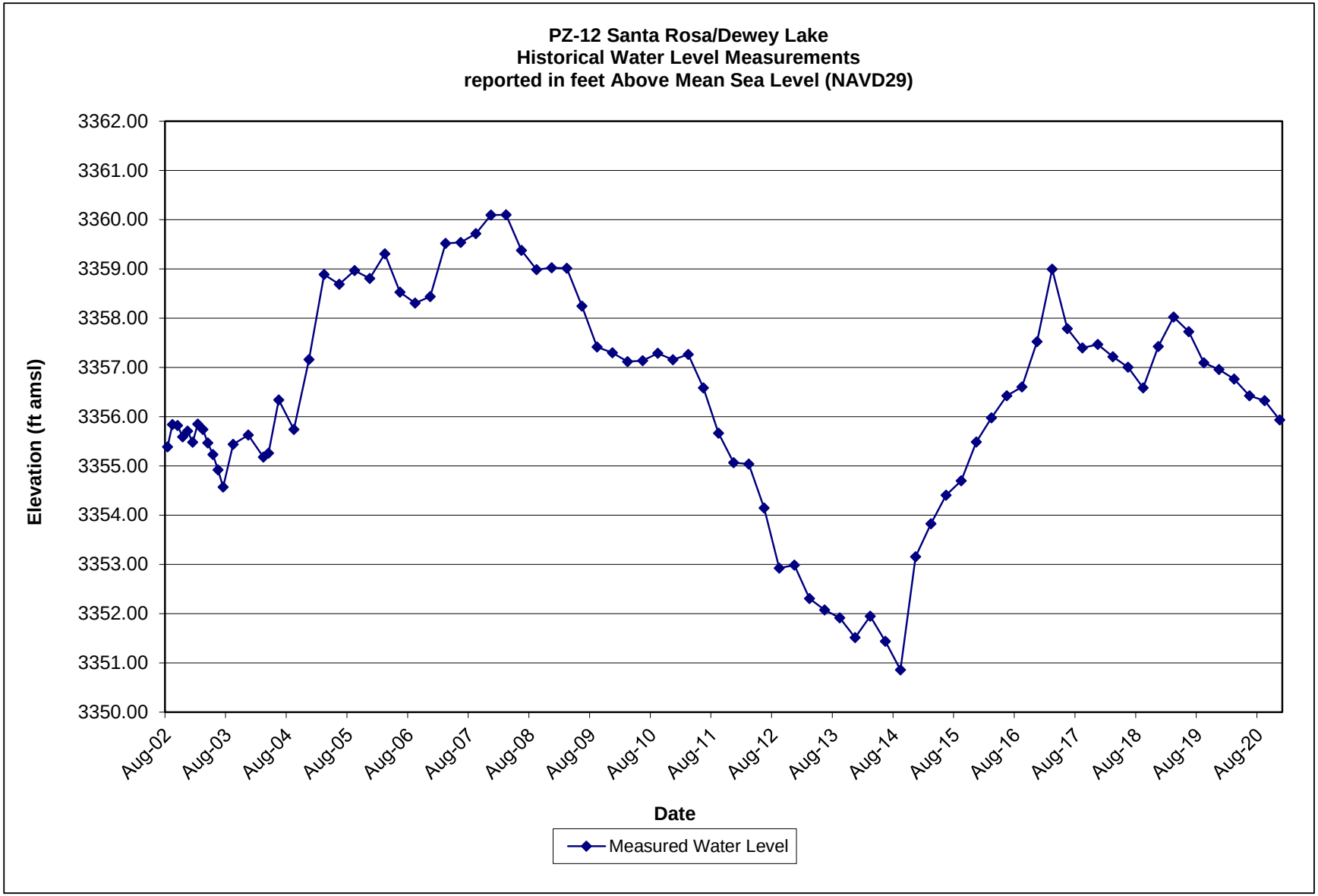

PZ-7 Santa Rosa/Dewey Lake
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3381.00
3380.00
3379.00
3378.00
3377.00
3376.00
3375.00
3374.00
3373.00
3372.00
3371.00
Aug-02
Aug-03
Aug-04
Aug-05
Aug-06
Aug-07
Aug-08
Aug-09
Aug-10
Aug-11
Aug-12
Aug-13
Aug-14
Aug-15
Aug-16
Aug-17
Aug-18
Aug-19
Aug-20
Date
Measured Water Level

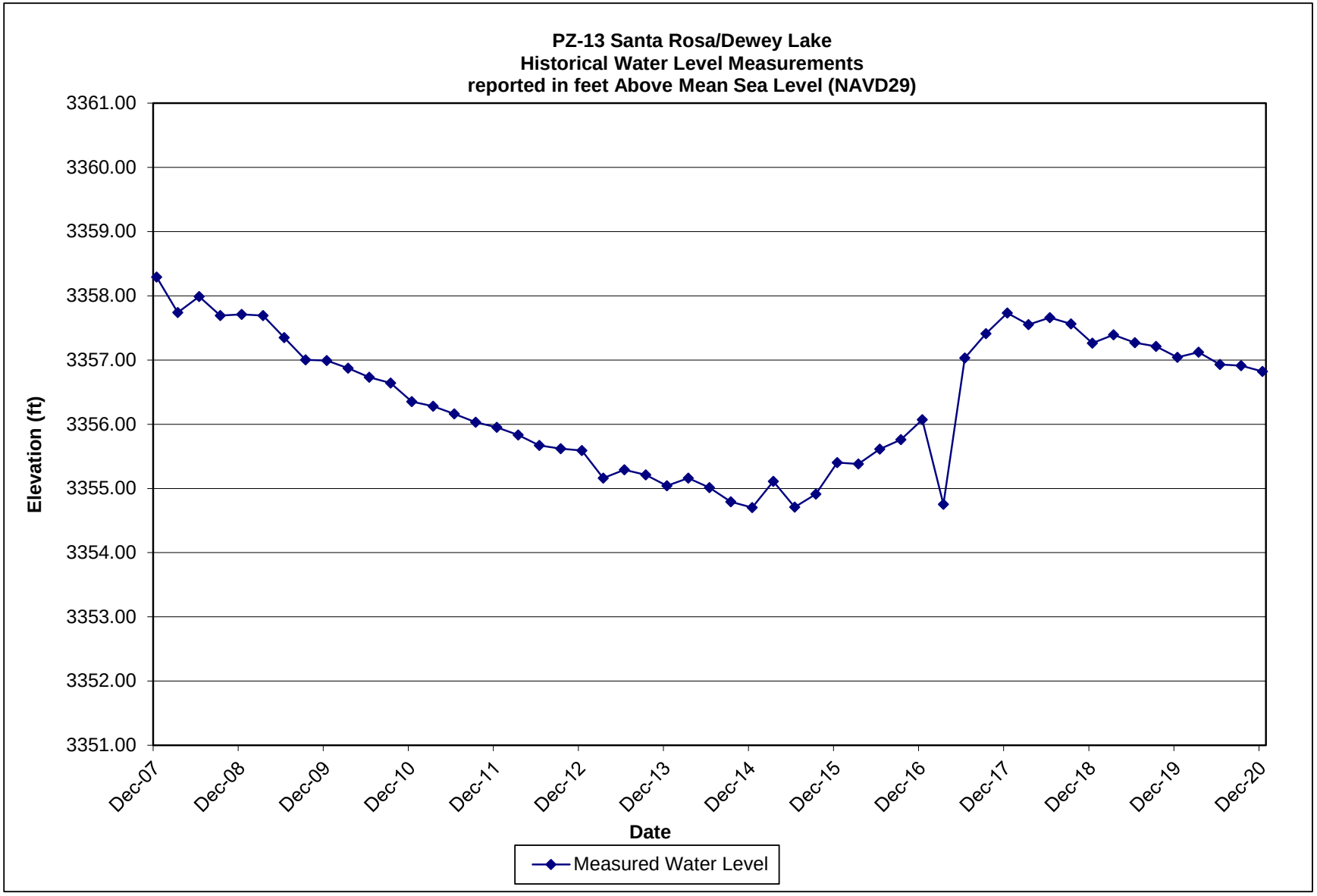

PZ-8 Santa Rosa/Dewey Lake
Historical Water-level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3359.00
3358.00
3357.00
3356.00
3355.00
3354.00
3353.00
3352.00
3351.00
3350.00
3349.00
Well plugged and abandoned
Mar-07
Mar-08
Mar-09
Mar-10
Mar-11
Mar-12
Mar-13
Mar-14
Mar-15
Mar-16
Mar-17
Mar-18
Date
Measured Water Level

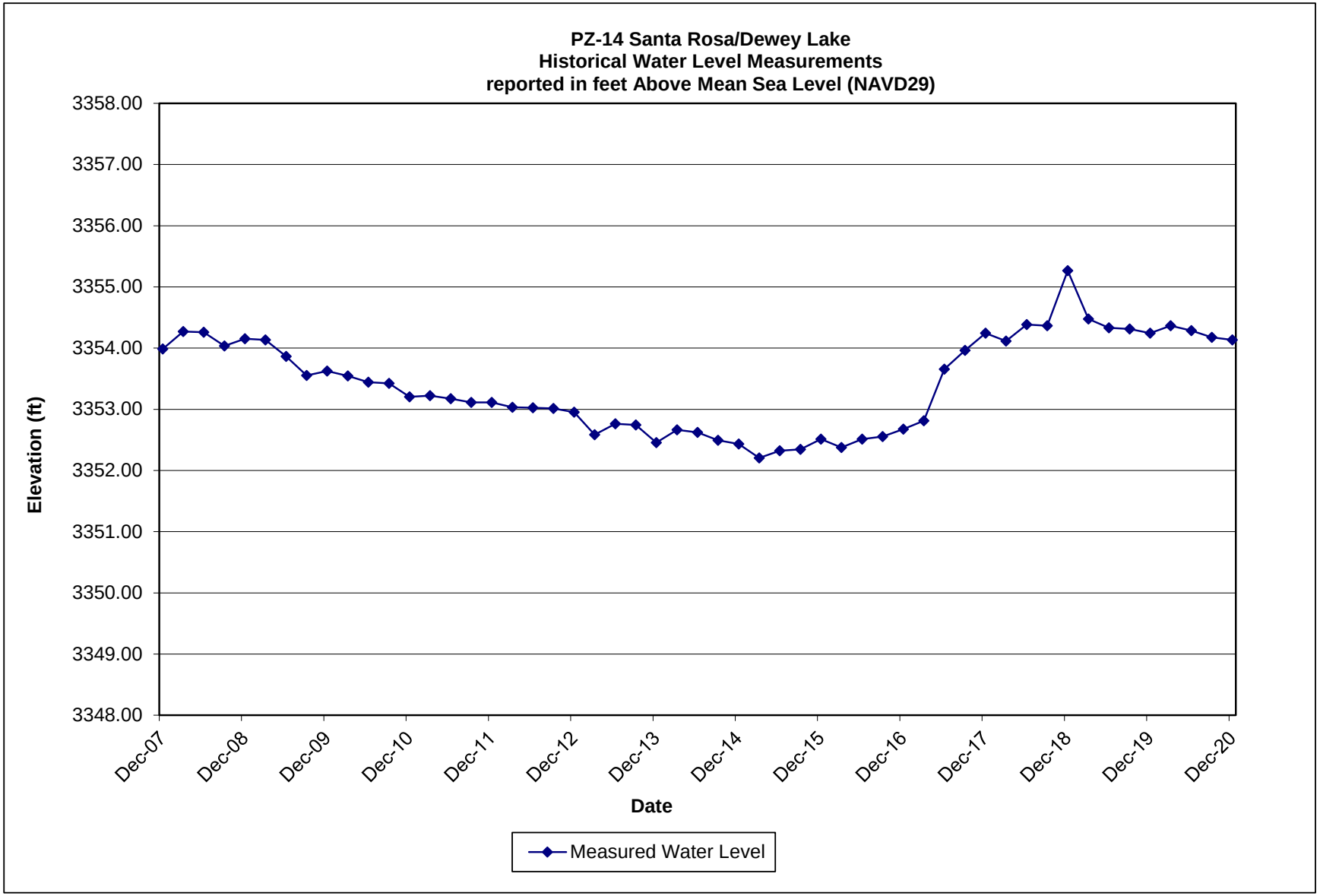

PZ-9 Santa Rosa/Dewey Lake
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
3362.00
3361.00
3360.00
3359.00
3358.00
Aug-02
Aug-03
Aug-04
Aug-05
Aug-06
Aug-07
Aug-08
Aug-09
Aug-10
Aug-11
Aug-12
Aug-13
Aug-14
Aug-15
Aug-16
Aug-17
Aug-18
Aug-19
Aug-20
Date
Measured Water Level

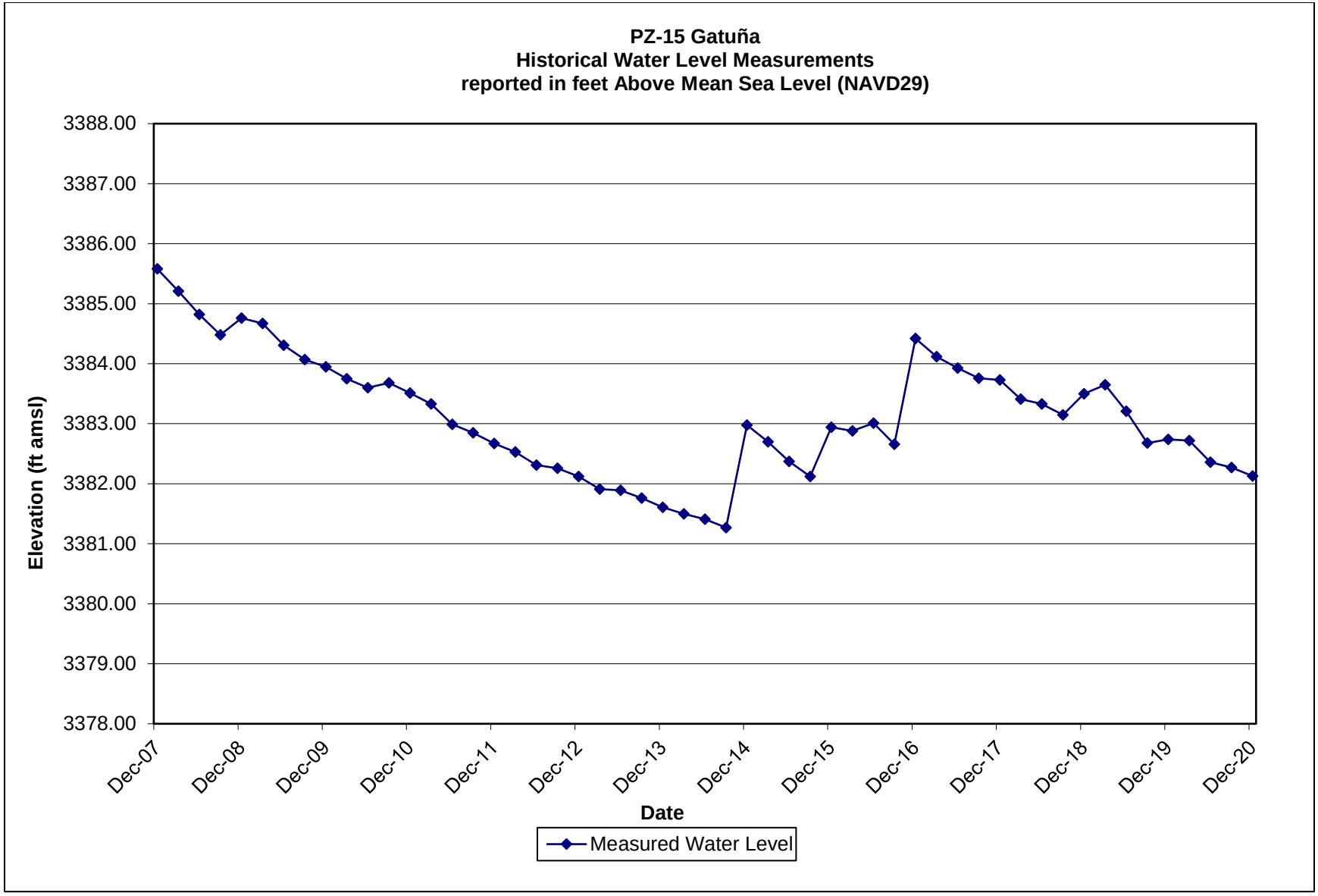

PZ-10 Santa Rosa/Dewey Lake
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3373.00
3372.00
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
Aug-02
Aug-03
Aug-04
Aug-05
Aug-06
Aug-07
Aug-08
Aug-09
Aug-10
Aug-11
Aug-12
Aug-13
Aug-14
Aug-15
Aug-16
Aug-17
Aug-18
Aug-19
Aug-20
Date
Measured Water Level

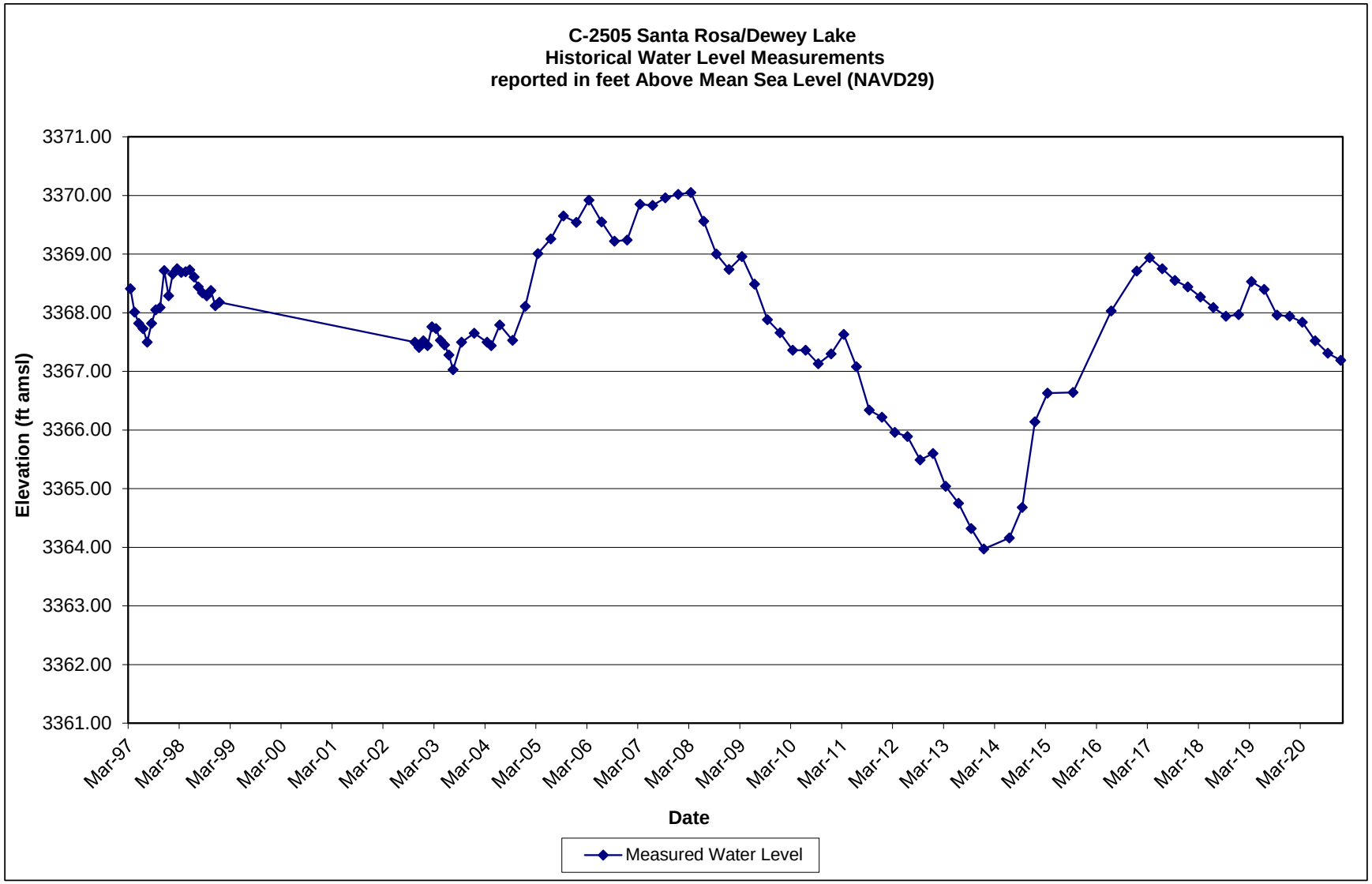

PZ-11 Santa Rosa/Dewey Lake
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
During the period of October 16-18, 2018, a total volume of 1,211,760 gallons were pumped to the surface near PZ-11. From the period of October 22-24, 2018, a total volume of 1,615,680 gallons were pumped to the surface near PZ-11. The elevation spike in PZ-11 is due to the approved discharges.
Elevation (ft amsl)
3379.00
3378.00
3377.00
3376.00
3375.00
3374.00
3373.00
3372.00
3371.00
3370.00
3369.00
Aug-02
Aug-03
Aug-04
Aug-05
Aug-06
Aug-07
Aug-08
Aug-09
Aug-10
Aug-11
Aug-12
Aug-13
Aug-14
Aug-15
Aug-16
Aug-17
Aug-18
Aug-19
Aug-20
Date
Measured Water Level

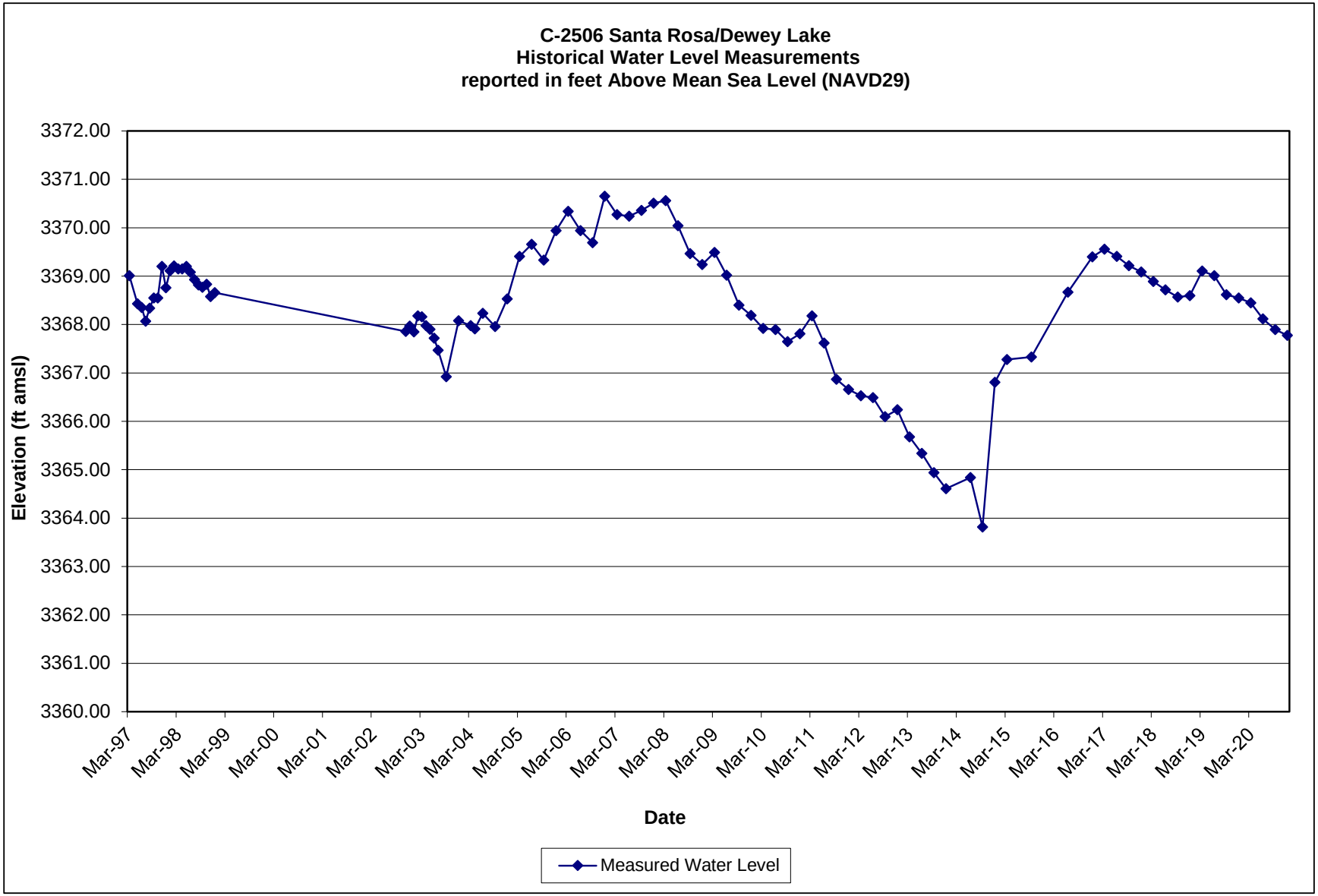

PZ-12 Santa Rosa/Dewey Lake
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3362.00
3361.00
3360.00
3359.00
3358.00
3357.00
3356.00
3355.00
3354.00
3353.00
3352.00
3351.00
3350.00
Aug-02
Aug-03
Aug-04
Aug-05
Aug-06
Aug-07
Aug-08
Aug-09
Aug-10
Aug-11
Aug-12
Aug-13
Aug-14
Aug-15
Aug-16
Aug-17
Aug-18
Aug-19
Aug-20
Date
Measured Water Level

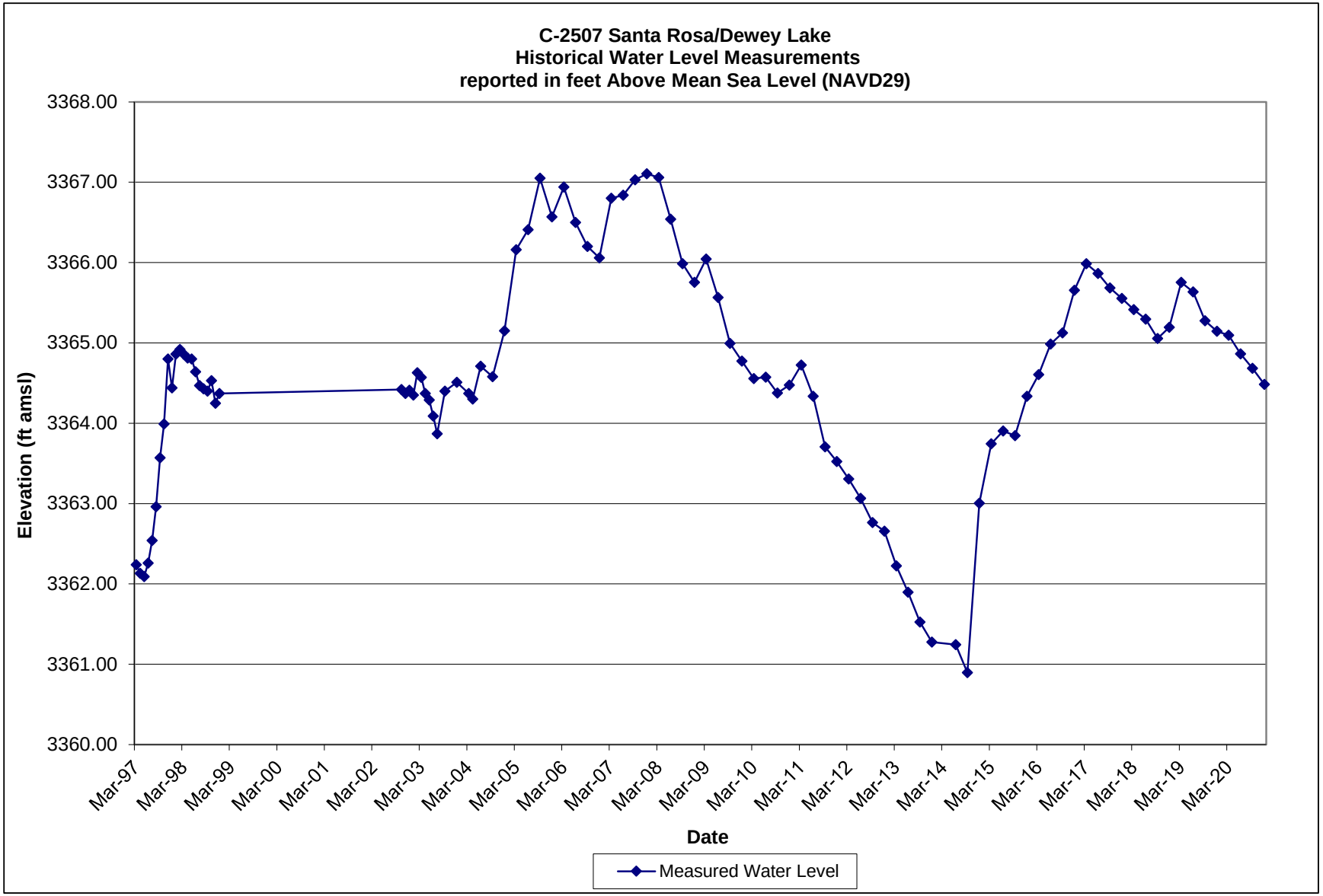

PZ-13 Santa Rosa/Dewey Lake
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft)
3361.00
3360.00
3359.00
3358.00
3357.00
3356.00
3355.00
3354.00
3353.00
3352.00
3351.00
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Dec-18
Dec-19
Dec-20
Date
Measured Water Level

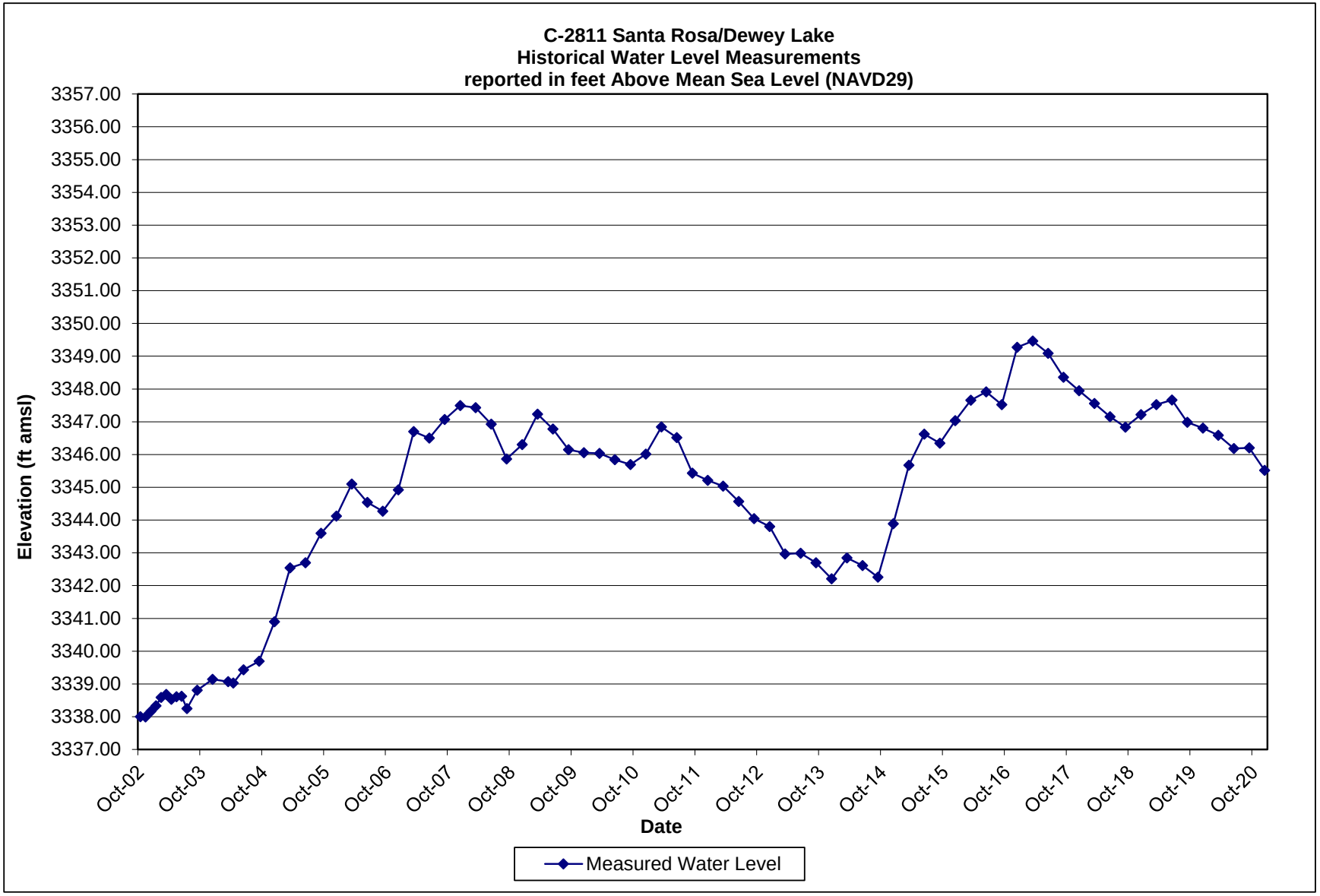

PZ-14 Santa Rosa/Dewey Lake
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft)
3358.00
3357.00
3356.00
3355.00
3354.00
3353.00
3352.00
3351.00
3350.00
3349.00
3348.00
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Dec-18
Dec-19
Dec-20
Date
Measured Water Level

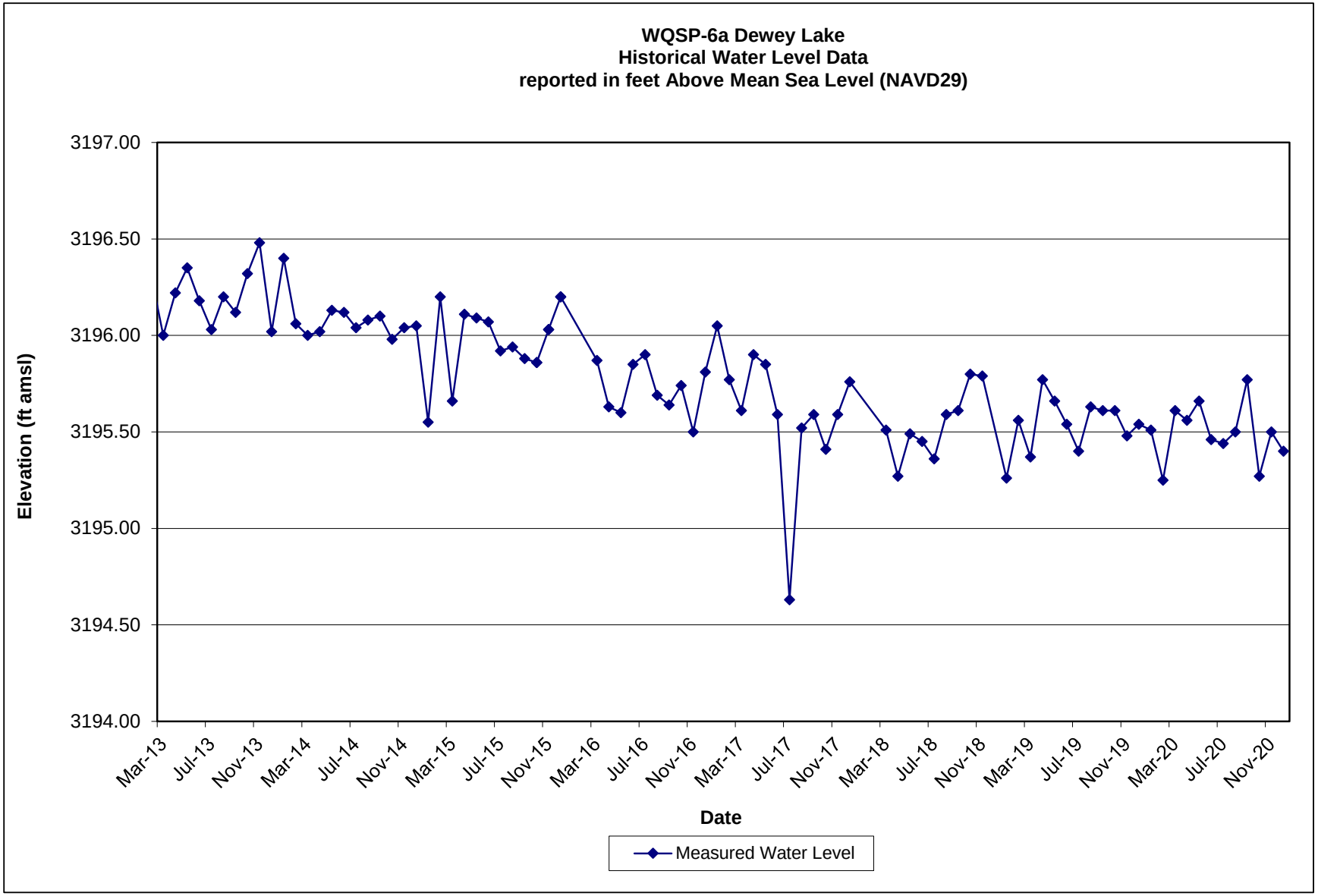

PZ-15 Gatuña
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3388.00
3387.00
3386.00
3385.00
3384.00
3383.00
3382.00
3381.00
3380.00
3379.00
3378.00
Dec-07
Dec-08
Dec-09
Dec-10
Dec-11
Dec-12
Dec-13
Dec-14
Dec-15
Dec-16
Dec-17
Dec-18
Dec-19
Dec-20
Date
Measured Water Level


C-2505 Santa Rosa/Dewey Lake
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
3362.00
3361.00
Mar-97
Mar-98
Mar-99
Mar-00
Mar-01
Mar-02
Mar-03
Mar-04
Mar-05
Mar-06
Mar-07
Mar-08
Mar-09
Mar-10
Mar-11
Mar-12
Mar-13
Mar-14
Mar-15
Mar-16
Mar-17
Mar-18
Mar-19
Mar-20
Date
Measured Water Level


C-2506 Santa Rosa/Dewey Lake
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3372.00
3371.00
3370.00
3369.00
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
3362.00
3361.00
3360.00
Mar-97
Mar-98
Mar-99
Mar-00
Mar-01
Mar-02
Mar-03
Mar-04
Mar-05
Mar-06
Mar-07
Mar-08
Mar-09
Mar-10
Mar-11
Mar-12
Mar-13
Mar-14
Mar-15
Mar-16
Mar-17
Mar-18
Mar-19
Mar-20
Date
Measured Water Level


C-2507 Santa Rosa/Dewey Lake
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3368.00
3367.00
3366.00
3365.00
3364.00
3363.00
3362.00
3361.00
3360.00
Mar-97
Mar-98
Mar-99
Mar-00
Mar-01
Mar-02
Mar-03
Mar-04
Mar-05
Mar-06
Mar-07
Mar-08
Mar-09
Mar-10
Mar-11
Mar-12
Mar-13
Mar-14
Mar-15
Mar-16
Mar-17
Mar-18
Mar-19
Mar-20
Date
Measured Water Level


C-2811 Santa Rosa/Dewey Lake
Historical Water Level Measurements
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3357.00
3356.00
3355.00
3354.00
3353.00
3352.00
3351.00
3350.00
3349.00
3348.00
3347.00
3346.00
3345.00
3344.00
3343.00
3342.00
3341.00
3340.00
3339.00
3338.00
3337.00
Oct-02
Oct-03
Oct-04
Oct-05
Oct-06
Oct-07
Oct-08
Oct-09
Oct-10
Oct-11
Oct-12
Oct-13
Oct-14
Oct-15
Oct-16
Oct-17
Oct-18
Oct-19
Oct-20
Date
Measured Water Level


WQSP-6a Dewey Lake
Historical Water Level Data
reported in feet Above Mean Sea Level (NAVD29)
Elevation (ft amsl)
3197.00
3196.50
3196.00
3195.50
3195.00
3194.50
3194.00
Mar-13
Jul-13
Nov-13
Mar-14
Jul-14
Nov-14
Mar-15
Jul-15
Nov-15
Mar-16
Jul-16
Nov-16
Mar-17
Jul-17
Nov-17
Mar-18
Jul-18
Nov-18
Mar-19
Jul-19
Nov-19
Mar-20
Jul-20
Nov-20
Date
Measured Water Level

Starting Date: 7/1/2020 Ending Date: 12/31/2020 View Report

1 of 1 Find | Next

Document Map

EP H-19 Disposal Report

EP H-19

MLDR

01/04/2021

EP H-19 Disposal Report

From: 7/1/2020 To: 12/31/2020

Month	Year	Waste Description	Total UOM
		Total For EP H-19	**2,225.00 Gallons**
	2020		**2,225.00 Gallons**
August	**2020**		**1,025.00 Gallons**
August	2020	Decontamination Shower Water	165.00 Gallons
August	2020	Waste Shaft Brine	860.00 Gallons
December	**2020**		**1,200.00 Gallons**
December	2020	Waste Shaft Brine	1,200.00 Gallons

1 of 1

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

November 20, 2020

Hnin Khaing
Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8966
FAX:

RE: T514354-04 / 502242-4 OrderNo.: 2011645

Dear Hnin Khaing:

Hall Environmental Analysis Laboratory received 5 sample(s) on 11/12/2020 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order: **2011645**
Date Reported: **11/20/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT:	Waste Isolation Pilot Plant	**Client Sample ID:**	EC-SL2-20201111-1.4
Project:	T514354-04 / 502242-4	**Collection Date:**	11/11/2020 9:17:00 AM
Lab ID:	2011645-001A	**Matrix:**	Waste Water

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Nitrogen, Nitrate (As N)	0.143	0.100	0.500	J	mg/L	5	11/13/2020 2:23:02 AM	R73328

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-SL2-20201111-2.4
Project: T514354-04 / 502242-4
Collection Date: 11/11/2020 9:10:00 AM
Lab ID: 2011645-002A
Matrix: Waste Water

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM 4500 NORG C: TKN							Analyst: **OG**	
Nitrogen, Kjeldahl, Total	66	0.47	2.0	D	mg/L	1	11/17/2020 3:41:00 PM	56484

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-SL2-20201111-3.4
Project: T514354-04 / 502242-4
Collection Date: 11/11/2020 9:13:00 AM
Lab ID: 2011645-003A
Matrix: Waste Water

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	74.4	2.50	5.00		mg/L	10	11/13/2020 2:47:43 AM	R73328
Sulfate	43.3	2.50	5.00		mg/L	10	11/13/2020 2:47:43 AM	R73328
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	445	100	100	D	mg/L	1	11/17/2020 1:29:00 PM	56465

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-SL2-20201111-4.4
Project: T514354-04 / 502242-4
Collection Date: 11/11/2020 9:13:00 AM
Lab ID: 2011645-004A
Matrix: Waste Water

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	75.4	2.50	5.00		mg/L	10	11/13/2020 3:37:05 AM	R73328
Sulfate	44.0	2.50	5.00		mg/L	10	11/13/2020 3:37:05 AM	R73328
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	465	100	100	D	mg/L	1	11/17/2020 1:29:00 PM	56465

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: EC-BLK-20201111-1.1
Project: T514354-04 / 502242-4
Collection Date: 11/11/2020 9:20:00 AM
Lab ID: 2011645-005A
Matrix: Waste Water

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	ND	0.250	0.500		mg/L	1	11/13/2020 4:01:45 AM	R73328
Sulfate	ND	0.250	0.500		mg/L	1	11/13/2020 4:01:45 AM	R73328
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	ND	40.0	40.0	D	mg/L	1	11/17/2020 1:29:00 PM	56465

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2011645**

20-Nov-20

Client: Waste Isolation Pilot Plant

Project: T514354-04 / 502242-4

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R73328**	RunNo: **73328**							
Prep Date:	Analysis Date: **11/12/2020**	SeqNo: **2580836**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.1	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **CCB**	Batch ID: **R73328**	RunNo: **73328**							
Prep Date:	Analysis Date: **11/12/2020**	SeqNo: **2580837**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R73328**	RunNo: **73328**							
Prep Date:	Analysis Date: **11/12/2020**	SeqNo: **2580848**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.9	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **CCB**	Batch ID: **R73328**	RunNo: **73328**							
Prep Date:	Analysis Date: **11/12/2020**	SeqNo: **2580849**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R73328**	RunNo: **73328**							
Prep Date:	Analysis Date: **11/12/2020**	SeqNo: **2580860**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.3	90	110			
Nitrogen, Nitrate (As N)	5.0	0.10	4.800	0	105	90	110			
Sulfate	20	0.50	20.00	0	98.7	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **CCB**	Batch ID: **R73328**	RunNo: **73328**							
Prep Date:	Analysis Date: **11/12/2020**	SeqNo: **2580861**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2011645**

20-Nov-20

Client: Waste Isolation Pilot Plant

Project: T514354-04 / 502242-4

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R73328**	RunNo: **73328**
Prep Date:	Analysis Date: **11/12/2020**	SeqNo: **2580869** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R73328**	RunNo: **73328**
Prep Date:	Analysis Date: **11/12/2020**	SeqNo: **2580870** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	95.3	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.4	90	110			
Sulfate	9.7	0.50	10.00	0	96.6	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R73328**	RunNo: **73328**
Prep Date:	Analysis Date: **11/12/2020**	SeqNo: **2580871** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.3	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	99.6	90	110			
Sulfate	12	0.50	12.50	0	95.2	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R73328**	RunNo: **73328**
Prep Date:	Analysis Date: **11/12/2020**	SeqNo: **2580872** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R73328**	RunNo: **73328**
Prep Date:	Analysis Date: **11/12/2020**	SeqNo: **2580883** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.4	90	110			
Nitrogen, Nitrate (As N)	5.0	0.10	4.800	0	105	90	110			
Sulfate	20	0.50	20.00	0	98.8	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2011645**

20-Nov-20

Client: Waste Isolation Pilot Plant

Project: T514354-04 / 502242-4

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**

Client ID: **CCB** Batch ID: **R73328** RunNo: **73328**

Prep Date: Analysis Date: **11/12/2020** SeqNo: **2580884** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Sample ID: **A4** SampType: **ccv_4** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R73328** RunNo: **73328**

Prep Date: Analysis Date: **11/12/2020** SeqNo: **2580895** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.7	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	100	90	110			
Sulfate	12	0.50	12.50	0	94.6	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**

Client ID: **CCB** Batch ID: **R73328** RunNo: **73328**

Prep Date: Analysis Date: **11/12/2020** SeqNo: **2580896** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Sample ID: **A5** SampType: **ccv_5** TestCode: **EPA Method 300.0: Anions**

Client ID: **BatchQC** Batch ID: **R73328** RunNo: **73328**

Prep Date: Analysis Date: **11/13/2020** SeqNo: **2580907** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.6	90	110			
Nitrogen, Nitrate (As N)	5.0	0.10	4.800	0	105	90	110			
Sulfate	20	0.50	20.00	0	98.5	90	110			

Sample ID: **ccb** SampType: **ccb** TestCode: **EPA Method 300.0: Anions**

Client ID: **CCB** Batch ID: **R73328** RunNo: **73328**

Prep Date: Analysis Date: **11/13/2020** SeqNo: **2580908** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2011645**

20-Nov-20

Client: Waste Isolation Pilot Plant

Project: T514354-04 / 502242-4

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R73328**	RunNo: **73328**
Prep Date:	Analysis Date: **11/13/2020**	SeqNo: **2580919** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.1	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	100	90	110			
Sulfate	12	0.50	12.50	0	94.8	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R73328**	RunNo: **73328**
Prep Date:	Analysis Date: **11/13/2020**	SeqNo: **2580920** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R73328**	RunNo: **73328**
Prep Date:	Analysis Date: **11/13/2020**	SeqNo: **2580949** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.1	90	110			
Nitrogen, Nitrate (As N)	5.0	0.10	4.800	0	105	90	110			
Sulfate	20	0.50	20.00	0	98.5	90	110			

Sample ID: **ccb**	SampType: **ccb**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CCB**	Batch ID: **R73328**	RunNo: **73328**
Prep Date:	Analysis Date: **11/13/2020**	SeqNo: **2580950** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2011645**
20-Nov-20

Client: Waste Isolation Pilot Plant
Project: T514354-04 / 502242-4

Sample ID: **MB-56465**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **56465**	RunNo: **73415**
Prep Date: **11/16/2020**	Analysis Date: **11/17/2020**	SeqNo: **2585209** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-56465**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **56465**	RunNo: **73415**
Prep Date: **11/16/2020**	Analysis Date: **11/17/2020**	SeqNo: **2585210** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2011645**

20-Nov-20

Client: Waste Isolation Pilot Plant

Project: T514354-04 / 502242-4

Sample ID: **MB-56484**	SampType: **MBLK**	TestCode: **SM 4500 Norg C: TKN**							
Client ID: **PBW**	Batch ID: **56484**	RunNo: **73431**							
Prep Date: **11/16/2020**	Analysis Date: **11/17/2020**	SeqNo: **2585865**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	1.0								

Sample ID: **LCS-56484**	SampType: **LCS**	TestCode: **SM 4500 Norg C: TKN**							
Client ID: **LCSW**	Batch ID: **56484**	RunNo: **73431**							
Prep Date: **11/16/2020**	Analysis Date: **11/17/2020**	SeqNo: **2585866**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10	1.0	10.00	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: **Waste Isolation Pilot Plant** Work Order Number: **2011645** RcptNo: **1**

Received By: **Cheyenne Cason** **11/12/2020 8:00:00 AM**

Completed By: **Desiree Dominguez** **11/12/2020 8:26:55 AM** DD

Reviewed By: CM 11/12/20

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	FedEx		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 1 (<2 or >12 unless noted)

Adjusted? NO

Checked by: JR 11/12/20

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.2	Good				

05630

ENVIRONMENTAL CHAIN-OF-CUSTODY / REQUEST FOR ANALYSIS RECORD

Date Samples Shipped 11-11-2020
Lab Contact Andy Freeman
Project Contact HWN Chain
Project Contact Phone (575) 234-8972

CofC/RFA Control No. 10853
Carrier/Waybill Number FedEx 8116-0153-0340
Lab PO Number T514354-04 / 5022424

WASTE ISOLATION PILOT PLANT
P.O. BOX 2078
CARLSBAD, NM 88221-2078

Lab Report Delivery to:
PO Box 2078 Mail Stop 452-09
Carlsbad, NM 88221-2078

HEAL # 2011645

	Sample Number	Date/Time Collected	Sample Type	Sample Quantity	Container Type	Preservative	Requested Analysis
-001	EC-SL2-20201111 - 1,4	11-11-2020 0917	Sewage	1 Liter	Plastic	≤ 4°C	Nitrate
-002	2,4	0910		500 mL		H_2SO_4 to pH ≤ 2, ≤ 4°C	TKN
-003	3,4	0913				≤ 4°C	Sulfate, Chloride, TDS
-004	4,4	0913					
-005	EC-BLK-20201111 - 1,1	0920					

N/A

Special Instruction Comments: Do Nitrate (1 liter setting Lagoon 2) within 48 hrs of Collection time (11-11-2020 0917)

Sample temp 1.4 - 0.2 = 1.2c

Possible Hazards Nonhazard X 14-11-11-2020 Radiological ____ Sewage X Other ____ Sample Disposal: Return To Client ____ Disposal By Lab X

Signatures: (Name, Signature, Date and Time) **Laboratory Note Any Sample Discrepancies on "Special Instruction/Comment Line"

1. Relinquished By: Jerome Hernandez 11-11-2020 1045
   Received By: Cheyenne Cason CMC 11/12/20 0800
2. Relinquished By: ____
   Received By: ____
3. Relinquished By: ____
   Received By: ____
4. Relinquished By: ____
   Received By: ____

WP 02-EM3001- Environmental Monitoring

WHITE - Original to accompany samples

CANARY - Field copy

NICHOLS PRINTING INC. • 575-88[illegible]

05631

Salt Storage Pond Sump Inspections
July through December 2020

Pond #	Date	Tme	Water Level (ft)
Salt Storage Pond 2	7/22/2020	14:33	33.09
Salt Storage Pond 3		14:40	36.14
Salt Storage Pond 2	8/5/2020	17:10	33.45
Salt Storage Pond 3		17:15	16.76
Salt Storage Pond 2	9/8/2020	13:58	34.56
Salt Storage Pond 3		14:06	37.83
Salt Storage Pond 2	10/12/2020	13:44	35.18
Salt Storage Pond 3		13:50	38.83
Salt Storage Pond 2	11/11/2020	13:10	35.17
Salt Storage Pond 3		13:16	51.41
Salt Storage Pond 2	12/9/2020	13:30	35.12
Salt Storage Pond 3		13:34	39.12

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

November 17, 2020

Brett Seal
Waste Isolation Pilot Plant
P.O. Box 2078
Carlsbad, NM 88221-2078
TEL: (575) 234-8966
FAX:

RE: PAW Sampling R34 OrderNo.: 2011309

Dear Brett Seal:

Hall Environmental Analysis Laboratory received 15 sample(s) on 11/5/2020 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: PAW C2811 R34 N1
Project: PAW Sampling R34
Collection Date: 11/2/2020 7:51:00 AM
Lab ID: 2011309-001
Matrix: AQUEOUS
Received Date: 11/5/2020 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	898	25.0	50.0		mg/L	100	11/6/2020 3:53:24 PM	R73206
Sulfate	327	2.50	5.00		mg/L	10	11/6/2020 3:40:32 PM	R73206
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	2250	20.0	20.0	*	mg/L	1	11/9/2020 1:38:00 PM	56255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: PAW PZ12 R34 N1
Project: PAW Sampling R34
Collection Date: 11/2/2020 9:14:00 AM
Lab ID: 2011309-002
Matrix: AQUEOUS
Received Date: 11/5/2020 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **JMT**	
Chloride	3400	120	250		mg/L	500	11/9/2020 4:49:02 PM	R73230
Sulfate	594	25.0	50.0		mg/L	100	11/6/2020 4:44:55 PM	R73206
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	7620	20.0	20.0	*	mg/L	1	11/9/2020 1:38:00 PM	56255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: PAW PZ10 R34 N1
Project: PAW Sampling R34
Collection Date: 11/2/2020 10:32:00 AM
Lab ID: 2011309-003
Matrix: AQUEOUS
Received Date: 11/5/2020 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	177	25.0	50.0		mg/L	100	11/6/2020 5:10:41 PM	R73206
Sulfate	269	2.50	5.00		mg/L	10	11/6/2020 4:57:47 PM	R73206
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	1090	20.0	20.0	*	mg/L	1	11/9/2020 1:38:00 PM	56255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: PAW PZ7 R34 N1
Project: PAW Sampling R34
Collection Date: 11/2/2020 11:59:00 AM
Lab ID: 2011309-004
Matrix: AQUEOUS
Received Date: 11/5/2020 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	57700	2500	5000		mg/L	1E+	11/6/2020 5:36:24 PM	R73206
Sulfate	3030	25.0	50.0		mg/L	100	11/6/2020 5:23:32 PM	R73206
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	96300	2000	2000	*D	mg/L	1	11/9/2020 1:38:00 PM	56255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: PAW PZ13 R34 N1
Project: PAW Sampling R34
Collection Date: 11/3/2020 6:41:00 AM
Lab ID: 2011309-005
Matrix: AQUEOUS
Received Date: 11/5/2020 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	162000	2500	5000		mg/L	1E+	11/6/2020 6:02:09 PM	R73206
Sulfate	3220	25.0	50.0		mg/L	100	11/6/2020 5:49:16 PM	R73206
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	255000	2000	2000	*D	mg/L	1	11/9/2020 1:38:00 PM	56255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: PAW PZ9 R34 N1
Project: PAW Sampling R34
Collection Date: 11/3/2020 8:23:00 AM
Lab ID: 2011309-006 **Matrix:** AQUEOUS **Received Date:** 11/5/2020 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	96200	2500	5000		mg/L	1E+	11/6/2020 6:27:54 PM	R73206
Sulfate	4480	250	500		mg/L	1000	11/6/2020 6:15:02 PM	R73206
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	184000	2000	2000	*D	mg/L	1	11/9/2020 1:38:00 PM	56255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: PAW PZ1 R34 N1
Project: PAW Sampling R34
Collection Date: 11/3/2020 11:33:00 AM
Lab ID: 2011309-007
Matrix: AQUEOUS
Received Date: 11/5/2020 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	20000	1250	2500		mg/L	5000	11/6/2020 7:19:25 PM	R73206
Sulfate	1860	25.0	50.0		mg/L	100	11/6/2020 7:06:31 PM	R73206
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	47800	2000	2000	*D	mg/L	1	11/9/2020 1:38:00 PM	56255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: PAW PZ5 R34 N1
Project: PAW Sampling R34
Collection Date: 11/3/2020 2:25:00 PM
Lab ID: 2011309-008 **Matrix:** AQUEOUS **Received Date:** 11/5/2020 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	6620	125	250		mg/L	500	11/6/2020 7:45:06 PM	R73206
Sulfate	499	25.0	50.0		mg/L	100	11/6/2020 7:32:15 PM	R73206
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	13500	200	200	*D	mg/L	1	11/9/2020 1:38:00 PM	56255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: PAW PZ5 R34 N1D
Project: PAW Sampling R34
Collection Date: 11/3/2020 2:26:00 PM
Lab ID: 2011309-009
Matrix: AQUEOUS
Received Date: 11/5/2020 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	7120	125	250		mg/L	500	11/6/2020 8:10:51 PM	R73206
Sulfate	554	25.0	50.0		mg/L	100	11/6/2020 7:58:00 PM	R73206
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	13500	200	200	*D	mg/L	1	11/9/2020 1:38:00 PM	56255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: PAW PZ5 R34 N1EB
Project: PAW Sampling R34
Collection Date: 11/3/2020 2:39:00 PM
Lab ID: 2011309-010
Matrix: AQUEOUS
Received Date: 11/5/2020 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	7.19	2.50	5.00		mg/L	10	11/6/2020 8:23:43 PM	R73206
Sulfate	ND	2.50	5.00		mg/L	10	11/6/2020 8:23:43 PM	R73206
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	ND	20.0	20.0		mg/L	1	11/9/2020 1:38:00 PM	56255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: PAW PZ6 R34 N1
Project: PAW Sampling R34
Collection Date: 11/3/2020 12:49:00 PM
Lab ID: 2011309-011
Matrix: AQUEOUS
Received Date: 11/5/2020 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	13900	500	1000		mg/L	2000	11/6/2020 9:02:17 PM	R73206
Sulfate	1000	25.0	50.0		mg/L	100	11/6/2020 8:49:25 PM	R73206
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	24600	2000	2000	*D	mg/L	1	11/9/2020 1:38:00 PM	56255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: PAW C2507 R34 N1
Project: PAW Sampling R34
Collection Date: 11/3/2020 10:17:00 AM
Lab ID: 2011309-012
Matrix: AQUEOUS
Received Date: 11/5/2020 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	4060	125	250		mg/L	500	11/6/2020 9:53:46 PM	R73206
Sulfate	667	25.0	50.0		mg/L	100	11/6/2020 9:40:53 PM	R73206
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	8230	40.0	40.0	*D	mg/L	1	11/9/2020 1:38:00 PM	56255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: PAW PZ11 R34 N1
Project: PAW Sampling R34
Collection Date: 11/2/2020 2:48:00 PM
Lab ID: 2011309-013
Matrix: AQUEOUS
Received Date: 11/5/2020 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	35700	1250	2500		mg/L	5000	11/6/2020 10:19:26 PM	R73206
Sulfate	2000	25.0	50.0		mg/L	100	11/6/2020 10:06:37 PM	R73206
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	68500	2000	2000	*D	mg/L	1	11/9/2020 1:38:00 PM	56255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: PAW PZ11 R34 N1EB
Project: PAW Sampling R34
Collection Date: 11/2/2020 3:01:00 PM
Lab ID: 2011309-014
Matrix: AQUEOUS
Received Date: 11/5/2020 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	15.4	2.50	5.00		mg/L	10	11/6/2020 10:32:15 PM	R73206
Sulfate	ND	2.50	5.00		mg/L	10	11/6/2020 10:32:15 PM	R73206
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	32.0	20.0	20.0		mg/L	1	11/9/2020 1:38:00 PM	56255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Waste Isolation Pilot Plant
Client Sample ID: PAW WQSP6A R34 N1-N2
Project: PAW Sampling R34
Collection Date: 11/4/2020 8:27:00 AM
Lab ID: 2011309-015
Matrix: AQUEOUS
Received Date: 11/5/2020 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Chloride	316	25.0	50.0		mg/L	100	11/6/2020 11:10:44 PM	R73206
Sulfate	1850	25.0	50.0		mg/L	100	11/6/2020 11:10:44 PM	R73206
Nitrate+Nitrite as N	4.64	0.0613	1.00		mg/L	5	11/10/2020 3:17:09 PM	R73271
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	3390	40.0	40.0	*D	mg/L	1	11/9/2020 1:38:00 PM	56255
SM 4500 NORG C: TKN							Analyst: **CJS**	
Nitrogen, Kjeldahl, Total	ND	0.23	1.0		mg/L	1	11/11/2020 2:20:00 PM	56343

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2011309**

17-Nov-20

Client: Waste Isolation Pilot Plant

Project: PAW Sampling R34

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R73206**	RunNo: **73206**							
Prep Date:	Analysis Date: **11/6/2020**	SeqNo: **2575142**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.1	90	110			
Sulfate	20	0.50	20.00	0	98.1	90	110			

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R73206**	RunNo: **73206**							
Prep Date:	Analysis Date: **11/6/2020**	SeqNo: **2575145**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R73206**	RunNo: **73206**							
Prep Date:	Analysis Date: **11/6/2020**	SeqNo: **2575146**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.5	0.50	5.000	0	90.9	90	110			
Sulfate	9.3	0.50	10.00	0	92.8	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R73206**	RunNo: **73206**							
Prep Date:	Analysis Date: **11/6/2020**	SeqNo: **2575153**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.0	0.50	5.000	0	100	90	110			
Sulfate	12	0.50	12.50	0	94.8	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R73206**	RunNo: **73206**							
Prep Date:	Analysis Date: **11/6/2020**	SeqNo: **2575165**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	95.9	90	110			
Sulfate	20	0.50	20.00	0	97.9	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R73206**	RunNo: **73206**							
Prep Date:	Analysis Date: **11/6/2020**	SeqNo: **2575177**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2011309**

17-Nov-20

Client: Waste Isolation Pilot Plant

Project: PAW Sampling R34

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R73206**	RunNo: **73206**							
Prep Date:	Analysis Date: **11/6/2020**	SeqNo: **2575177**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.2	90	110			
Sulfate	12	0.50	12.50	0	95.0	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R73206**	RunNo: **73206**							
Prep Date:	Analysis Date: **11/6/2020**	SeqNo: **2575189**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.4	90	110			
Sulfate	20	0.50	20.00	0	98.3	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R73206**	RunNo: **73206**							
Prep Date:	Analysis Date: **11/7/2020**	SeqNo: **2575196**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.7	90	110			
Sulfate	12	0.50	12.50	0	94.8	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R73230**	RunNo: **73230**							
Prep Date:	Analysis Date: **11/9/2020**	SeqNo: **2576636**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.6	0.50	8.000	0	95.5	90	110			

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R73230**	RunNo: **73230**							
Prep Date:	Analysis Date: **11/9/2020**	SeqNo: **2576639**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R73230**	RunNo: **73230**							
Prep Date:	Analysis Date: **11/9/2020**	SeqNo: **2576640**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2011309**

17-Nov-20

Client: Waste Isolation Pilot Plant

Project: PAW Sampling R34

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R73230**	RunNo: **73230**							
Prep Date:	Analysis Date: **11/9/2020**	SeqNo: **2576648**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.7	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R73230**	RunNo: **73230**							
Prep Date:	Analysis Date: **11/9/2020**	SeqNo: **2576659**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	95.7	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R73271**	RunNo: **73271**							
Prep Date:	Analysis Date: **11/10/2020**	SeqNo: **2578330**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	8.2	0.20	8.000	0	103	90	110			

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R73271**	RunNo: **73271**							
Prep Date:	Analysis Date: **11/10/2020**	SeqNo: **2578333**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	ND	0.20								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R73271**	RunNo: **73271**							
Prep Date:	Analysis Date: **11/10/2020**	SeqNo: **2578334**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.4	0.20	3.500	0	96.7	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R73271**	RunNo: **73271**							
Prep Date:	Analysis Date: **11/10/2020**	SeqNo: **2578341**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	4.9	0.20	5.000	0	98.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2011309**

17-Nov-20

Client: Waste Isolation Pilot Plant

Project: PAW Sampling R34

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R73271**	RunNo: **73271**							
Prep Date:	Analysis Date: **11/10/2020**	SeqNo: **2578353**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	8.2	0.20	8.000	0	103	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R73271**	RunNo: **73271**							
Prep Date:	Analysis Date: **11/10/2020**	SeqNo: **2578365**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	4.9	0.20	5.000	0	98.5	90	110			

Sample ID: **A5**	SampType: **ccv_5**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R73271**	RunNo: **73271**							
Prep Date:	Analysis Date: **11/10/2020**	SeqNo: **2578377**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	8.2	0.20	8.000	0	103	90	110			

Sample ID: **A4**	SampType: **ccv_4**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **BatchQC**	Batch ID: **R73271**	RunNo: **73271**							
Prep Date:	Analysis Date: **11/10/2020**	SeqNo: **2578383**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	4.9	0.20	5.000	0	98.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2011309**

17-Nov-20

Client: Waste Isolation Pilot Plant

Project: PAW Sampling R34

Sample ID: **MB-56255**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **56255**	RunNo: **73213**
Prep Date: **11/6/2020**	Analysis Date: **11/9/2020**	SeqNo: **2575643** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-56255**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **56255**	RunNo: **73213**
Prep Date: **11/6/2020**	Analysis Date: **11/9/2020**	SeqNo: **2575644** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1000	20.0	1000	0	100	80	120			

Sample ID: **2011309-015ADUP**	SampType: **DUP**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PAW WQSP6A R34**	Batch ID: **56255**	RunNo: **73213**
Prep Date: **11/6/2020**	Analysis Date: **11/9/2020**	SeqNo: **2575666** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	3390	40.0						0.118	10	*D

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2011309**

17-Nov-20

Client: Waste Isolation Pilot Plant

Project: PAW Sampling R34

Sample ID: **MB-56343**	SampType: **MBLK**	TestCode: **SM 4500 Norg C: TKN**
Client ID: **PBW**	Batch ID: **56343**	RunNo: **73278**
Prep Date: **11/10/2020**	Analysis Date: **11/11/2020**	SeqNo: **2578552** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	1.0								

Sample ID: **LCS-56343**	SampType: **LCS**	TestCode: **SM 4500 Norg C: TKN**
Client ID: **LCSW**	Batch ID: **56343**	RunNo: **73278**
Prep Date: **11/10/2020**	Analysis Date: **11/11/2020**	SeqNo: **2578553** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10	1.0	10.00	0	101	80	120			

Sample ID: **2011309-015AMS**	SampType: **MS**	TestCode: **SM 4500 Norg C: TKN**
Client ID: **PAW WQSP6A R34**	Batch ID: **56343**	RunNo: **73278**
Prep Date: **11/10/2020**	Analysis Date: **11/11/2020**	SeqNo: **2578555** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	9.5	1.0	10.00	0	95.2	75	125			

Sample ID: **2011309-015AMSD**	SampType: **MSD**	TestCode: **SM 4500 Norg C: TKN**
Client ID: **PAW WQSP6A R34**	Batch ID: **56343**	RunNo: **73278**
Prep Date: **11/10/2020**	Analysis Date: **11/11/2020**	SeqNo: **2578556** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10	1.0	10.00	0	101	75	125	5.71	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: **Waste Isolation Pilot Plant** Work Order Number: **2011309** RcptNo: **1**

Received By: **Sean Livingston** **11/5/2020 8:00:00 AM** Sean Livingston

Completed By: **Emily Mocho** **11/5/2020 11:38:59 AM**

Reviewed By: YR 11/5/20

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? FedEx

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☐ No ☑ NA ☐
   Samples not frozen
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☐ No ☐ NA ☑
10. Were any sample containers received broken? Yes ☐ No ☑
    # of preserved bottles checked for pH: 1 (<2 or >12 unless noted)
    Adjusted? NO
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐
    Checked by: SPA 11.5.20

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	-0.2	Good				

05655

CHAIN OF CUSTODY RECORD

No. 1366

Page 1 of 2

Project Number:	Project Name:
T514354-2	PAW Samplings R34
Sampler(s):	
Bret Seal	Allen Hall

Sample Date	Sample Time	Matrix	Sample Number	Total Number of Containers	TDS	Chloride	Sulfate	Analytical Laboratory / Comments
								HEAL Albuquerque NM
								Comments 2011309
~~10/13/20~~ 11/2/20	~~0927~~ 0751 AS#4 11-4-20	PAW	PAW C2811 R34 N1	1	X	X	X	001
11/2/20	0914		PAW PZ12 R34 N1		X	X	X	002
11/2/20	1032		PAW PZ10 R34 N1		X	X	X	003
11/2/20	1159		PAW PZ 7 R34 N1		X	X	X	004
11/3/20	0641		PAW PZ 13 R34 N1		X	X	X	005
11/3/20	0823		PAW PZ9 R34 N1		X	X	X	006
11/3/20	1133		PAW PZ 1 R34 N1		X	X	X	007
11/3/20	1425		PAW PZ5 R34 N1		X	X	X	008
11/3/20	1426		PAW PZ5 R34 N1D		X	X	X	009
11/3/20	1439		PAW PZ5 R34 N1EB		X	X	X	Equip. Blank 010
11-3-20	1249		PAW PZ6 R34 N1		X	X	X	011
11-3-20	1017		PAW C2507 R34 N1		X	X	X	012
11-2-20	1448		PAW PZ11 R34 N1		X	X	X	013
11-2-20	1501	↓	PAW PZ11 R34 N1EB	↓	X	X	X	Equip. Blank 014

Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)
Allen Hall 11-4-2020/1300	S_ C_ 11/5/20 8:00		
Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received at Laboratory: (Signature, Date/Time)

Requested Turnaround Time: 30 Days

☒ Routine ☐ Rush _____

Sample Disposal:

☐ Return to Client ☐ Disposal by Lab

Carrier / Airbill No.: FEDEX 8131 0130 5457

Sample Receipt Remarks:

-0.2+0 = -0.2%

Results To: Bret Seal

RES
PO Box 2078, MS 452-09
Carlsbad, NM 88221-2078

Phone: 575-706-6034 FAX: 575-234-6003

EDD: Bret.Seal@WIPP.WS

Special Instructions:

High TDS: PZ-7, 11, 9, 6, 5, 13, 1

Report all data to 3 sig figs

samples not frozen

WHITE – Analytical Laboratory
DI – Deionized Water
GW – Groundwater

YELLOW – Field Copy
AF – Air Filter(s)
AN – Animal(s)

PINK – Record Copy
SE – Sediment
SO – Soil

SW – Surface Water
VG – Vegetation

Form CofC/RFA, Rev. 0 – NICHOLS PRINTING, INC.

05656

CHAIN OF CUSTODY RECORD

No. 1367

Page 2 of 2

Project Number:	Project Name:			Total Number of Containers	Requested Analyses									Analytical Laboratory
T514354-2	PAW Sampling R34				TDS	chloride	Sulfate	Nitrate	TNT					HEAL
Sampler(s):														Albuquerque NM
Brett Seal	Allen Hall													
Sample Date	Sample Time	Matrix	Sample Number											Comments 2011309
11-4-20	0827	PAW	PAW WQSP6A R34N1	1	X	X	X	X						use for MS/MSD 015
11-4-20	0829	PAW	PAW WQSP6A R34N2	1				X	X					1

Allen Hall 10/5/2020

Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)
Allen Hall 11-4-2020/1300	S. Campos 11/5/20 8:00		
Relinquished By: (Signature, Date/Time)	Received By: (Signature, Date/Time)	Relinquished By: (Signature, Date/Time)	Received at Laboratory: (Signature, Date/Time)

Requested Turnaround Time: 30 Days

☒ Routine ☐ Rush _____

Sample Disposal:

☐ Return to Client ☐ Disposal by Lab

Carrier / Airbill No.: FEDEX 8131 0130 5457

Sample Receipt Remarks:

-0.2 ± 0 = -0.2°C

Results To: Brett Seal

RES
PO Box 2078, MS 452-09
Carlsbad, NM 88221-2078

Phone: 575-706-6034 FAX: 575-234-6003

EDD: Brett.Seal@WIPP.ws

Special Instructions:

samples not frozen

WHITE – Analytical Laboratory
DI – Deionized Water
GW – Groundwater

YELLOW – Field Copy
AF – Air Filter(s)
AN – Animal(s)

PINK – Record Copy
SE – Sediment
SO – Soil

SW – Surface Water
VG – Vegetation

Form CofC/RFA, Rev. 0 – NICHOLS PRINTING, INC.

Table 8 - Monitoring Well Water Levels and Chemical Analyses												
	Field and General Chemistry Parameters								Other	Water Level Monitoring (Ft AMSL)		
Monitoring Site	Sample Date	pH (SU)	Temp. (^{o}C)	Specific Conductivity @25 ^{o}C (µS/cm)	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)	09/03/20-09/08/20	12/08/20-12/09/20	
PZ-1	11/03/20	5.91	22.87	83,610	NA	**1,860**	**20,000**	**47,800**	NA	3370.53	3370.43	-0.10
PZ-2	NS	NS	NS	NS	NS	NS	NS	NS	NS	3369.87	3369.69	-0.18
PZ-3	NS	NS	NS	NS	NS	NS	NS	NS	NS	3370.46	3370.26	-0.20
PZ-4	NS	NS	NS	NS	NS	NS	NS	NS	NS	3365.89	3365.77	-0.12
PZ-5	11/03/20	6.75	22.96	68,790	NA		**6,620**	**12,800**	NA	3371.01	3370.84	-0.17
PZ-6	11/03/20	6.29	22.77	83,650	NA	**1,000**	**13,500**	**24,600**	NA	3369.23	3369.20	-0.03
PZ-7	11/02/20	5.84	22.48	77,650	NA	**3,030**	**57,700**	**96,300**	NA	3377.05	3376.79	-0.26
PZ-9	11/03/20	6.18	20.91	87,440	NA	**4,480**	**96,200**	**184,000**	NA	3362.75	3362.48	-0.27
PZ-10	11/02/20	7.02	21.43	5,016	NA	269	177	1,090	NA	3367.36	3366.97	-0.39
PZ-11	11/02/20	6.04	23.24	76,310	NA	**2,000**	**35,700**	**68,500**	NA	3374.33	3373.82	-0.51
PZ-12	11/02/20	6.52	21.22	35,470	NA	594	**3,400**	**7,620**	NA	3356.33	3355.94	-0.39
PZ-13	11/03/20	Bailed			NA	**3,220**	**162,000**	**255,000**	NA	3356.91	3356.82	-0.09
PZ-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	3354.17	3354.13	-0.04
PZ-15	NS	NS	NS	NS	NS	NS	NS	NS	NS	3382.27	3382.13	-0.14
C-2811	11/02/20	6.77	20.15	10,480	NA	327	**898**	**2,250**	NA	3346.21	3345.52	-0.69
C-2505	NS	NS	NS	NS	NS	NS	NS	NS	NS	3367.31	3367.19	-0.12
C-2506	NS	NS	NS	NS	NS	NS	NS	NS	NS	3367.90	3367.78	-0.12
C-2507	11/03/20	6.42	20.76	41,540	NA	**667**	**4,060**	**8,230**	NA	3364.64	3364.69	0.05
WQSP-6A	11/04/20	6.26	22.28	12,060	4.64	**1,850**	**316**	**3,390**	ND	3195.50	3195.40	-0.10
Explanation:	NA: Not Analyzed, parameter not required, per permit conditions.											-0.19
	NS: Not Sampled, not required per permit conditions											
	PZ-13 Field Parameters were not measured since a bailer was used to collect the sample due to difficulty using Low-Flow pumps											
	"**Bold**" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply											
	PZ-8 was plugged and abandoned in 2018.											
	ND: Non-detect											
	AMSL: Above Mean Sea Level											

Discharge to Facultative Lagoon System
July through December 2020

Month	Number of Days	Date Range	Gallons Domestic	Gallons for the Month	Avg. Gal. per day	MMgal/Month
July	35	6/29 - 7/5	63,850			
		7/6 - 7/12	67,727			
		7/13 - 7/19	71,859			
		7/20 - 7/26	72,985			
		7/27 - 8/2*	64,211	340,632	9,732	0.341
August	28	8/3 - 8/9*	64,211			
		8/10 - 8/16*	64,211			
		8/17 - 8/23*	64,211			
		8/24 - 8/30*	64,211			
				256,844	9,173	0.257
September	28	8/31 - 9/6*	64,211			
		9/7 - 9/13*	64,211			
		9/14 - 9/20*	64,211			
		9/21 - 9/27*	64,211			
				256,844	9,173	0.257
October	35	9/28 - 10/4*	64,211			
		10/5 - 10/11*	64,211			
		10/12 - 10/18*	64,211			
		10/19 - 10/25*	64,211			
		10/26 - 11/1	140,555	397,399	11,354	0.397
November	28	11/2 - 11/8**	68,118			
		11/9 - 11/15**	68,118			
		11-16 - 11/22**	68,118			
		11/23 - 11/29**	68,118			
				272,472	7,785	0.272
December	32	11/30 - 12/6**	68,118			
		12/7 - 12/13**	68,118			
		12/14 - 12/20**	68,118			
		12/21 - 12/27	86,506			
		12/28 - 12/31	59,825			
				350,685	12,524	0.351
			Total Flow	1,874,876	10,245	

* flow meter malfunction - used average gpd for the year through 7/26/2020.

** flow meter secured due to pressure gauge malfunction - Flow meter Reading from week 12/14 - 12/220 read the total water flow from 11/2 - 12/20. Used that total water flow divided by the number of weeks (7 weeks) since 11/2.

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 6-29-20 End Date: 7-5-20

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		EC		EC		EC		EC		(2)		(2)		(2)	
				FOT	C/O	DT		RN		DT		RN							
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		(1)	(1)		(1)		(1)		(1)		(1)		(1)		(1)	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	OOS (2)	OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (3)	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			62079	126097													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			66645	63850													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS (3)	OOS (3)		OOS (3)		OOS (3)		OOS (3)		OOS (3)		OOS (3)		OOS (3)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.65	.88		1.08		.83		.87		.97		.95		.68	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
(1) LOW LEVEL ALARM DOES NOT ILLUMINATE
(2) AR# 2035899 DIGITAL GAUGE OOS.
(3) AR# A33025 FLOW METER NOT WORKING

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 7-6-20 **End Date:** 7-12-20

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

				SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
			DAY															
			SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
			REVIEWER		RP		DJ		RP		RP							
			FOT	C/O	JB		JB		DJ		GB							
ITEM		**MIN**	**NORM**	**MAX**														
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS	[F]		SAT [G]															
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	0.05 ① OOS ②		OOS ②		OOS ②		OOS ②		OOS ②		OOS ②		OOS ②	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		126097	47078												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		63850	67727												
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING		N/A	[B]	230	0.05 ③	OOS ③	OOS ③		OOS ③		OOS ③		OOS ③		OOS ③		OOS ③	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓	↓		↓		↓		↓		↓		↓	
HACH TEST KIT																		
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.68	.55	.52		.73		.95		.80		.77		.78	

NOTES: **[A] - RESET meter after taking the reading on Monday.**
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: ① Low level alarm doesn't illuminate "still" ② A.R.# 2635899 - digital gauge not working "still" ③ A.R.# 1933225 - Flow meter not working "still"

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 07-13-2020 End Date: 07-19-2020

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		(R)		(R)		(R)		(R)		EC		EC		EC	
				FOT	C/O	(4)		(3)		RV		RV		5T OT		EV		OT	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]			(1) (2)		(1) (2)		(1) (2)		(1) (2)		(1)		(1) (2)		(1) (2)	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70		005	005	005		005		005		005		005		005	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		47018	82494													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		67727	71899													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	005 (3) ↓	005 (3) ↓		005 (2) ↓		005 (2) ↓		005 (2) ↓		005 (3) ↓		005 (3) ↓		005 (3) ↓	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.78	.93		.72		.60		.82		.63		.63		.57	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:

(1) LOW LEVEL ALARM DOES NOT ILLUMINATE
(2) AR# 2035899 - DIGITAL GAUGE NOT WORKING
(3) AR# 1933025 - FLOW METER NOT WORKING

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 07-20-2020 **End Date:** 07-26-2020

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
DAY	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
SHIFT															
REVIEWER										RP		RP		RP	
FOT	C/O	MB		MB				MB		DT		DT		JB	

ITEM	MIN	NORM	MAX	SUN 2	MON 1	MON 2	TUES 1	TUES 2	WED 1	WED 2	THURS 1	THURS 2	FRI 1	FRI 2	SAT 1	SAT 2	SUN 1	SUN 2
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]																
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70															
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]			82494	62427												
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]			71859	62427	72995											
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230															
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000															
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.5	[C]	1.8		.57	.67	.76		.71		.51		.98		.95		.88	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
① Low Level Alarm Does Not Illuminate
② AR# 2035899 - Digital Gauge Not Working
③ AR# 1933025 - Flow Meter Not Working

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 7-27-2020 End Date: 8-2-2020

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		EC		EC		EC		EC		[illegible]		[illegible]		[illegible]	
				FOT	C/O	DT		[illegible] BJ		OT		BJ		[illegible]		[illegible]		[illegible]	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		(1)	(1)		(1)		(1)		(1)		(1)		(1)		(1)	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	OOS (2)	OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			62427	82509													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			72185	0.00 (4)													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS (3) ↓	OOS (3) ↓		OOS (3) ↓		OOS (3) ↓		OOS (3) ↓		OOS (3) ↓		OOS (3) ↓		OOS (3) ↓	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.88	.80		.86		.72		.85		.55		.70		.65	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
(1) Low level Alarm Does NOT Illuminate
(2) AR # 2035899 - Digital Gauge not Working
(3) AR # 1933025 - Flow meter Not working
(4) Domestic Water Gallons showing 0.00 and reading isnt gaining

APPROVED FOR USE/DATE: [signature] 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 8-3-20 **End Date:** 8-9-20

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
DAY	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
SHIFT															
REVIEWER		RP		RP		RP		RP							
FOT	C/O	JB		JB		JB		JB							

ITEM	MIN	NORM	MAX	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		①	①		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	OOS ②	OOS ②		OOS ②		OOS ②		OOS ②		O.O.S ②		OOS ②		O.O.S ②	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		82509	95686													
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		0.00 ④	0 ④													
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	OOS ③	OOS ③		OOS ③		OOS ③		OOS ③		O.O.S ③		OOS ③		O.O.S ③	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.5	[C]	1.8	.65	.58		.92		.83		.91		.59		.74		.80	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
1) Low level alarm Does not illuminate
2) AR# 2035899 - Digital gauge not Working
3) AR# 1933025 - Flow meter not Working
4) Domestic Water gallons showing 0.00

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 08-10-2020 End Date: 08-16-2020

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O	DJ				DJ						DT			
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]					✓	✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①	①		①		①				①		①		①	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	OOS ②	OOS ②		OOS ②		OOS ②		OOS ②		OOS ②		OOS ②		OOS ②	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			95686	244985.44													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			④	④													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS ③	OOS ③		OOS ③		OOS ③		OOS ③		OOS ③		OOS ③		OOS ③	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.80 ~~.58~~	1.5		1.37		1.01		.57		.65		.59		.66	

NOTES: [A] - RESET meter after taking the reading on Monday. 08-09-2020

[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].

[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.

[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.

[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.

[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.

[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:

① LOW LEVEL ALARM DOES NOT ILLUMINATE

② DIGITAL GAUGUE NOT WORKING. AR# 2035899

③ FLOW METER NOT WORKING. AR# 1933025

④ DOMESTIC WATER GALLONS SHOWING 0.00

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 8-17-2020 End Date: 8-23-2020

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER															
				FOT	C/O														
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		(1)	(1)		(1)		(1)		(1)		(1)		(1)		(1)	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	OOS (2)	OOS (2)		OOS (2)		OOS (2)		0.0 (2)		OOS (2)		OOS (2)		OOS (2)	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			2448854	2.31050													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			(4)	(4)													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS (3)	OOS (3)		OOS (3)		OOS (3)		0.0 (3)		OOS (3)		OOS (3)		OOS (3)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.66	.76		.74		.77		1.28		1.15		1.45		1.35	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:

(1) Low Level Alarm Does Not Illuminate
(2) Digital gauge Not Working. AR# 2035899
(3) Flow Meter Not Working. AR# 1933025
(4) Domestic Water Gallons showing 0.00

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 8-24-20 End Date: 8-30-20

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		EC		PJP		EC		EC		R		R R		R	
				FOT	C/O	RN		OT		RN		DT		ST		ST		ST	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①	①		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	OOS ⑥	OOS ②		OOS ②		OOS ②		OOS ②		OOS ②		OOS ②		OOS ②	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			23650	84140													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			④	④													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS ③	OOS ③		OOS ③		OOS ③		OOS ③		OOS ③		OOS ③		OOS ③	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	1.35	1.13		.88		.81		.96		1.01		.85		.85	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:

① Low Level Alarm DOES NOT Illuminate
② Digital gauge Not working AR# 20358 89
③ Flow meter Not working AR- #20025
④ Domestic water Gallons Shown, 0.00

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 8/31/20 End Date: 9/6/20

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
	REVIEWER		DJ		DJ		DJ		DJ		DJ		DJ		DJ	
	FOT	C/O	JB		JB		JB		JB		JB		JB		JB	

ITEM		MIN	NORM	MAX	SUN	MON 1	MON 2	TUES 1	TUES 2	WED 1	WED 2	THURS 1	THURS 2	FRI 1	FRI 2	SAT 1	SAT 2	SUN 1	SUN 2
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		(5)		(5)		(5)		(5)		(5)	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		(1)	(1)		(1)		(1)		(1)		(1)		(1)		(1)	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	OOS	OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		84140	92893.95													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		(3)	(3)													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS (4)	OOS (4)		OOS (4)		OOS (4)		OOS (4)		OOS (4)		OOS (4)		OOS (4)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.85	.77		.57		.55		.52		.59		1.75		1.68	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
(1) LOW LEVEL ALARM DOES NOT ILLUMINATE
(2) GAUGE OOS AR# 2035899
(3) DW GALLONS SHOWING 0.00
(4) FLOW METER OOS AR# 1923025
(5) ALTERNATE CMR WILL NOT ALLOW TO LOG IN FSM NOTIFIED HELP TICKET W/ IT HAS BEEN OPENED

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 09-07-2020 **End Date:** 09-13-2020

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

ITEM	MIN	NORM	MAX	SUN	MON 1	MON 2	TUES 1	TUES 2	WED 1	WED 2	THURS 1	THURS 2	FRI 1	FRI 2	SAT 1	SAT 2	SUN 1	SUN 2
DAY				2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
SHIFT					(2)		(1)		(1)		(2)		EC		EC		EC	
REVIEWER				C/O	ST		ST		ST		ST		RV		DT		~~DX~~ RV DJ 9-12-20	
FOT																		
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]				(5)	✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		(1)	(1)		(1)		(1)		(1)		(1)		(1)		(1)	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	(2) OOS	(2) OOS		(2) OOS		(2) OOS		(2) OOS		(2) OOS		(2) OOS		(2) OOS	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		92893.95	105795.16													
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		(3)	(3)													
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	(4) OOS	(4) OOS		(4) OOS		(4) OOS		(4) OOS		(4) OOS		(4) OOS		(4) OOS	
[NMED, DP-831] **Max 23,000 gal** (Reading × 100)			23,000															
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.5	[C]	1.8	1.68	1.38		1.39		1.33		1.35		1.13		.98		1.07	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:

(1) LOW LEVEL ALARM DOES NOT ILLUMINATE
(2) GAUGE OOS. AR#2035899
(3) DOMESTIC WATER SHOWING 0.00
(4) FLOW METER OOS. AR#1923025
(5) ALTERNATE CMR WILL NOT ALLOW TO LOG ON. FSM NOTIFIED. HELP TICKET WITH IT HAS BEEN OPENED

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 09-14-2020 **End Date:** 09-20-2020

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
			DAY	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
			SHIFT															
			REVIEWER										OJ		RP		RP	
			FOT	C/O									JB		DJ		DJ	
ITEM	**MIN**	**NORM**	**MAX**															
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					/		✓		/		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]			①	①	①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70		005 ②	005 ②	0.23 ②		005 ②		0.0.3 ②		005 ②		005 ②		005 ②	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]			105785.16	105 403												
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]			③	③												
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230		005 ④ ↓	005 ④ ↓	0.0.5 ④ ↓		005 ④ ↓		0.0.5 ④ ↓		005 ④ ↓		005 ④ ↓		005 ④ ↓	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000															
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.5	[C]	1.8		1.07	.97	.94		.89		.95		.85		.82		.80	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:

① Low Level Alarm Does Not Illuminate
② Gauge OOS. AR# 2035899
③ Domestic Water Showing 0.00
④ Flow Meter OOS. AR#1923025

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 8-20-2020 End Date: 8-27-202

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		EC		EC		EC		EC		[illegible]		[illegible]		[illegible]	
				FOT	C/O	RV		DT		RV		[illegible]		JG		ST		ST	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①	①		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	005 ②	005 ②		005 ②		003 ②		005 ②		005 ②		005 ②		005 ②	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		105403	122712													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		③	③													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	005 ④	003 ④		005 ④		005 ④		005 ④		005 ④		005 ④		005 ④	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.97	1.22		1.02		1.07		.69		.68		.64		.67	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:

① Low level alarm Does Not Illuminate
② Gauge 005. AR # 2035899
③ Domestic water showing 0.00
④ Flow Meter 005. AR# 1923025

APPROVED FOR USE/DATE: [signature] 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 9/28/20 End Date: 10/4/20

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
	REVIEWER		DJ		DJ		DJ		DJ		DJ		DJ		DJ	
	FOT	C/O	JB		JB		JB		JB		JB		JB		JB	

ITEM		MIN	NORM	MAX
458, GUARD & SECURITY BUILDING				
ALTERNATE CMR [D]				
456-CP-010-01 CONTROL PANEL				
CONTROL PANEL ALARMS	[F]		SAT [G]	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70
456-FIY-010-001 WATER FLOW METER				
RAW WATER GALLONS	(gal)		RESET MONDAY [A]	
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]	
456-FM-045-001 SEWAGE FLOW METER				
($) SEWAGE FLOW READING		N/A	[B]	230
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000
HACH TEST KIT				
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8

jm 9-27-2020

	SUN	MON	TUES	WED	THURS	FRI	SAT	SUN
		✓	✓	✓	✓	✓	✓	✓
DOMESTIC WATER PRESS (PIC-01)	60.5 (2)	005 (2)	005 (2)	005 (2)	005 (2) (5)	005 (2) (5)	005 (5)	005 (5)
RAW WATER GALLONS	122772	126784						
DOMESTIC WATER GALLONS	(3)	(3)						
($) SEWAGE FLOW READING	005 (4)	005 (4)	005 (4)	005 (4)	005 (4)	005 (4)	005 (4)	005 (4)
COLORIMETER FREE Cl_2	.67	.68	.91	.62	.75	.72	.78	1.21

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) low level alarm doesn't illuminate (2) AR# 20355894 - Gauge 0.0.5 (3) DW water gauge showing 0.00 (4) A.R # 1923025 - Flow meter not working
(5) CALIBRATION STICKER EXPIRES 100320

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 10/5/2020 End Date: 10/11/2020

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
	REVIEWER		R		R		R		R		EC		EC		EC	
	FOT	C/O	ST				ST		ST		DT		DT		DT	

ITEM		MIN	NORM	MAX	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		(5)		(5)		(5)	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]																
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	(1) OOS (5)	(1) OOS (5)		(1) OOS (5)		(1) OOS (5)		(1) OOS (5)		(1) OOS (5)		(1) OOS (5)		(1) OOS (5)	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		126784	14874.2													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		(3)	(3)													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS (4) ↓	OOS (4) ↓		OOS (4) ↓		OOS (4) ↓		OOS (4) ↓		OOS (4) ↓		OOS (4) ↓		OOS (4) ↓	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000															
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	1.21	1.25		.93		.90		1.61		.97		.88		.71	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) Low level alarm doesn't illuminate (2) Pressure Gauge OOS AR # 2035899 (3) Domestic Water Gauge showing 0.00
(4) Sewage Flow meter OOS AR # 1933025 (5) unable to open CMS at alternate CMR

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 10/12/2020 End Date: 10/18/2020

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

				SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
			DAY	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
			SHIFT															
			REVIEWER										PJA					
			FOT	C/O									JB				JB	
ITEM	MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]			(1)	(1)	(1)		(1)		(1)		(1)		(1)		(1)	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70		OOS (2)	OOS (2)	0.0 (2)		0025 (2)		OOS (2)		70S (2)		OOS (2)		OOS (2)	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]			14874.2													
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]			(3)	(3)												
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230		OOS (4)	OOS (4)	0.0.S (4)		OOS (4)		OOS (4)		OOS (4)		OOS (4)		OOS (4)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000		↓	↓	↓		↓		↓		↓		↓		↓	
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.5	[C]	1.8		.71	0.68	1.27		1.23		1.1		.85		.89		.73	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
1) low level alarm Doesnt Illuminate
2) Pressure gauge OOS AR# 2035899
3) Domestic water gauge showing 0.00
4) sewage flow OOS AR# 1933025
5) unable to open cms at Alternate CMR

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 10-19-2 End Date: 10-25-2020

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

				SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
			DAY															
			SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
			REVIEWER															
			FOT	C/O														
ITEM		MIN	NORM	MAX														
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS	[F]		SAT [G]		0	0	0		0		0		0		0		0	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	OOS ①	OOS ②	OOS ③		OOS ③		OOS ③		OOS ②		OOS ④		OOS ②	
456-FIY-010-001 WATER FLOW METER						148142												
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			OOS ⑤	419676												
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			③	③												
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING		N/A	[B]	230	OOS ④	OOS ④	OOS ④		OOS ④		OOS ④		OOS ④		OOS ④		OOS ④	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000														
HACH TEST KIT					.73													
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	~~1.82~~	.91	1.47		.98		.90		.87		.68		.78	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
① low level alarm does not illuminate
② pressure gauge OOS AR# 203589
③ Domestic water gauge showing 0.00
④ sewage flow OOS AR# 193025
⑤ unable to open per CMS at Alternate CMR

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 10/26/20 End Date: 11/1/20

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		ZP		ZP		MP		JOJ							
				FOT	C/O	JB		JB		BB		JB		DJ		ZP		BB	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		(1)	(1)		(1)		(1)		(1)		(1)		(1)		(1)	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	005 (2)	005 (2)		005 (2)		005 (2)		005 (2)		005 (2)		005 (2)		005 (2)	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]		419676	189365													
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]		(3)	140555													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	005 (4)	005 (4)		005 (4)		005 (4)		005 (4)		005 (4)		005 (4)		005 (4)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.78	.52		.50		.99		.54		JT 10-30-20 55 1.2		0.85 ZP 10-31-20		1.00	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
1) low level alarm doesn't illuminate
2) pressure gauge OOS AR # 2035839
3) Domestic water gauge showing 0
4) sewage flow OOS AR # 19310025

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 11-02-2020 **End Date:** 11-08-2020

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

				SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
			DAY	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
			SHIFT		④		④		④		④		AE		PJP		④	
			REVIEWER															
			FOT	C/O	RB		ST		PJP		RW		DJ		DT		DJ	
ITEM	MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					④		④		④ ✓		RW 11-05-2020 ④ ✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]																
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70		① OOS ②		① OOS ②		① OOS ②		① OOS ②		① OOS ②		① OOS ②		① OOS ②	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)		RESET MONDAY [A]		189365	Sec ④													
DOMESTIC WATER GALLONS (gal)		RESET MONDAY [A]		140555	Sec ④													
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	OOS ③ ↓	OOS ③ ↓		OOS ③ ↓		OOS ③ ↓		OOS ③ ↓		OOS ③ ↓		OOS ③ ↓		OOS ③ ↓	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000															
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.5	[C]	1.8	1.00	1.26		1.07		.7		1.26		1.12		.84		.82	

NOTES: [A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:

① LOW LEVEL ALARM DOES NOT ILLUMINATE
② PRESSURE GAUGE OOS AR#2035839
③ SEWAGE FLOW OOS AR#1931025
④ Secured due to Power outage / outage complete 11/4/2020 PJP Book 1/5

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 11/16/20 End Date: 11/22/20

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING	DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
	SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
	REVIEWER		EC		EC		EC		EC		G		G		G	
	FOT	C/O	DiP		MB		MB		MB		ST		ST		ST	

ITEM	MIN	NORM	MAX	SUN 2	MON 1	MON 2	TUES 1	TUES 2	WED 1	WED 2	THURS 1	THURS 2	FRI 1	FRI 2	SAT 1	SAT 2	SUN 1	SUN 2
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		(1)	(1)		(1)		(1)		(1)		(1)		(1)		(1)	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	OOS (2)	OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)	RESET MONDAY [A]			SEC	SEC													
DOMESTIC WATER GALLONS (gal)	RESET MONDAY [A]			SEC	SEC													
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	OOS (3)	OOS (3)		OOS (3)		OOS (3)		OOS (3)		OOS (3)		OOS (3)		OOS (3)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.5	[C]	1.8	1.1	1.4		1.27		1.35		.92		1.22		1.21		.82	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS: (1) Low level alarm does not illuminate (2) Pressure guage OOS AR# 2035839

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

Start Date: 11/30/20 End Date: 12/06/20

Location:
458, GUARD & SECURITY BUILDING
456, PUMPHOUSE BUILDING

				SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
DAY				2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
SHIFT																		
REVIEWER													EC		EC		EC	
FOT				C/O	ST		ST		ST		ST		P1P		DT		DT	
ITEM	MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																		
ALTERNATE CMR [D]					✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																		
CONTROL PANEL ALARMS [F]		SAT [G]		(1)	(1)		(1)		(1)		(1)		(1)		(1)		(1)	
DOMESTIC WATER PRESS (PIC-01) (psig)	60	[E]	70	OOS (2)	OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)		OOS (2)	
456-FIY-010-001 WATER FLOW METER																		
RAW WATER GALLONS (gal)	RESET MONDAY [A]			SEC	SEC													
DOMESTIC WATER GALLONS (gal)	RESET MONDAY [A]			SEC	SEC													
456-FM-045-001 SEWAGE FLOW METER																		
($) SEWAGE FLOW READING	N/A	[B]	230	OOS (3)	OOS (3)		OOS (3)		OOS (3)		OOS (3)		OOS (3)		OOS (3)		OOS (3)	
[NMED, DP-831] Max 23,000 gal (Reading × 100)			23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																		
COLORIMETER FREE Cl_2 (ppm)	0.5	[C]	1.8	0.75	1.18		1.18		1.8		1.8		1.42		1.66		1.24	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
(1) Low Level alarm does not Illuminate
(2) AR 2035839 press gauge
(3) Sewage meter not working AR1933025

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 12/14/20 End Date: 12/20/20

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		EC		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]	
				FOT	C/O	DT		DT		DT		DJ		[illegible]		ST		ST	
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓		✓		✓		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①	①		①		①		①		①		①		①	
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	OOS ②	OOS ②		OOS ②		OOS ②		OOS ②		OOS ②		OOS ②		OOS ②	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			SEC	623362.24													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			SEC	476830.76													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	OOS ③	OOS ③		OOS ③		OOS ③		OOS ③		OOS ③		OOS ③		OOS ③	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	1.23	1.28		1.13		1.06		.81		.96		1.06		1.10	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
① Low level alarm does not illuminate
② AR 2035839 press gauge OOS
③ Sewage meter not working AR 1933025

APPROVED FOR USE/DATE: [signature] 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 12-21-2020 End Date: 12-27-2020

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		RP		RP		RP		RP							
				FOT	C/O	DT		DT		DT									
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		/		✓		/		✓	
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]																
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70		(1) OOS (4)	(1) OOS (4)	(1) OOS (4)		(1) OOS (4)		(1) OOS		(1) 0.0.S (2)		(1) OOS (4)		(1) 0.0.S (2)	
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)		RESET MONDAY [A]			6233624	81207,39												
DOMESTIC WATER GALLONS	(gal)		RESET MONDAY [A]			47683976	86506,35												
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230		(3) OOS (4)	(3) OOS (4)	(3) OOS (4)		(3) OOS (4)		OOS		(2) 0.0.S		OOS (4)		(3) 0.0.S	
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000		↓	↓	↓		↓		↓		↓		↓		↓	
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8		1.10	1.07	1.08		1.06		.94		.94		.97		.94	

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
(1) Low Level alarm does not illuminate
(2) AR 2035839 press gauge OOS
(3) Sewage Meter Not Working AR 1933025

APPROVED FOR USE/DATE: 4-3-19

ISSUED

Facility Operations Bldg 458 / 456 Round Sheet

COPY

Start Date: 12/28/2020 End Date: 12/31/2020

Location: 458, GUARD & SECURITY BUILDING; 456, PUMPHOUSE BUILDING				DAY	SUN	MON		TUES		WED		THURS		FRI		SAT		SUN	
				SHIFT	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
				REVIEWER		R		B		B		R							
				FOT	C/O	5T		5T		5T		5T							
ITEM		MIN	NORM	MAX															
458, GUARD & SECURITY BUILDING																			
ALTERNATE CMR [D]						✓		✓		✓		✓							
456-CP-010-01 CONTROL PANEL																			
CONTROL PANEL ALARMS	[F]		SAT [G]		①	①		①		①		①							
DOMESTIC WATER PRESS (PIC-01)	(psig)	60	[E]	70	005 ②	005 ②		005 ②		005 ②		005 ②							
456-FIY-010-001 WATER FLOW METER																			
RAW WATER GALLONS	(gal)	RESET MONDAY [A]			812079	812079													
DOMESTIC WATER GALLONS	(gal)	RESET MONDAY [A]			865060.35	59825.64													
456-FM-045-001 SEWAGE FLOW METER																			
($) SEWAGE FLOW READING		N/A	[B]	230	005 ③	005 ③		005 ③		005 ③		005 ③							
[NMED, DP-831] Max 23,000 gal (Reading × 100)				23,000	↓	↓		↓		↓		↓							
HACH TEST KIT																			
COLORIMETER FREE Cl_2	(ppm)	0.5	[C]	1.8	.94	.84		.89		.79		.93							

VIA NEW YEAR

NOTES:
[A] - RESET meter after taking the reading on Monday.
[B] - ($) REQUIRED for compliance with NMED discharge permit DP-831 -- IF MAX LIMIT of 23,000 GPD is exceeded contact FSM [NMED, DP-831].
[C] - ADJUST chlorine levels by either adding water (chlorine above 1.8) or adding chlorine (chlorine below 0.5) to maintain specifications.
[D] - IF system operability SAT, ENTER check mark. IF UNSAT, NOTIFY FSM to initiate AR.
[E] - RECORD reading for operating equipment, "STBY" for equipment on standby, "SEC" for equipment secured, "OOS" for equipment out-of-service, or ENTER comments for abnormal conditions.
[F] - CHECK that the audible alarm sounds and the alarm lights illuminate.
[G] - IF normal condition exists, ENTER a check mark; otherwise note existing condition.

COMMENTS:
① Low level alarm does not illuminate AR # 1930290
② Domestic water Pressure gauge OOS AR# 1203129 / 2048498
③ Sewage meter not working AR # 1933025

APPROVED FOR USE/DATE: 4-3-19