

**MINIMUM SITE ASSESSMENT REPORT
for
SHAMROCK #63
3624 CERRILLOS ROAD
SANTA FE, NEW MEXICO**

March 26, 2007

Prepared for:

Polk Oil Company
1221 North Paseo de Onata
Española, New Mexico 87532

Prepared by:

Basin Engineering, Inc.
P.O. Box 3909
Durango Colorado 81302

Investigation Report Forms

**Risk-Based Decision
Making For Petroleum
Releases At
Underground Storage
Tank Sites
In New Mexico**

SITE NAME:	<i>Shamrock #63</i>
SITE LOCATION:	<i>3624 Cerrillos Road, Santa Fe, New Mexico</i>
SITE ID:	<i>4509</i>
FACILITY ID:	<i>29206</i>
SUBMITTAL DATE:	<i>March 26, 2007</i>
PREPARED BY:	<i>Michael Hannigan, P.E.</i>
REVIEWED BY:	<i>John E. Casey, P.E.</i>

TABLE OF CONTENTS (*Page 1 of 3*)☐ *Check the box against the item, if the item is included.*

Form No.

Description

INVESTIGATION REPORT FORMS

- | | | |
|----|--|-------------------------------------|
| 1. | Executive summary. | ☒ |
| 2. | NAPL information. | ☒ |
| 3. | Site stratigraphy and hydrogeology. | ☒ |
| 4. | Analytical data summary for surficial soil (0-1 ft bgs). | ☐ |
| 5. | Analytical data summary for subsurface soil (1 ft bgs to water table). | ☒ |
| 6. | Analytical data summary for groundwater. | ☐ |
| 7. | Conclusions and recommendations. | ☒ |
| 8. | References and protocols. | ☒ |

TABLE OF CONTENTS (Page 2 of 3)

All maps submitted to NMED must include a bar scale, legend, north arrow, location of all known soil borings and monitoring wells, and date of map, where appropriate.

☐ Check the box against the item, if the item is included.

Map No.

Description

MAPS

Maps 1-6 are part of 14 Day Report. Update and resubmit as appropriate.

Note: Maps may be combined, as appropriate.

- | | | |
|-----|--|-------------------------------------|
| 1. | Topographic map. | ☒ |
| 2. | Site map with UST system location(s), including tank ID number(s). | ☒ |
| 3. | Site map with utility locations. | ☒ |
| 4. | Land use map (radius of 1,000 feet). | ☒ |
| 5. | Receptor survey map: with detailed land use in the vicinity of the site (at least 1,000 feet in the downgradient direction and one property deep on all other sides including across the street). | ☒ |
| 6. | Area map with water use well locations: within one mile radius of the site (the wells on the map must be labeled). Maps must also indicate the location of surface water drains including but not limited to streams, lakes, and well head protection areas, within a 500 foot radius of the site. | ☒ |
| 7. | NAPL thickness contour map. | ☐ |
| 8. | Area geologic map. | ☒ |
| 9. | Groundwater gradient map: contoured map with the predominant flow direction from the most recent gauging event (add additional maps if the flow direction fluctuates). | ☐ |
| 10. | Soil and groundwater concentration contour maps showing boring and well locations and concentrations in each: for benzene, MTBE, total BTEX, and Total PAHs from the most recent sampling event. | ☐ |

ADDITIONAL MAPS:

10a - Soil Analytical Map

10b - Soil Boring Profile

TABLE OF CONTENTS (Page 3 of 3)

☐ Check the box against the item, if the item is included.

Attachment No.	Description	ATTACHMENTS
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Attachments 1 and 2 are part of 14 Day Report. Update and resubmit as appropriate.

- | | | |
|----|---|-------------------------------------|
| 1. | Most recent UST system test results. | ☐ |
| 2. | Vapor screening results for utilities. | ☐ |
| 3. | Estimation of NAPL present: Estimated thickness vs measured thickness of NAPL. Include calculation brief for estimated thickness. | ☐ |
| 4. | Monitoring well construction digram. | ☐ |
| 5. | Representative soil boring logs: cross-section(s) showing the stratigraphy of the site and the extent of contamination. | ☒ |
| 6. | Historical groundwater monitoring data for all the monitoring wells. Include any data collected from temporary wells or borings. | ☐ |
| 7. | Contaminant concentration and depth to groundwater vs. time graphs for wells with four or more sampling events. | ☐ |

ADDITIONAL ATTACHMENTS:

Laboratory analytical report(s) not previously submitted to the department.

Particle Size Distribution Reports

SITE ID: 4509

FACILITY ID: 29206

SUBMITTAL DATE: 26-Mar-07

PREPARED BY: Michael Hannigan, P.E.

EXECUTIVE SUMMARY

Facility name:

Shamrock #63

Facility address:

*3624 Cerrillos Road**Santa Fe, New Mexico*

Status of UST system facility:

☐ Active ☒ Inactive

Ground surface condition:

Asphalt pavement except in area of former building & USTs

Estimated volume and type of product(s) released:

Unknown quantity of gasoline

Has any vapor impacts been identified?

☒ No ☐ On-site ☐ Off-site

If yes (check all that apply):

☐ Utility corridor ☐ Subsurface structures ☐ Above surface structures

Is soil contaminated?

☐ No ☒ On-site ☐ Off-site

Is there any contaminant-saturated soil?

☒ No ☐ On-site ☐ Off-site

Is groundwater contaminated?

☐ No ☐ On-site ☐ Off-site

Has the source of release been identified?

☒ Yes ☐ No

Has NAPL ever been detected?

☐ Yes ☒ No

Was NAPL removed?

☐ Yes ☒ No

Was NAPL detected in the most recent sampling event?

☐ Yes ☒ No

Has surface water been contaminated by the release?

☐ Yes ☒ No ☐ Unknown ☐ Suspected

Shallowest depth to groundwater (ft bgs.):

Average depth to groundwater (ft bgs.):

120 feet (estimated based on data from State Engineer)

Has a drinking water supply well been contaminated by this release?

☐ Yes ☐ No ☒ Unknown ☐ Suspected

If yes

☐ Drinking ☐ Irrigation ☐ Other

RECOMMENDATIONS

- ☐ Collect additional soil data
- ☐ Collect additional groundwater data
- ☐ Continue NAPL removal
- ☐ Perform interim remedial action
- ☐ GW monitoring
- ☐ Perform a tier 1 evaluation

ADDITIONAL NOTES

Soil borings did not reach the water table, which was approximately 120 feet bgs in the 1980s. There are no ground water monitoring wells on the property.

SITE ID: 4509

FACILITY ID: 29206

SUBMITTAL DATE: 26-Mar-07

PREPARED BY: Michael Hannigan, P.E.

NAPL INFORMATION

Has NAPL been found at the site?

☐ Yes ☒ No*(Note if No, proceed to the next report form)*

Date NAPL first reported at the site (if known):

Type(s) of NAPL released:

Estimated quantity of NAPL present (attach calculation brief):

List the monitoring wells currently containing NAPL:

Has NAPL removal been initiated?

☐ Yes ☐ No

If Yes, specify method of removal (bailer, pump, etc.)?

If No, cite reason:

Frequency of removal (weekly, monthly, etc.):

Total number of recovery events to date:

Total amount of water recovered:

Water disposal method:

Total amount of NAPL recovered:

NAPL disposal method:

Date of latest NAPL report submittal:

ADDITIONAL NOTES

SITE ID: 4509

FACILITY ID: 29206

SUBMITTAL DATE: 26-Mar-07

PREPARED BY: Michael Hannigan, P.E.

SITE STRATIGRAPHY AND HYDROGEOLOGY

STRATIGRAPHY OF THE SITE

Depth [feet]	Unified soil classification	Type of soil
0 to 4	Fill	Clay, silt, sand & gravel
4 to 15	SC	Silty, clayey sand
15 to 20	CL	Clay
20 to 57	Rock	Decomposed granite, traces of clay, some cobble
57 to 63	CL	Clay
Predominant soil type:		Decomposed granite

Depth [feet]	Type of bedrock & geological formation (discuss rock properties and features)
Decomposed granite	Hard to very hard, moist to dry, brown to lt. brown, trace clay, non-plastic, some cobble
	Occurs beneath site from 20 to 57 feet bgs and 63 to at least 75 feet bgs

HYDROGEOLOGY OF THE SATURATED ZONE

Type of contaminated aquifer(s)?

☐ Confined ☐ Unconfined ☐ Perched

Underlying predominant aquifer name:

TDS of contaminated aquifer(s) [mg/L]

Describe groundwater level fluctuations:

Average depth to static water level:

Average static water elevation relative to MSL [ft]

Flow direction:

Hydraulic gradient (i) [ft/ft]:

Hydraulic conductivity (K) [cm/day]:

Hydraulic conductivity test method:

☐ Grain size/Sieve analysis☐

Slug test

☐

Pumping test;

Duration (hrs):

☐ Other (specify and attach literature as appropriate)

Darcy velocity (K x i) [cm/year]:

Annual precipitation (average for last 10 years) [cm/year]:

38.71 cm/year

= 15 inches/yr

UNSATURATED ZONE CHARACTERISTICS

	Values/range			Method
Dry bulk density [g/cm ³]	1.8 to 2.2	☒ Estimated	☐ Measured	
Estimated porosity (θ) [cm ³ /cm ³]:	0.4 to 0.6	☒ Estimated	☐ Measured	
Water content in volumetric units [cm ³ /cm ³]:	0.10 to 0.12	☐ Estimated	☒ Measured	ASTM 2216
Fractional organic carbon content [g-C/g-soil]:		☐ Estimated	☐ Measured	

ADDITIONAL NOTES

Saturated zone not investigated during MSA, deepest soil boring to 75 feet bgs, ground water approx. 120 feet bgs.

SITE ID: 4509

FACILITY ID: 29206

SUBMITTAL DATE: 26-Mar-07

PREPARED BY: Michael Hannigan, P.E.

ANALYTICAL DATA SUMMARY FOR SUBSURFACE SOIL (1 FT BGS TO WATER TABLE) [mg/kg]

MW / SB No.	SB-1			SB-2														
Sampling date	2/16/2007			2/15/2007														
Sample depth (ft)	15	75		7	50													
ORGANIC CHEMICALS																		
Benzene	0.7	0.19		<0.29	0.22													
Toluene	4.9	0.11		<0.29	1.9													
Ethylbenzene	1.1	<0.056		0.3	0.24													
Xylenes (Total)	6.3	0.2		0.74	1.1													
Ethylene Dibromide (EDB)	<0.27	<0.056		<0.29	<0.056													
1,2-Dichloroethane (EDC)	<0.27	<0.056		<0.29	<0.056													
MTBE	<0.27	0.19		<0.29	<0.056													
POLYCYCLIC AROMATIC HYDROCARBONS																		
Acenaphthene	<1.3	<0.28		<1.4	<0.28													
Anthracene	<0.08	<0.017		<0.87	<0.017													
Benzo(a)anthracene	<0.011	<0.0022		<0.12	<0.0022													
Benzo(a)-pyrene	0.011	<0.0011		<0.058	0.0011													
Benzo(b)-fluoranthene	<0.021	<0.0045		<0.23	<0.0045													
Benzo(k)-fluoranthene	0.012	<0.0011		0.14	<0.0011													
Chrysene	<0.059	<0.012		2.2	<0.012													
Dibenz(a,h)anthracene	<0.016	<0.0033		<0.17	<0.0034													
Fluoranthene	<0.11	<0.022		<1.2	<0.022													
Fluorene	<0.16	<0.033		2	<0.034													
Total Naphthalenes	7.2	<0.028		56	<0.28													
Phenanthrene	0.13	<0.017		12	<0.017													
Pyrene	<0.13	<0.028		<1.4	<0.028													
INORGANIC CHEMICALS																		
Lead	2.8	3		3.3	5.7													

NOTE:

Provide any laboratory analytical report(s) not previously submitted to NMED Office. Add additional sheets as needed.

Non-detects can be expressed as "<(value of detection limit)". All concentrations should be in mg/kg.

SITE ID: 4509

FACILITY ID: 29206

SUBMITTAL DATE: 26-Mar-07

PREPARED BY: Michael Hannigan, P.E.

CONCLUSIONS AND RECOMMENDATIONS

1. *Has NAPL been removed?*

N/A

2. *Has the site (soil and aquifer) been adequately investigated and characterized?*

No. Soil impacts have not been delineated spatially or vertically. Ground water impacts have not been characterized at all.

3. *Has the source soil(s) been delineated spatially and vertically, on-site and off-site? Are the available soil data collected within the last 5 years?*

Soil impacts have not been delineated spatially or vertically. Available data has been collected in the last 5 years.

4. *Has groundwater plume been delineated in all directions?*

Ground water impacts are unknown. Monitoring wells were not installed as part of this MSA, there are no existing wells at the site.

5. *Have all relevant COCs (based on the product released) been analyzed for in soil and groundwater?*

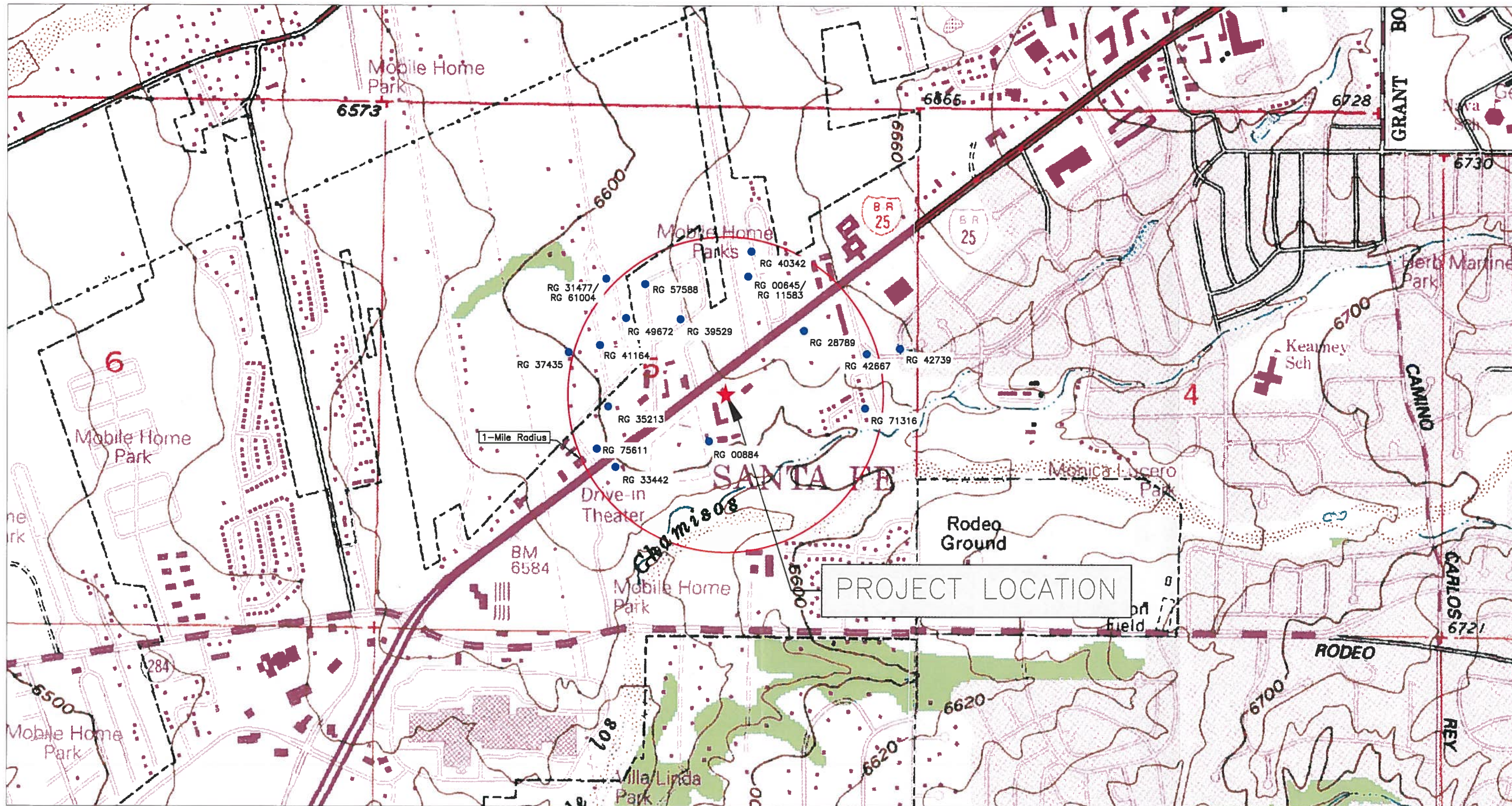
All relevant COCs have been analyzed for in soil, none in ground water.

6. *Have the recommended laboratory methods been used and required QA/QC met?*

Yes

NEW MEXICO RBDM		INVESTIGATION REPORT	FORM NO. 7
SITE ID: 4509		FACILITY ID: 29206	
SUBMITTAL DATE: 26-Mar-07		PREPARED BY: Michael Hannigan, P.E.	
CONCLUSIONS AND RECOMMENDATIONS			
7.	<i>Is the plume stable or shrinking, based on the concentration trend plots?</i>		
	<i>Unknown if there is a ground water plume.</i>		
8.	<i>Are the groundwater contaminant concentrations in all monitoring wells below the applicable standards for the 8 consecutive quarters (4 consecutive quarters for wells with clear decreasing concentration trends)?</i>		
	<i>Unknown if there is a ground water plume.</i>		
9.	<i>Is a waiver petition required for alternative groundwater protection standards? If the answer to Question No.8 is yes, no waiver petition is required and groundwater protection pathway need not be included in any risk-based evaluation of the site.</i>		
	<i>N/A</i>		
10.	<i>Other relevant information</i>		
11.	<i>Is a tier 1 risk-based evaluation of the site necessary?</i>		
	<i>No</i>		
12.	<i>Is groundwater monitoring recommended?</i>		
	<i>No</i>		

FIGURES



AGUA FRIA QUADRANGLE
NEW MEXICO—SANTA FE CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

AGUA FRIA, N.MEX.
1951
REVISED 1993

UTM GRID AND 1993 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

0°37' 11 MILS
10 1/2° 187 MILS

SCALE: 1 in = 1000 ft

0 500 0 1000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

BASIN
ENGINEERING, INC

Drawn by DGW	Date 03/15/07	Checked by JEC	Date
-----------------	------------------	-------------------	------

Vicinity Map

Minimum Site Assessment Report
Santa Fe Shamrock #63
3624 Cerrillos Road
Santa Fe, New Mexico

Project No.
030116

Figure No.
1,6



Scale: 1 in = 50 ft





BASIN
ENGINEERING, INC.

Drawn by	Date	Checked by	Date
DGW	03/26/07	JEC	

Site Map
Minimum Site Assessment Report
Santa Fe Shamrock #63
3624 Cerrillos Road
Santa Fe, New Mexico

Project No.
030116

Figure No.
2,3



Scale: 1" = 250'

0 125 0 250




B A S I N
ENGINEERING, INC

Drawn by	Date	Checked by	Date
DGW	03/15/07	JEC	

Land Use / Receptor
Survey Map

Minimum Site Assessment Report
Santa Fe Shamrock #63
3624 Cerrillos Road
Santa Fe, New Mexico

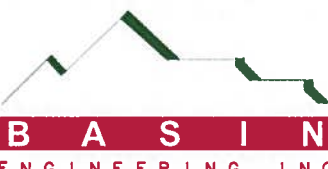
Project No.
030116

Figure No.
4,5



Scale: 1 in = 500 ft





BASIN
ENGINEERING, INC

Drawn by DGW	Date 03/26/06	Checked by JEC	Date
-----------------	------------------	-------------------	------

Well Locations

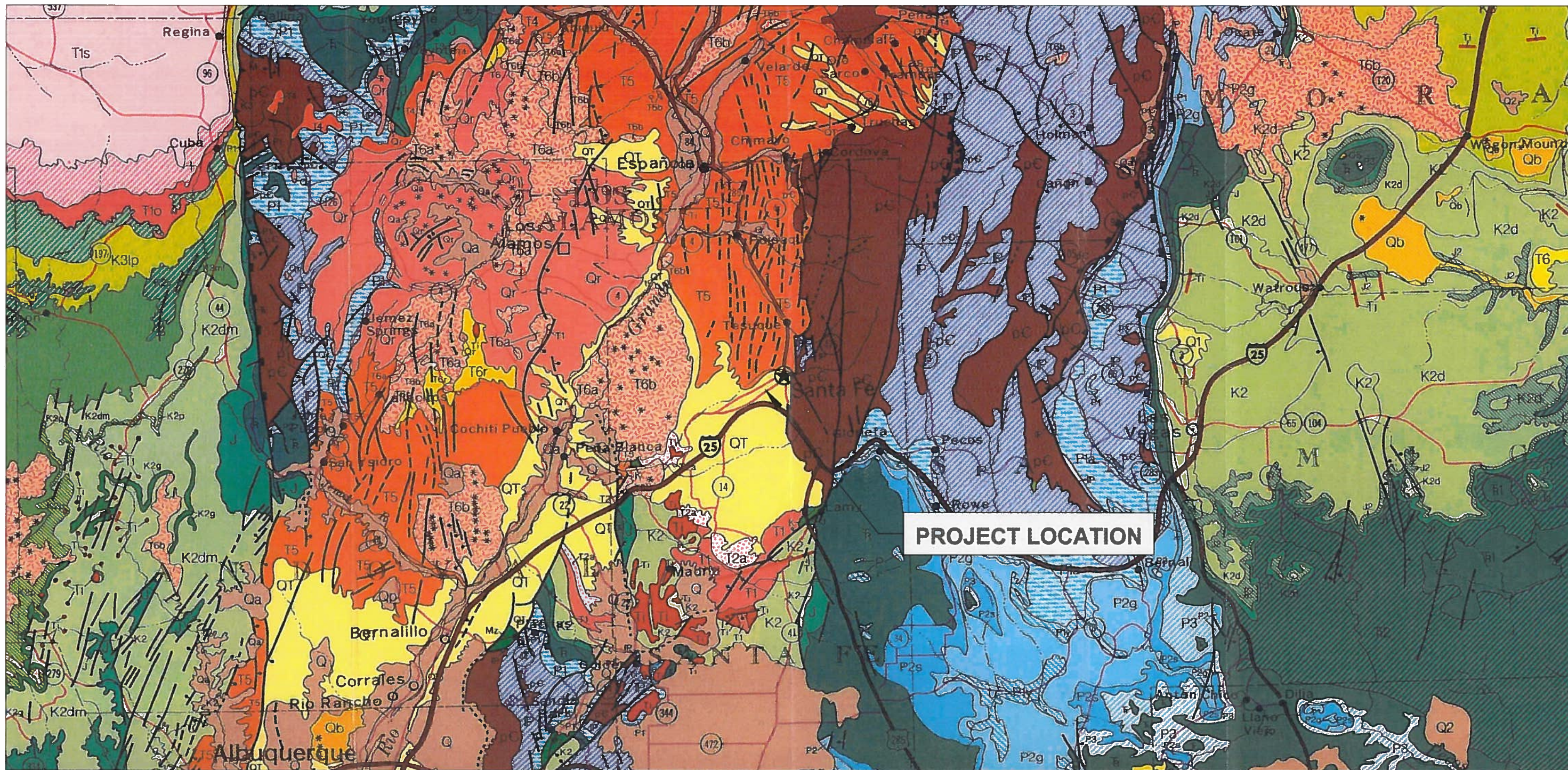
Minimum Site Assessment Work Plan
 Santa Fe Shamrock #63
 3624 Cerrillos Road
 Santa Fe, New Mexico

Project No.

030116

Figure No.

6



NEW MEXICO HIGHWAY GEOLOGIC MAP
NEW MEXICO GEOLOGICAL SOCIETY

1982



SCALE: 1 in = 10 miles



Drawn by	Date	Checked by	Date
DGW	03/15/07	JEC	

Geologic Map

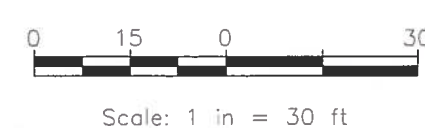
Minimum Site Assessment Report
Santa Fe Shamrock #63
3624 Cerrillos Road
Santa Fe, New Mexico

Project No.
030116

Figure No.
8



LEGEND	
	SB-1 Soil Sample Location And Designation
	Property Line
B	Benzene
T	Toluene
E	Ethylbenzene
X	Xylene
MTBE	Methyl tert-butyl ether
PAHs	Napthalene plus Methylnapthalenes
EDB	1,2 Dibromoethane
EDC	1,2 Dichloroethane
ND	Not Detected
mg/Kg	Milligrams per Kilogram



BASIN
ENGINEERING, INC

Drawn by	Date	Checked by	Date
DGW	03/15/07	JEC	

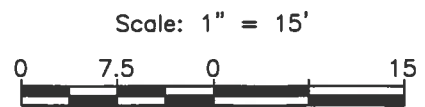
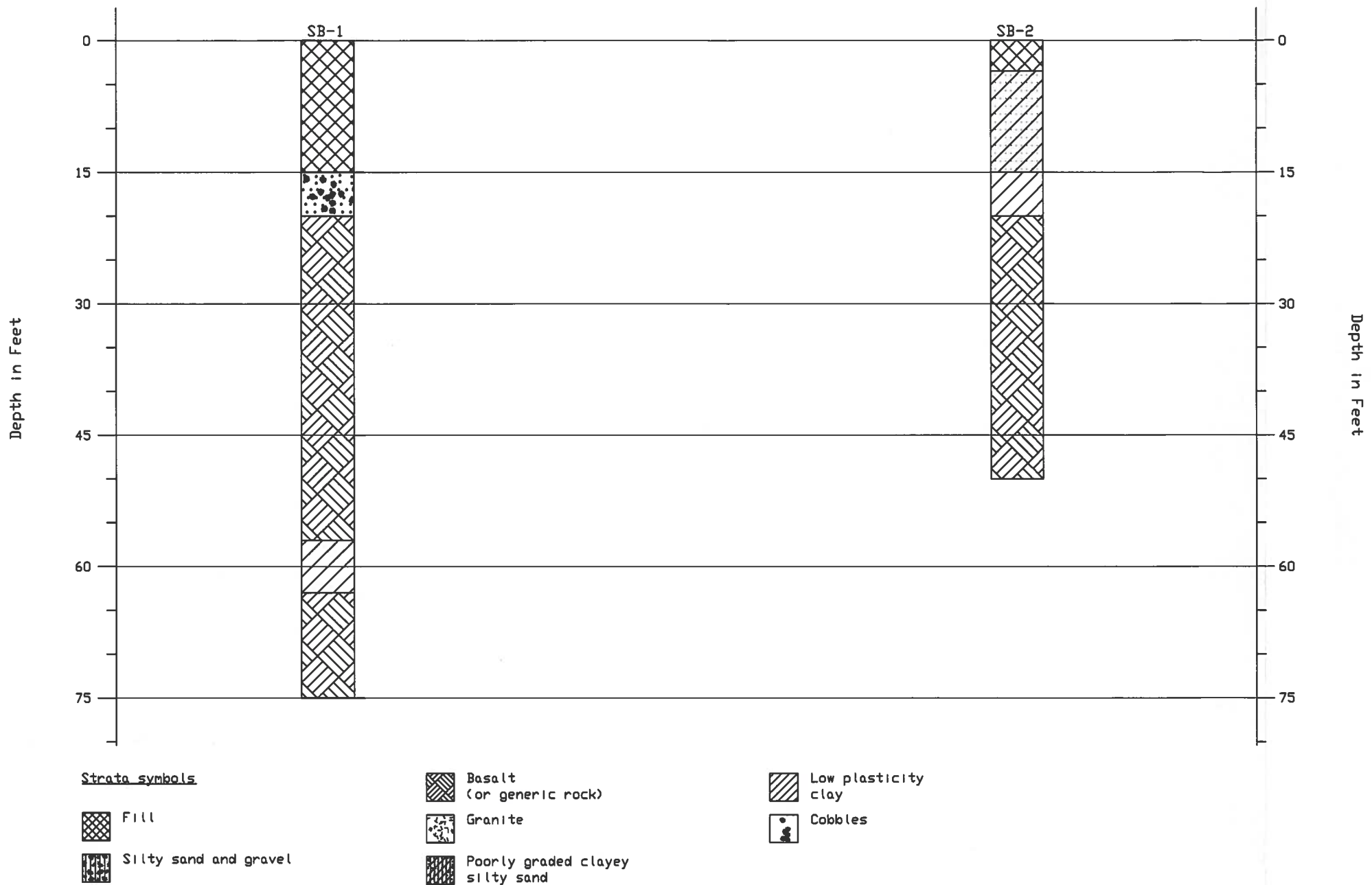
Soil Analytical Map

Minimum Site Assessment Report
Santa Fe Shamrock #63
3624 Cerrillos Road
Santa Fe, New Mexico

Project No.
030116

Figure No.
10a

LOG OF BORINGS
SHAMROCK #63



B A S I N
ENGINEERING, INC.

Drawn by	Date	Checked by	Date
DGW	03/22/07	JEC	

Soil Boring Profile

Minimum Site Assessment Report
Santa Fe Shamrock #63
3624 Cerrillos Road
Santa Fe, New Mexico

Project No.
030116

Figure No.
10b

ATTACHMENTS

COVER LETTER

Friday, March 09, 2007

John Casey
Basin Engineering, Inc.
248 Bodo Drive
Durango, CO 81302

TEL: (970) 259-2078

FAX (970) 385-4812

RE: Shamrock # 63

Order No.: 0702206

Dear John Casey:

Hall Environmental Analysis Laboratory, Inc. received 5 sample(s) on 2/20/2007 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: 09-Mar-07

CLIENT: Basin Engineering, Inc.
Lab Order: 0702206
Project: Shamrock # 63
Lab ID: 0702206-01

Client Sample ID: SB-2@7'
Collection Date: 2/15/2007 2:40:00 PM
Date Received: 2/20/2007
Matrix: MEOH (SOIL)

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ASTM 2216: PERCENT MOISTURE						
Percent Moisture	13	0.10		wt%	1	2/21/2007
EPA METHOD 8310: PAHS						
Naphthalene	ND	14		mg/Kg-dry	50	3/2/2007 11:38:59 AM
1-Methylnaphthalene	26	14		mg/Kg-dry	50	3/2/2007 11:38:59 AM
2-Methylnaphthalene	30	14		mg/Kg-dry	50	3/2/2007 11:38:59 AM
Acenaphthylene	ND	14		mg/Kg-dry	50	3/2/2007 11:38:59 AM
Acenaphthene	ND	14		mg/Kg-dry	50	3/2/2007 11:38:59 AM
Fluorene	2.0	1.7		mg/Kg-dry	50	3/2/2007 11:38:59 AM
Phenanthrene	12	3.5		mg/Kg-dry	200	3/3/2007 11:59:20 AM
Anthracene	ND	0.87		mg/Kg-dry	50	3/2/2007 11:38:59 AM
Fluoranthene	ND	1.2		mg/Kg-dry	50	3/2/2007 11:38:59 AM
Pyrene	ND	1.4		mg/Kg-dry	50	3/2/2007 11:38:59 AM
Benz(a)anthracene	ND	0.12		mg/Kg-dry	50	3/2/2007 11:38:59 AM
Chrysene	2.2	0.64		mg/Kg-dry	50	3/2/2007 11:38:59 AM
Benzo(b)fluoranthene	ND	0.23		mg/Kg-dry	50	3/2/2007 11:38:59 AM
Benzo(k)fluoranthene	0.14	0.058		mg/Kg-dry	50	3/2/2007 11:38:59 AM
Benzo(a)pyrene	ND	0.058		mg/Kg-dry	50	3/2/2007 11:38:59 AM
Dibenz(a,h)anthracene	ND	0.17		mg/Kg-dry	50	3/2/2007 11:38:59 AM
Benzo(g,h,i)perylene	ND	0.17		mg/Kg-dry	50	3/2/2007 11:38:59 AM
Indeno(1,2,3-cd)pyrene	ND	0.23		mg/Kg-dry	50	3/2/2007 11:38:59 AM
Surr: Benzo(e)pyrene	110	52.8-123		%REC	50	3/2/2007 11:38:59 AM
EPA METHOD 6010B: SOIL METALS						
Lead	3.3	1.4		mg/Kg-dry	5	3/7/2007 12:43:30 PM
EPA METHOD 8260B: VOLATILES						
Benzene	ND	0.29		mg/Kg-dry	5	2/28/2007
Toluene	ND	0.29		mg/Kg-dry	5	2/28/2007
Ethylbenzene	0.30	0.29		mg/Kg-dry	5	2/28/2007
Methyl tert-butyl ether (MTBE)	ND	0.29		mg/Kg-dry	5	2/28/2007
1,2,4-Trimethylbenzene	7.4	0.29		mg/Kg-dry	5	2/28/2007
1,3,5-Trimethylbenzene	2.6	0.29		mg/Kg-dry	5	2/28/2007
1,2-Dichloroethane (EDC)	ND	0.29		mg/Kg-dry	5	2/28/2007
1,2-Dibromoethane (EDB)	ND	0.29		mg/Kg-dry	5	2/28/2007
Naphthalene	3.4	0.58		mg/Kg-dry	5	2/28/2007
1-Methylnaphthalene	7.9	1.2		mg/Kg-dry	5	2/28/2007
2-Methylnaphthalene	10	1.2		mg/Kg-dry	5	2/28/2007
Acetone	ND	4.3		mg/Kg-dry	5	2/28/2007
Bromobenzene	ND	0.29		mg/Kg-dry	5	2/28/2007
Bromochloromethane	ND	0.29		mg/Kg-dry	5	2/28/2007

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: 09-Mar-07

CLIENT: Basin Engineering, Inc.
Lab Order: 0702206
Project: Shamrock # 63
Lab ID: 0702206-01

Client Sample ID: SB-2@7'
Collection Date: 2/15/2007 2:40:00 PM
Date Received: 2/20/2007
Matrix: MEOH (SOIL)

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: SMP
Bromodichloromethane	ND	0.29		mg/Kg-dry	5	2/28/2007
Bromoform	ND	0.29		mg/Kg-dry	5	2/28/2007
Bromomethane	ND	0.58		mg/Kg-dry	5	2/28/2007
2-Butanone	ND	2.9		mg/Kg-dry	5	2/28/2007
Carbon disulfide	ND	2.9		mg/Kg-dry	5	2/28/2007
Carbon tetrachloride	ND	0.58		mg/Kg-dry	5	2/28/2007
Chlorobenzene	ND	0.29		mg/Kg-dry	5	2/28/2007
Chloroethane	ND	0.58		mg/Kg-dry	5	2/28/2007
Chloroform	ND	0.29		mg/Kg-dry	5	2/28/2007
Chloromethane	ND	0.29		mg/Kg-dry	5	2/28/2007
2-Chlorotoluene	ND	0.29		mg/Kg-dry	5	2/28/2007
4-Chlorotoluene	ND	0.29		mg/Kg-dry	5	2/28/2007
cis-1,2-DCE	ND	0.29		mg/Kg-dry	5	2/28/2007
cis-1,3-Dichloropropene	ND	0.29		mg/Kg-dry	5	2/28/2007
1,2-Dibromo-3-chloropropane	ND	0.58		mg/Kg-dry	5	2/28/2007
Dibromochloromethane	ND	0.29		mg/Kg-dry	5	2/28/2007
Dibromomethane	ND	0.58		mg/Kg-dry	5	2/28/2007
1,2-Dichlorobenzene	ND	0.29		mg/Kg-dry	5	2/28/2007
1,3-Dichlorobenzene	ND	0.29		mg/Kg-dry	5	2/28/2007
1,4-Dichlorobenzene	ND	0.29		mg/Kg-dry	5	2/28/2007
Dichlorodifluoromethane	ND	0.29		mg/Kg-dry	5	2/28/2007
1,1-Dichloroethane	ND	0.58		mg/Kg-dry	5	2/28/2007
1,1-Dichloroethene	ND	0.29		mg/Kg-dry	5	2/28/2007
1,2-Dichloropropane	ND	0.29		mg/Kg-dry	5	2/28/2007
1,3-Dichloropropane	ND	0.29		mg/Kg-dry	5	2/28/2007
2,2-Dichloropropane	ND	0.58		mg/Kg-dry	5	2/28/2007
1,1-Dichloropropene	ND	0.58		mg/Kg-dry	5	2/28/2007
Hexachlorobutadiene	ND	0.58		mg/Kg-dry	5	2/28/2007
2-Hexanone	ND	2.9		mg/Kg-dry	5	2/28/2007
Isopropylbenzene	ND	0.29		mg/Kg-dry	5	2/28/2007
4-Isopropyltoluene	1.3	0.29		mg/Kg-dry	5	2/28/2007
4-Methyl-2-pentanone	ND	2.9		mg/Kg-dry	5	2/28/2007
Methylene chloride	ND	0.87		mg/Kg-dry	5	2/28/2007
n-Butylbenzene	2.3	0.29		mg/Kg-dry	5	2/28/2007
n-Propylbenzene	0.53	0.29		mg/Kg-dry	5	2/28/2007
sec-Butylbenzene	ND	0.29		mg/Kg-dry	5	2/28/2007
Styrene	ND	0.29		mg/Kg-dry	5	2/28/2007
tert-Butylbenzene	ND	0.29		mg/Kg-dry	5	2/28/2007
1,1,1,2-Tetrachloroethane	ND	0.29		mg/Kg-dry	5	2/28/2007
1,1,2,2-Tetrachloroethane	ND	0.29		mg/Kg-dry	5	2/28/2007
Tetrachloroethene (PCE)	ND	0.29		mg/Kg-dry	5	2/28/2007

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: 09-Mar-07

CLIENT: Basin Engineering, Inc.
Lab Order: 0702206
Project: Shamrock # 63
Lab ID: 0702206-01

Client Sample ID: SB-2@7'
Collection Date: 2/15/2007 2:40:00 PM
Date Received: 2/20/2007
Matrix: MEOH (SOIL)

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: SMP
trans-1,2-DCE	ND	0.29		mg/Kg-dry	5	2/28/2007
trans-1,3-Dichloropropene	ND	0.29		mg/Kg-dry	5	2/28/2007
1,2,3-Trichlorobenzene	ND	0.58		mg/Kg-dry	5	2/28/2007
1,2,4-Trichlorobenzene	ND	0.29		mg/Kg-dry	5	2/28/2007
1,1,1-Trichloroethane	ND	0.29		mg/Kg-dry	5	2/28/2007
1,1,2-Trichloroethane	ND	0.29		mg/Kg-dry	5	2/28/2007
Trichloroethene (TCE)	ND	0.29		mg/Kg-dry	5	2/28/2007
Trichlorofluoromethane	ND	0.29		mg/Kg-dry	5	2/28/2007
1,2,3-Trichloropropane	ND	0.58		mg/Kg-dry	5	2/28/2007
Vinyl chloride	ND	0.29		mg/Kg-dry	5	2/28/2007
Xylenes, Total	0.74	0.58		mg/Kg-dry	5	2/28/2007
Surr: 1,2-Dichloroethane-d4	113	62.1-102	S	%REC	5	2/28/2007
Surr: 4-Bromofluorobenzene	104	72-107		%REC	5	2/28/2007
Surr: Dibromofluoromethane	112	56.6-105	S	%REC	5	2/28/2007
Surr: Toluene-d8	96.2	83.4-104		%REC	5	2/28/2007

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: 09-Mar-07

CLIENT: Basin Engineering, Inc.
Lab Order: 0702206
Project: Shamrock # 63
Lab ID: 0702206-02

Client Sample ID: SB-2@50'
Collection Date: 2/16/2007 9:10:00 AM
Date Received: 2/20/2007
Matrix: MEOH (SOIL)

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ASTM 2216: PERCENT MOISTURE						
Percent Moisture	11	0.10		wt%	1	2/21/2007
EPA METHOD 8310: PAHS						
Naphthalene	ND	0.28		mg/Kg-dry	1	3/7/2007 6:12:19 PM
1-Methylnaphthalene	ND	0.28		mg/Kg-dry	1	3/7/2007 6:12:19 PM
2-Methylnaphthalene	ND	0.28		mg/Kg-dry	1	3/7/2007 6:12:19 PM
Acenaphthylene	ND	0.28		mg/Kg-dry	1	3/7/2007 6:12:19 PM
Acenaphthene	ND	0.28		mg/Kg-dry	1	3/7/2007 6:12:19 PM
Fluorene	ND	0.034		mg/Kg-dry	1	3/7/2007 6:12:19 PM
Phenanthrene	ND	0.017		mg/Kg-dry	1	3/7/2007 6:12:19 PM
Anthracene	ND	0.017		mg/Kg-dry	1	3/7/2007 6:12:19 PM
Fluoranthene	ND	0.022		mg/Kg-dry	1	3/7/2007 6:12:19 PM
Pyrene	ND	0.028		mg/Kg-dry	1	3/7/2007 6:12:19 PM
Benz(a)anthracene	ND	0.0022		mg/Kg-dry	1	3/7/2007 6:12:19 PM
Chrysene	ND	0.012		mg/Kg-dry	1	3/7/2007 6:12:19 PM
Benzo(b)fluoranthene	ND	0.0045		mg/Kg-dry	1	3/7/2007 6:12:19 PM
Benzo(k)fluoranthene	ND	0.0011		mg/Kg-dry	1	3/7/2007 6:12:19 PM
Benzo(a)pyrene	0.0011	0.0011		mg/Kg-dry	1	3/7/2007 6:12:19 PM
Dibenz(a,h)anthracene	ND	0.0034		mg/Kg-dry	1	3/7/2007 6:12:19 PM
Benzo(g,h,i)perylene	ND	0.0034		mg/Kg-dry	1	3/7/2007 6:12:19 PM
Indeno(1,2,3-cd)pyrene	ND	0.0045		mg/Kg-dry	1	3/7/2007 6:12:19 PM
Surr: Benzo(e)pyrene	88.3	52.8-123		%REC	1	3/7/2007 6:12:19 PM
EPA METHOD 6010B: SOIL METALS						
Lead	5.7	1.4		mg/Kg-dry	5	3/7/2007 12:45:32 PM
EPA METHOD 8260B: VOLATILES						
Benzene	0.22	0.056		mg/Kg-dry	1	2/24/2007
Toluene	1.9	0.056		mg/Kg-dry	1	2/24/2007
Ethylbenzene	0.24	0.056		mg/Kg-dry	1	2/24/2007
Methyl tert-butyl ether (MTBE)	ND	0.056		mg/Kg-dry	1	2/24/2007
1,2,4-Trimethylbenzene	0.15	0.056		mg/Kg-dry	1	2/24/2007
1,3,5-Trimethylbenzene	0.058	0.056		mg/Kg-dry	1	2/24/2007
1,2-Dichloroethane (EDC)	ND	0.056		mg/Kg-dry	1	2/24/2007
1,2-Dibromoethane (EDB)	ND	0.056		mg/Kg-dry	1	2/24/2007
Naphthalene	ND	0.11		mg/Kg-dry	1	2/24/2007
1-Methylnaphthalene	ND	0.22		mg/Kg-dry	1	2/24/2007
2-Methylnaphthalene	ND	0.22		mg/Kg-dry	1	2/24/2007
Acetone	ND	0.84		mg/Kg-dry	1	2/24/2007
Bromobenzene	ND	0.056		mg/Kg-dry	1	2/24/2007
Bromochloromethane	ND	0.056		mg/Kg-dry	1	2/24/2007

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: 09-Mar-07

CLIENT: Basin Engineering, Inc.
Lab Order: 0702206
Project: Shamrock # 63
Lab ID: 0702206-02

Client Sample ID: SB-2@50'
Collection Date: 2/16/2007 9:10:00 AM
Date Received: 2/20/2007
Matrix: MEOH (SOIL)

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: SMP
Bromodichloromethane	ND	0.056		mg/Kg-dry	1	2/24/2007
Bromoform	ND	0.056		mg/Kg-dry	1	2/24/2007
Bromomethane	ND	0.11		mg/Kg-dry	1	2/24/2007
2-Butanone	ND	0.56		mg/Kg-dry	1	2/24/2007
Carbon disulfide	ND	0.56		mg/Kg-dry	1	2/24/2007
Carbon tetrachloride	ND	0.11		mg/Kg-dry	1	2/24/2007
Chlorobenzene	ND	0.056		mg/Kg-dry	1	2/24/2007
Chloroethane	ND	0.11		mg/Kg-dry	1	2/24/2007
Chloroform	ND	0.056		mg/Kg-dry	1	2/24/2007
Chloromethane	ND	0.056		mg/Kg-dry	1	2/24/2007
2-Chlorotoluene	ND	0.056		mg/Kg-dry	1	2/24/2007
4-Chlorotoluene	ND	0.056		mg/Kg-dry	1	2/24/2007
cis-1,2-DCE	ND	0.056		mg/Kg-dry	1	2/24/2007
cis-1,3-Dichloropropene	ND	0.056		mg/Kg-dry	1	2/24/2007
1,2-Dibromo-3-chloropropane	ND	0.11		mg/Kg-dry	1	2/24/2007
Dibromochloromethane	ND	0.056		mg/Kg-dry	1	2/24/2007
Dibromomethane	ND	0.11		mg/Kg-dry	1	2/24/2007
1,2-Dichlorobenzene	ND	0.056		mg/Kg-dry	1	2/24/2007
1,3-Dichlorobenzene	ND	0.056		mg/Kg-dry	1	2/24/2007
1,4-Dichlorobenzene	ND	0.056		mg/Kg-dry	1	2/24/2007
Dichlorodifluoromethane	ND	0.056		mg/Kg-dry	1	2/24/2007
1,1-Dichloroethane	ND	0.11		mg/Kg-dry	1	2/24/2007
1,1-Dichloroethene	ND	0.056		mg/Kg-dry	1	2/24/2007
1,2-Dichloropropane	ND	0.056		mg/Kg-dry	1	2/24/2007
1,3-Dichloropropane	ND	0.056		mg/Kg-dry	1	2/24/2007
2,2-Dichloropropane	ND	0.11		mg/Kg-dry	1	2/24/2007
1,1-Dichloropropene	ND	0.11		mg/Kg-dry	1	2/24/2007
Hexachlorobutadiene	ND	0.11		mg/Kg-dry	1	2/24/2007
2-Hexanone	ND	0.56		mg/Kg-dry	1	2/24/2007
Isopropylbenzene	ND	0.056		mg/Kg-dry	1	2/24/2007
4-Isopropyltoluene	ND	0.056		mg/Kg-dry	1	2/24/2007
4-Methyl-2-pentanone	ND	0.56		mg/Kg-dry	1	2/24/2007
Methylene chloride	ND	0.17		mg/Kg-dry	1	2/24/2007
n-Butylbenzene	ND	0.056		mg/Kg-dry	1	2/24/2007
n-Propylbenzene	ND	0.056		mg/Kg-dry	1	2/24/2007
sec-Butylbenzene	ND	0.056		mg/Kg-dry	1	2/24/2007
Styrene	ND	0.056		mg/Kg-dry	1	2/24/2007
tert-Butylbenzene	ND	0.056		mg/Kg-dry	1	2/24/2007
1,1,1,2-Tetrachloroethane	ND	0.056		mg/Kg-dry	1	2/24/2007
1,1,2,2-Tetrachloroethane	ND	0.056		mg/Kg-dry	1	2/24/2007
Tetrachloroethene (PCE)	ND	0.056		mg/Kg-dry	1	2/24/2007

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: 09-Mar-07

CLIENT: Basin Engineering, Inc.
Lab Order: 0702206
Project: Shamrock # 63
Lab ID: 0702206-02

Client Sample ID: SB-2@50'
Collection Date: 2/16/2007 9:10:00 AM
Date Received: 2/20/2007
Matrix: MEOH (SOIL)

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: SMP
trans-1,2-DCE	ND	0.056		mg/Kg-dry	1	2/24/2007
trans-1,3-Dichloropropene	ND	0.056		mg/Kg-dry	1	2/24/2007
1,2,3-Trichlorobenzene	ND	0.11		mg/Kg-dry	1	2/24/2007
1,2,4-Trichlorobenzene	ND	0.056		mg/Kg-dry	1	2/24/2007
1,1,1-Trichloroethane	ND	0.056		mg/Kg-dry	1	2/24/2007
1,1,2-Trichloroethane	ND	0.056		mg/Kg-dry	1	2/24/2007
Trichloroethene (TCE)	ND	0.056		mg/Kg-dry	1	2/24/2007
Trichlorofluoromethane	ND	0.056		mg/Kg-dry	1	2/24/2007
1,2,3-Trichloropropane	ND	0.11		mg/Kg-dry	1	2/24/2007
Vinyl chloride	ND	0.056		mg/Kg-dry	1	2/24/2007
Xylenes, Total	1.1	0.11		mg/Kg-dry	1	2/24/2007
Surr: 1,2-Dichloroethane-d4	76.6	62.1-102		%REC	1	2/24/2007
Surr: 4-Bromofluorobenzene	87.9	72-107		%REC	1	2/24/2007
Surr: Dibromofluoromethane	77.2	56.6-105		%REC	1	2/24/2007
Surr: Toluene-d8	103	83.4-104		%REC	1	2/24/2007

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: 09-Mar-07

CLIENT: Basin Engineering, Inc.
 Lab Order: 0702206
 Project: Shamrock # 63
 Lab ID: 0702206-03

Client Sample ID: SB-1@15'
 Collection Date: 2/16/2007 10:15:00 AM
 Date Received: 2/20/2007
 Matrix: MEOH (SOIL)

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ASTM 2216: PERCENT MOISTURE						Analyst: LMM
Percent Moisture	6.3	0.10		wt%	1	2/21/2007
EPA METHOD 8310: PAHS						Analyst: JMP
Naphthalene	2.0	1.3		mg/Kg-dry	5	3/2/2007 1:14:56 PM
1-Methylnaphthalene	1.9	1.3		mg/Kg-dry	5	3/2/2007 1:14:56 PM
2-Methylnaphthalene	3.3	1.3		mg/Kg-dry	5	3/2/2007 1:14:56 PM
Acenaphthylene	ND	1.3		mg/Kg-dry	5	3/2/2007 1:14:56 PM
Acenaphthene	ND	1.3		mg/Kg-dry	5	3/2/2007 1:14:56 PM
Fluorene	ND	0.16		mg/Kg-dry	5	3/2/2007 1:14:56 PM
Phenanthrene	0.13	0.080		mg/Kg-dry	5	3/2/2007 1:14:56 PM
Anthracene	ND	0.080		mg/Kg-dry	5	3/2/2007 1:14:56 PM
Fluoranthene	ND	0.11		mg/Kg-dry	5	3/2/2007 1:14:56 PM
Pyrene	ND	0.13		mg/Kg-dry	5	3/2/2007 1:14:56 PM
Benz(a)anthracene	ND	0.011		mg/Kg-dry	5	3/2/2007 1:14:56 PM
Chrysene	ND	0.059		mg/Kg-dry	5	3/2/2007 1:14:56 PM
Benzo(b)fluoranthene	ND	0.021		mg/Kg-dry	5	3/2/2007 1:14:56 PM
Benzo(k)fluoranthene	0.012	0.0053		mg/Kg-dry	5	3/2/2007 1:14:56 PM
Benzo(a)pyrene	0.011	0.0053		mg/Kg-dry	5	3/2/2007 1:14:56 PM
Dibenz(a,h)anthracene	ND	0.016		mg/Kg-dry	5	3/2/2007 1:14:56 PM
Benzo(g,h,i)perylene	ND	0.016		mg/Kg-dry	5	3/2/2007 1:14:56 PM
Indeno(1,2,3-cd)pyrene	ND	0.021		mg/Kg-dry	5	3/2/2007 1:14:56 PM
Surr: Benzo(e)pyrene	67.5	52.8-123		%REC	5	3/2/2007 1:14:56 PM
EPA METHOD 6010B: SOIL METALS						Analyst: NMO
Lead	2.8	1.3		mg/Kg-dry	5	3/7/2007 12:47:24 PM
EPA METHOD 8260B: VOLATILES						Analyst: SMP
Benzene	0.70	0.27		mg/Kg-dry	5	2/28/2007
Toluene	4.9	0.27		mg/Kg-dry	5	2/28/2007
Ethylbenzene	1.1	0.27		mg/Kg-dry	5	2/28/2007
Methyl tert-butyl ether (MTBE)	ND	0.27		mg/Kg-dry	5	2/28/2007
1,2,4-Trimethylbenzene	11	0.27		mg/Kg-dry	5	2/28/2007
1,3,5-Trimethylbenzene	2.9	0.27		mg/Kg-dry	5	2/28/2007
1,2-Dichloroethane (EDC)	ND	0.27		mg/Kg-dry	5	2/28/2007
1,2-Dibromoethane (EDB)	ND	0.27		mg/Kg-dry	5	2/28/2007
Naphthalene	4.0	0.53		mg/Kg-dry	5	2/28/2007
1-Methylnaphthalene	1.9	1.1		mg/Kg-dry	5	2/28/2007
2-Methylnaphthalene	3.3	1.1		mg/Kg-dry	5	2/28/2007
Acetone	ND	4.0		mg/Kg-dry	5	2/28/2007
Bromobenzene	ND	0.27		mg/Kg-dry	5	2/28/2007
Bromochloromethane	ND	0.27		mg/Kg-dry	5	2/28/2007

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: 09-Mar-07

CLIENT: Basin Engineering, Inc.
Lab Order: 0702206
Project: Shamrock # 63
Lab ID: 0702206-03

Client Sample ID: SB-1@15'
Collection Date: 2/16/2007 10:15:00 AM
Date Received: 2/20/2007
Matrix: MEOH (SOIL)

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: SMP
Bromodichloromethane	ND	0.27		mg/Kg-dry	5	2/28/2007
Bromoform	ND	0.27		mg/Kg-dry	5	2/28/2007
Bromomethane	ND	0.53		mg/Kg-dry	5	2/28/2007
2-Butanone	ND	2.7		mg/Kg-dry	5	2/28/2007
Carbon disulfide	ND	2.7		mg/Kg-dry	5	2/28/2007
Carbon tetrachloride	ND	0.53		mg/Kg-dry	5	2/28/2007
Chlorobenzene	ND	0.27		mg/Kg-dry	5	2/28/2007
Chloroethane	ND	0.53		mg/Kg-dry	5	2/28/2007
Chloroform	ND	0.27		mg/Kg-dry	5	2/28/2007
Chloromethane	ND	0.27		mg/Kg-dry	5	2/28/2007
2-Chlorotoluene	ND	0.27		mg/Kg-dry	5	2/28/2007
4-Chlorotoluene	ND	0.27		mg/Kg-dry	5	2/28/2007
cis-1,2-DCE	ND	0.27		mg/Kg-dry	5	2/28/2007
cis-1,3-Dichloropropene	ND	0.27		mg/Kg-dry	5	2/28/2007
1,2-Dibromo-3-chloropropane	ND	0.53		mg/Kg-dry	5	2/28/2007
Dibromochloromethane	ND	0.27		mg/Kg-dry	5	2/28/2007
Dibromomethane	ND	0.53		mg/Kg-dry	5	2/28/2007
1,2-Dichlorobenzene	ND	0.27		mg/Kg-dry	5	2/28/2007
1,3-Dichlorobenzene	ND	0.27		mg/Kg-dry	5	2/28/2007
1,4-Dichlorobenzene	ND	0.27		mg/Kg-dry	5	2/28/2007
Dichlorodifluoromethane	ND	0.27		mg/Kg-dry	5	2/28/2007
1,1-Dichloroethane	ND	0.53		mg/Kg-dry	5	2/28/2007
1,1-Dichloroethene	ND	0.27		mg/Kg-dry	5	2/28/2007
1,2-Dichloropropane	ND	0.27		mg/Kg-dry	5	2/28/2007
1,3-Dichloropropane	ND	0.27		mg/Kg-dry	5	2/28/2007
2,2-Dichloropropane	ND	0.53		mg/Kg-dry	5	2/28/2007
1,1-Dichloropropene	ND	0.53		mg/Kg-dry	5	2/28/2007
Hexachlorobutadiene	ND	0.53		mg/Kg-dry	5	2/28/2007
2-Hexanone	ND	2.7		mg/Kg-dry	5	2/28/2007
Isopropylbenzene	ND	0.27		mg/Kg-dry	5	2/28/2007
4-Isopropyltoluene	ND	0.27		mg/Kg-dry	5	2/28/2007
4-Methyl-2-pentanone	ND	2.7		mg/Kg-dry	5	2/28/2007
Methylene chloride	ND	0.80		mg/Kg-dry	5	2/28/2007
n-Butylbenzene	3.1	0.27		mg/Kg-dry	5	2/28/2007
n-Propylbenzene	0.84	0.27		mg/Kg-dry	5	2/28/2007
sec-Butylbenzene	ND	0.27		mg/Kg-dry	5	2/28/2007
Styrene	ND	0.27		mg/Kg-dry	5	2/28/2007
tert-Butylbenzene	ND	0.27		mg/Kg-dry	5	2/28/2007
1,1,1,2-Tetrachloroethane	ND	0.27		mg/Kg-dry	5	2/28/2007
1,1,2,2-Tetrachloroethane	ND	0.27		mg/Kg-dry	5	2/28/2007
Tetrachloroethene (PCE)	ND	0.27		mg/Kg-dry	5	2/28/2007

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: 09-Mar-07

CLIENT: Basin Engineering, Inc.
Lab Order: 0702206
Project: Shamrock # 63
Lab ID: 0702206-03

Client Sample ID: SB-1@15'
Collection Date: 2/16/2007 10:15:00 AM
Date Received: 2/20/2007
Matrix: MEOH (SOIL)

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: SMP
trans-1,2-DCE	ND	0.27		mg/Kg-dry	5	2/28/2007
trans-1,3-Dichloropropene	ND	0.27		mg/Kg-dry	5	2/28/2007
1,2,3-Trichlorobenzene	ND	0.53		mg/Kg-dry	5	2/28/2007
1,2,4-Trichlorobenzene	ND	0.27		mg/Kg-dry	5	2/28/2007
1,1,1-Trichloroethane	ND	0.27		mg/Kg-dry	5	2/28/2007
1,1,2-Trichloroethane	ND	0.27		mg/Kg-dry	5	2/28/2007
Trichloroethene (TCE)	ND	0.27		mg/Kg-dry	5	2/28/2007
Trichlorofluoromethane	ND	0.27		mg/Kg-dry	5	2/28/2007
1,2,3-Trichloropropane	ND	0.53		mg/Kg-dry	5	2/28/2007
Vinyl chloride	ND	0.27		mg/Kg-dry	5	2/28/2007
Xylenes, Total	6.3	0.53		mg/Kg-dry	5	2/28/2007
Surr: 1,2-Dichloroethane-d4	108	62.1-102	S	%REC	5	2/28/2007
Surr: 4-Bromofluorobenzene	104	72-107		%REC	5	2/28/2007
Surr: Dibromofluoromethane	114	56.6-105	S	%REC	5	2/28/2007
Surr: Toluene-d8	98.3	83.4-104		%REC	5	2/28/2007

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: 09-Mar-07

CLIENT: Basin Engineering, Inc.
Lab Order: 0702206
Project: Shamrock # 63
Lab ID: 0702206-04

Client Sample ID: SB-1@75'
Collection Date: 2/16/2007 2:10:00 PM
Date Received: 2/20/2007
Matrix: MEOH (SOIL)

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ASTM 2216: PERCENT MOISTURE						
Percent Moisture	10	0.10		wt%	1	2/21/2007
EPA METHOD 8310: PAHS						
Naphthalene	ND	0.28		mg/Kg-dry	1	3/1/2007 6:08:37 PM
1-Methylnaphthalene	ND	0.28		mg/Kg-dry	1	3/1/2007 6:08:37 PM
2-Methylnaphthalene	ND	0.28		mg/Kg-dry	1	3/1/2007 6:08:37 PM
Acenaphthylene	ND	0.28		mg/Kg-dry	1	3/1/2007 6:08:37 PM
Acenaphthene	ND	0.28		mg/Kg-dry	1	3/1/2007 6:08:37 PM
Fluorene	ND	0.033		mg/Kg-dry	1	3/1/2007 6:08:37 PM
Phenanthrene	ND	0.017		mg/Kg-dry	1	3/1/2007 6:08:37 PM
Anthracene	ND	0.017		mg/Kg-dry	1	3/1/2007 6:08:37 PM
Fluoranthene	ND	0.022		mg/Kg-dry	1	3/1/2007 6:08:37 PM
Pyrene	ND	0.028		mg/Kg-dry	1	3/1/2007 6:08:37 PM
Benz(a)anthracene	ND	0.0022		mg/Kg-dry	1	3/1/2007 6:08:37 PM
Chrysene	ND	0.012		mg/Kg-dry	1	3/1/2007 6:08:37 PM
Benzo(b)fluoranthene	ND	0.0045		mg/Kg-dry	1	3/1/2007 6:08:37 PM
Benzo(k)fluoranthene	ND	0.0011		mg/Kg-dry	1	3/1/2007 6:08:37 PM
Benzo(a)pyrene	ND	0.0011		mg/Kg-dry	1	3/1/2007 6:08:37 PM
Dibenz(a,h)anthracene	ND	0.0033		mg/Kg-dry	1	3/1/2007 6:08:37 PM
Benzo(g,h,i)perylene	ND	0.0033		mg/Kg-dry	1	3/1/2007 6:08:37 PM
Indeno(1,2,3-cd)pyrene	ND	0.0045		mg/Kg-dry	1	3/1/2007 6:08:37 PM
Surr: Benzo(e)pyrene	75.8	52.8-123		%REC	1	3/1/2007 6:08:37 PM
EPA METHOD 6010B: SOIL METALS						
Lead	3.0	1.4		mg/Kg-dry	5	3/7/2007 12:49:12 PM
EPA METHOD 8260B: VOLATILES						
Benzene	0.19	0.056		mg/Kg-dry	1	2/24/2007
Toluene	0.11	0.056		mg/Kg-dry	1	2/24/2007
Ethylbenzene	ND	0.056		mg/Kg-dry	1	2/24/2007
Methyl tert-butyl ether (MTBE)	0.19	0.056		mg/Kg-dry	1	2/24/2007
1,2,4-Trimethylbenzene	0.071	0.056		mg/Kg-dry	1	2/24/2007
1,3,5-Trimethylbenzene	ND	0.056		mg/Kg-dry	1	2/24/2007
1,2-Dichloroethane (EDC)	ND	0.056		mg/Kg-dry	1	2/24/2007
1,2-Dibromoethane (EDB)	ND	0.056		mg/Kg-dry	1	2/24/2007
Naphthalene	ND	0.11		mg/Kg-dry	1	2/24/2007
1-Methylnaphthalene	ND	0.22		mg/Kg-dry	1	2/24/2007
2-Methylnaphthalene	ND	0.22		mg/Kg-dry	1	2/24/2007
Acetone	ND	0.83		mg/Kg-dry	1	2/24/2007
Bromobenzene	ND	0.056		mg/Kg-dry	1	2/24/2007
Bromochloromethane	ND	0.056		mg/Kg-dry	1	2/24/2007

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: 09-Mar-07

CLIENT: Basin Engineering, Inc.
 Lab Order: 0702206
 Project: Shamrock # 63
 Lab ID: 0702206-04

Client Sample ID: SB-1@75'
 Collection Date: 2/16/2007 2:10:00 PM
 Date Received: 2/20/2007
 Matrix: MEOH (SOIL)

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: SMP
Bromodichloromethane	ND	0.056		mg/Kg-dry	1	2/24/2007
Bromoform	ND	0.056		mg/Kg-dry	1	2/24/2007
Bromomethane	ND	0.11		mg/Kg-dry	1	2/24/2007
2-Butanone	ND	0.56		mg/Kg-dry	1	2/24/2007
Carbon disulfide	ND	0.56		mg/Kg-dry	1	2/24/2007
Carbon tetrachloride	ND	0.11		mg/Kg-dry	1	2/24/2007
Chlorobenzene	ND	0.056		mg/Kg-dry	1	2/24/2007
Chloroethane	ND	0.11		mg/Kg-dry	1	2/24/2007
Chloroform	ND	0.056		mg/Kg-dry	1	2/24/2007
Chloromethane	ND	0.056		mg/Kg-dry	1	2/24/2007
2-Chlorotoluene	ND	0.056		mg/Kg-dry	1	2/24/2007
4-Chlorotoluene	ND	0.056		mg/Kg-dry	1	2/24/2007
cis-1,2-DCE	ND	0.056		mg/Kg-dry	1	2/24/2007
cis-1,3-Dichloropropene	ND	0.056		mg/Kg-dry	1	2/24/2007
1,2-Dibromo-3-chloropropane	ND	0.11		mg/Kg-dry	1	2/24/2007
Dibromochloromethane	ND	0.056		mg/Kg-dry	1	2/24/2007
Dibromomethane	ND	0.11		mg/Kg-dry	1	2/24/2007
1,2-Dichlorobenzene	ND	0.056		mg/Kg-dry	1	2/24/2007
1,3-Dichlorobenzene	ND	0.056		mg/Kg-dry	1	2/24/2007
1,4-Dichlorobenzene	ND	0.056		mg/Kg-dry	1	2/24/2007
Dichlorodifluoromethane	ND	0.056		mg/Kg-dry	1	2/24/2007
1,1-Dichloroethane	ND	0.11		mg/Kg-dry	1	2/24/2007
1,1-Dichloroethene	ND	0.056		mg/Kg-dry	1	2/24/2007
1,2-Dichloropropane	ND	0.056		mg/Kg-dry	1	2/24/2007
1,3-Dichloropropane	ND	0.056		mg/Kg-dry	1	2/24/2007
2,2-Dichloropropane	ND	0.11		mg/Kg-dry	1	2/24/2007
1,1-Dichloropropene	ND	0.11		mg/Kg-dry	1	2/24/2007
Hexachlorobutadiene	ND	0.11		mg/Kg-dry	1	2/24/2007
2-Hexanone	ND	0.56		mg/Kg-dry	1	2/24/2007
Isopropylbenzene	ND	0.056		mg/Kg-dry	1	2/24/2007
4-Isopropyltoluene	ND	0.056		mg/Kg-dry	1	2/24/2007
4-Methyl-2-pentanone	ND	0.56		mg/Kg-dry	1	2/24/2007
Methylene chloride	ND	0.17		mg/Kg-dry	1	2/24/2007
n-Butylbenzene	ND	0.056		mg/Kg-dry	1	2/24/2007
n-Propylbenzene	ND	0.056		mg/Kg-dry	1	2/24/2007
sec-Butylbenzene	ND	0.056		mg/Kg-dry	1	2/24/2007
Styrene	ND	0.056		mg/Kg-dry	1	2/24/2007
tert-Butylbenzene	ND	0.056		mg/Kg-dry	1	2/24/2007
1,1,1,2-Tetrachloroethane	ND	0.056		mg/Kg-dry	1	2/24/2007
1,1,1,2,2-Tetrachloroethane	ND	0.056		mg/Kg-dry	1	2/24/2007
Tetrachloroethene (PCE)	ND	0.056		mg/Kg-dry	1	2/24/2007

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 limit

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: 09-Mar-07

CLIENT: Basin Engineering, Inc.
Lab Order: 0702206
Project: Shamrock # 63
Lab ID: 0702206-04

Client Sample ID: SB-1@75'
Collection Date: 2/16/2007 2:10:00 PM
Date Received: 2/20/2007
Matrix: MEOH (SOIL)

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: SMP
trans-1,2-DCE	ND	0.056		mg/Kg-dry	1	2/24/2007
trans-1,3-Dichloropropene	ND	0.056		mg/Kg-dry	1	2/24/2007
1,2,3-Trichlorobenzene	ND	0.11		mg/Kg-dry	1	2/24/2007
1,2,4-Trichlorobenzene	ND	0.056		mg/Kg-dry	1	2/24/2007
1,1,1-Trichloroethane	ND	0.056		mg/Kg-dry	1	2/24/2007
1,1,2-Trichloroethane	ND	0.056		mg/Kg-dry	1	2/24/2007
Trichloroethene (TCE)	ND	0.056		mg/Kg-dry	1	2/24/2007
Trichlorofluoromethane	ND	0.056		mg/Kg-dry	1	2/24/2007
1,2,3-Trichloropropane	ND	0.11		mg/Kg-dry	1	2/24/2007
Vinyl chloride	ND	0.056		mg/Kg-dry	1	2/24/2007
Xylenes, Total	0.20	0.11		mg/Kg-dry	1	2/24/2007
Surr: 1,2-Dichloroethane-d4	76.5	62.1-102		%REC	1	2/24/2007
Surr: 4-Bromofluorobenzene	87.1	72-107		%REC	1	2/24/2007
Surr: Dibromofluoromethane	76.3	56.6-105		%REC	1	2/24/2007
Surr: Toluene-d8	103	83.4-104		%REC	1	2/24/2007

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: 09-Mar-07

CLIENT: Basin Engineering, Inc.
Lab Order: 0702206
Project: Shamrock # 63
Lab ID: 0702206-05

Client Sample ID: MeoH Blank
Collection Date:
Date Received: 2/20/2007
Matrix: MEOH BLANK

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: SMP
Benzene	ND	0.050		mg/Kg	1	2/24/2007
Toluene	ND	0.050		mg/Kg	1	2/24/2007
Ethylbenzene	ND	0.050		mg/Kg	1	2/24/2007
Methyl tert-butyl ether (MTBE)	ND	0.050		mg/Kg	1	2/24/2007
1,2,4-Trimethylbenzene	ND	0.050		mg/Kg	1	2/24/2007
1,3,5-Trimethylbenzene	ND	0.050		mg/Kg	1	2/24/2007
1,2-Dichloroethane (EDC)	ND	0.050		mg/Kg	1	2/24/2007
1,2-Dibromoethane (EDB)	ND	0.050		mg/Kg	1	2/24/2007
Naphthalene	ND	0.10		mg/Kg	1	2/24/2007
1-Methylnaphthalene	ND	0.20		mg/Kg	1	2/24/2007
2-Methylnaphthalene	ND	0.20		mg/Kg	1	2/24/2007
Acetone	ND	0.75		mg/Kg	1	2/24/2007
Bromobenzene	ND	0.050		mg/Kg	1	2/24/2007
Bromochloromethane	ND	0.050		mg/Kg	1	2/24/2007
Bromodichloromethane	ND	0.050		mg/Kg	1	2/24/2007
Bromoform	ND	0.050		mg/Kg	1	2/24/2007
Bromomethane	ND	0.10		mg/Kg	1	2/24/2007
2-Butanone	ND	0.50		mg/Kg	1	2/24/2007
Carbon disulfide	ND	0.50		mg/Kg	1	2/24/2007
Carbon tetrachloride	ND	0.10		mg/Kg	1	2/24/2007
Chlorobenzene	ND	0.050		mg/Kg	1	2/24/2007
Chloroethane	ND	0.10		mg/Kg	1	2/24/2007
Chloroform	ND	0.050		mg/Kg	1	2/24/2007
Chloromethane	ND	0.050		mg/Kg	1	2/24/2007
2-Chlorotoluene	ND	0.050		mg/Kg	1	2/24/2007
4-Chlorotoluene	ND	0.050		mg/Kg	1	2/24/2007
cis-1,2-DCE	ND	0.050		mg/Kg	1	2/24/2007
cis-1,3-Dichloropropene	ND	0.050		mg/Kg	1	2/24/2007
1,2-Dibromo-3-chloropropane	ND	0.10		mg/Kg	1	2/24/2007
Dibromochloromethane	ND	0.050		mg/Kg	1	2/24/2007
Dibromomethane	ND	0.10		mg/Kg	1	2/24/2007
1,2-Dichlorobenzene	ND	0.050		mg/Kg	1	2/24/2007
1,3-Dichlorobenzene	ND	0.050		mg/Kg	1	2/24/2007
1,4-Dichlorobenzene	ND	0.050		mg/Kg	1	2/24/2007
Dichlorodifluoromethane	ND	0.050		mg/Kg	1	2/24/2007
1,1-Dichloroethane	ND	0.10		mg/Kg	1	2/24/2007
1,1-Dichloroethene	ND	0.050		mg/Kg	1	2/24/2007
1,2-Dichloropropane	ND	0.050		mg/Kg	1	2/24/2007
1,3-Dichloropropane	ND	0.050		mg/Kg	1	2/24/2007
2,2-Dichloropropane	ND	0.10		mg/Kg	1	2/24/2007
1,1-Dichloropropene	ND	0.10		mg/Kg	1	2/24/2007

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 limit

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: 09-Mar-07

CLIENT: Basin Engineering, Inc.
Lab Order: 0702206
Project: Shamrock # 63
Lab ID: 0702206-05

Client Sample ID: MeoH Blank
Collection Date:
Date Received: 2/20/2007
Matrix: MEOH BLANK

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: SMP
Hexachlorobutadiene	ND	0.10		mg/Kg	1	2/24/2007
2-Hexanone	ND	0.50		mg/Kg	1	2/24/2007
Isopropylbenzene	ND	0.050		mg/Kg	1	2/24/2007
4-Isopropyltoluene	ND	0.050		mg/Kg	1	2/24/2007
4-Methyl-2-pentanone	ND	0.50		mg/Kg	1	2/24/2007
Methylene chloride	ND	0.15		mg/Kg	1	2/24/2007
n-Butylbenzene	ND	0.050		mg/Kg	1	2/24/2007
n-Propylbenzene	ND	0.050		mg/Kg	1	2/24/2007
sec-Butylbenzene	ND	0.050		mg/Kg	1	2/24/2007
Styrene	ND	0.050		mg/Kg	1	2/24/2007
tert-Butylbenzene	ND	0.050		mg/Kg	1	2/24/2007
1,1,1,2-Tetrachloroethane	ND	0.050		mg/Kg	1	2/24/2007
1,1,2,2-Tetrachloroethane	ND	0.050		mg/Kg	1	2/24/2007
Tetrachloroethene (PCE)	ND	0.050		mg/Kg	1	2/24/2007
trans-1,2-DCE	ND	0.050		mg/Kg	1	2/24/2007
trans-1,3-Dichloropropene	ND	0.050		mg/Kg	1	2/24/2007
1,2,3-Trichlorobenzene	ND	0.10		mg/Kg	1	2/24/2007
1,2,4-Trichlorobenzene	ND	0.050		mg/Kg	1	2/24/2007
1,1,1-Trichloroethane	ND	0.050		mg/Kg	1	2/24/2007
1,1,2-Trichloroethane	ND	0.050		mg/Kg	1	2/24/2007
Trichloroethene (TCE)	ND	0.050		mg/Kg	1	2/24/2007
Trichlorofluoromethane	ND	0.050		mg/Kg	1	2/24/2007
1,2,3-Trichloropropane	ND	0.10		mg/Kg	1	2/24/2007
Vinyl chloride	ND	0.050		mg/Kg	1	2/24/2007
Xylenes, Total	ND	0.10		mg/Kg	1	2/24/2007
Surr: 1,2-Dichloroethane-d4	75.6	62.1-102		%REC	1	2/24/2007
Surr: 4-Bromofluorobenzene	91.4	72-107		%REC	1	2/24/2007
Surr: Dibromofluoromethane	75.6	56.6-105		%REC	1	2/24/2007
Surr: Toluene-d8	94.9	83.4-104		%REC	1	2/24/2007

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

QA/QC SUMMARY REPORT

Client: Basin Engineering, Inc.

Project: Shamrock # 63

Work Order: 0702206

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: SW8310

Sample ID: 0702206-04BMSD

MSD

Batch ID: 12347 Analysis Date: 3/1/2007 10:49:39 PM

Naphthalene	0.4976	mg/Kg-dry	0.28	44.7	40.91	80.61	1.77	20	
1-Methylnaphthalene	0.4461	mg/Kg-dry	0.28	40.1	43.35	80.47	2.77	20	S
2-Methylnaphthalene	0.4489	mg/Kg-dry	0.28	40.4	40.89	82.27	4.36	20	S
Acenaphthylene	0.6600	mg/Kg-dry	0.28	59.3	38.34	93.5	3.29	20	
Acenaphthene	0.5610	mg/Kg-dry	0.28	50.4	45.38	82.36	5.14	20	
Fluorene	0.05980	mg/Kg-dry	0.033	53.8	44.73	92.83	5.25	20	
Phenanthrene	0.03505	mg/Kg-dry	0.017	62.6	58.86	102.18	1.57	20	
Anthracene	0.03644	mg/Kg-dry	0.017	65.1	60.58	101.56	5.49	20	
Fluoranthene	0.08177	mg/Kg-dry	0.022	73.3	67.97	108.45	5.24	20	
Pyrene	0.08066	mg/Kg-dry	0.028	72.5	45.25	122.86	4.95	20	
Benz(a)anthracene	0.009179	mg/Kg-dry	0.0022	82.5	66.8	120.42	6.25	20	
Chrysene	0.04172	mg/Kg-dry	0.012	74.6	32.02	143.04	4.08	20	
Benzo(b)fluoranthene	0.01085	mg/Kg-dry	0.0045	78.0	69.8	103.09	8.00	20	
Benzo(k)fluoranthene	0.005563	mg/Kg-dry	0.0011	80.0	68.5	111.95	5.13	20	
Benzo(a)pyrene	0.005007	mg/Kg-dry	0.0011	71.7	66.69	101.39	5.41	20	
Dibenz(a,h)anthracene	0.01113	mg/Kg-dry	0.0033	80.0	76.64	106.03	5.13	20	
Benzo(g,h,i)perylene	0.01140	mg/Kg-dry	0.0033	82.0	39.01	138.33	7.59	20	
Indeno(1,2,3-cd)pyrene	0.03035	mg/Kg-dry	0.0045	109	14.7	185.88	15.9	20	

Sample ID: MB-12347

MBLK

Batch ID: 12347 Analysis Date: 3/1/2007 1:42:48 PM

Naphthalene	ND	mg/Kg	0.25						
1-Methylnaphthalene	ND	mg/Kg	0.25						
2-Methylnaphthalene	ND	mg/Kg	0.25						
Acenaphthylene	ND	mg/Kg	0.25						
Acenaphthene	ND	mg/Kg	0.25						
Fluorene	ND	mg/Kg	0.030						
Phenanthrene	ND	mg/Kg	0.015						
Anthracene	ND	mg/Kg	0.015						
Fluoranthene	ND	mg/Kg	0.020						
Pyrene	ND	mg/Kg	0.025						
Benz(a)anthracene	ND	mg/Kg	0.0020						
Chrysene	ND	mg/Kg	0.011						
Benzo(b)fluoranthene	ND	mg/Kg	0.0040						
Benzo(k)fluoranthene	ND	mg/Kg	0.0010						
Benzo(a)pyrene	ND	mg/Kg	0.0010						
Dibenz(a,h)anthracene	ND	mg/Kg	0.0030						
Benzo(g,h,i)perylene	ND	mg/Kg	0.0030						
Indeno(1,2,3-cd)pyrene	ND	mg/Kg	0.0040						

Sample ID: LCS-12347

LCS

Batch ID: 12347 Analysis Date: 3/1/2007 2:30:47 PM

Naphthalene	0.4842	mg/Kg	0.25	48.4	30.5	98.5			
1-Methylnaphthalene	0.4425	mg/Kg	0.25	44.2	36	95.4			
2-Methylnaphthalene	0.4742	mg/Kg	0.25	47.4	35.4	95.3			
Acenaphthylene	0.6588	mg/Kg	0.25	65.9	45.2	99.4			
Acenaphthene	0.5535	mg/Kg	0.25	55.4	44.3	97.4			
Fluorene	0.05675	mg/Kg	0.030	56.8	50.4	99.9			

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

QA/QC SUMMARY REPORT

Client: Basin Engineering, Inc.
Project: Shamrock # 63

Work Order: 0702206

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8310									
Sample ID: LCS-12347									
		LCS			Batch ID: 12347		Analysis Date: 3/1/2007 2:30:47 PM		
Phenanthrene	0.03950	mg/Kg	0.015	78.5	43.1	121			
Anthracene	0.03500	mg/Kg	0.015	69.6	57.6	105			
Fluoranthene	0.07000	mg/Kg	0.020	69.8	69	101			
Pyrene	0.07050	mg/Kg	0.025	70.5	65.1	110			
Benz(a)anthracene	0.008250	mg/Kg	0.0020	82.5	62	115			
Chrysene	0.03925	mg/Kg	0.011	78.0	66.6	110			
Benzo(b)fluoranthene	0.009750	mg/Kg	0.0040	78.0	70.9	112			
Benzo(k)fluoranthene	0.005000	mg/Kg	0.0010	80.0	68.1	110			
Benzo(a)pyrene	0.005250	mg/Kg	0.0010	83.6	56.7	125			
Dibenz(a,h)anthracene	0.01025	mg/Kg	0.0030	82.0	69.7	112			
Benzo(g,h,i)perylene	0.01000	mg/Kg	0.0030	80.0	67	117			
Indeno(1,2,3-cd)pyrene	0.02442	mg/Kg	0.0040	97.3	67.9	106			
Sample ID: LCSD-12347									
		LCSD			Batch ID: 12347		Analysis Date: 3/2/2007 10:03:02 AM		
Naphthalene	0.4345	mg/Kg	0.25	43.4	30.5	98.5	10.8	20	
1-Methylnaphthalene	0.5145	mg/Kg	0.25	51.4	36	95.4	15.0	20	
2-Methylnaphthalene	0.5292	mg/Kg	0.25	52.9	35.4	95.3	11.0	20	
Acenaphthylene	0.6466	mg/Kg	0.25	64.7	45.2	99.4	1.88	20	
Acenaphthene	0.5948	mg/Kg	0.25	59.5	44.3	97.4	7.18	20	
Fluorene	0.06450	mg/Kg	0.030	64.5	50.4	99.9	12.8	20	
Phenanthrene	0.03950	mg/Kg	0.015	78.5	43.1	121	0	20	
Anthracene	0.03450	mg/Kg	0.015	68.6	57.6	105	1.44	20	
Fluoranthene	0.07025	mg/Kg	0.020	70.0	69	101	0.357	20	
Pyrene	0.07000	mg/Kg	0.025	70.0	65.1	110	0.712	20	
Benz(a)anthracene	0.008000	mg/Kg	0.0020	80.0	62	115	3.08	20	
Chrysene	0.04050	mg/Kg	0.011	80.5	66.6	110	3.13	20	
Benzo(b)fluoranthene	0.009500	mg/Kg	0.0040	76.0	70.9	112	2.60	20	
Benzo(k)fluoranthene	0.005000	mg/Kg	0.0010	80.0	68.1	110	0	20	
Benzo(a)pyrene	0.005250	mg/Kg	0.0010	83.6	56.7	125	0	20	
Dibenz(a,h)anthracene	0.01000	mg/Kg	0.0030	80.0	69.7	112	2.47	20	
Benzo(g,h,i)perylene	0.01000	mg/Kg	0.0030	80.0	67	117	0	20	
Indeno(1,2,3-cd)pyrene	0.02382	mg/Kg	0.0040	94.9	67.9	106	2.49	20	
Sample ID: 0702206-04BMS									
		MS			Batch ID: 12347		Analysis Date: 3/1/2007 10:01:41 PM		
Naphthalene	0.5065	mg/Kg-dry	0.28	45.5	40.91	80.61			
1-Methylnaphthalene	0.4587	mg/Kg-dry	0.28	41.2	43.35	80.47			S
2-Methylnaphthalene	0.4690	mg/Kg-dry	0.28	42.2	40.89	82.27			
Acenaphthylene	0.6386	mg/Kg-dry	0.28	57.4	38.34	93.5			
Acenaphthene	0.5329	mg/Kg-dry	0.28	47.9	45.38	82.36			
Fluorene	0.05674	mg/Kg-dry	0.033	51.0	44.73	92.83			
Phenanthrene	0.03560	mg/Kg-dry	0.017	63.6	58.86	102.18			
Anthracene	0.03449	mg/Kg-dry	0.017	61.6	60.58	101.56			
Fluoranthene	0.07760	mg/Kg-dry	0.022	69.5	67.97	108.45			
Pyrene	0.07677	mg/Kg-dry	0.028	69.0	45.25	122.86			
Benz(a)anthracene	0.008623	mg/Kg-dry	0.0022	77.5	66.8	120.42			
Chrysene	0.04005	mg/Kg-dry	0.012	71.6	32.02	143.04			

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: Basin Engineering, Inc.

Project: Shamrock # 63

Work Order: 0702206

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: SW8310

Sample ID: 0702206-04BMS

MS

Batch ID: 12347 Analysis Date: 3/1/2007 10:01:41 PM

Benzo(b)fluoranthene	0.01001	mg/Kg-dry	0.0045	72.0	69.8	103.09			
Benzo(k)fluoranthene	0.005285	mg/Kg-dry	0.0011	76.0	68.5	111.95			
Benzo(a)pyrene	0.005285	mg/Kg-dry	0.0011	75.6	66.69	101.39			
Dibenz(a,h)anthracene	0.01057	mg/Kg-dry	0.0033	76.0	76.64	106.03			S
Benzo(g,h,i)perylene	0.01057	mg/Kg-dry	0.0033	76.0	39.01	138.33			
Indeno(1,2,3-cd)pyrene	0.02587	mg/Kg-dry	0.0045	92.6	14.7	185.88			

Method: SW6010A

Sample ID: MB-12432

MBLK

Batch ID: 12432 Analysis Date: 3/7/2007 12:02:18 PM

Lead ND mg/Kg 0.25

Sample ID: LCS-12432

LCS

Batch ID: 12432 Analysis Date: 3/7/2007 12:04:07 PM

Lead 23.50 mg/Kg 0.25 94.0 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

QA/QC SUMMARY REPORT

Client: Basin Engineering, Inc.

Project: Shamrock # 63

Work Order: 0702206

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: SW8260B

Sample ID: 5ml rb

MBLK

Batch ID: R22650

Analysis Date:

2/28/2007

Benzene	ND	µg/L	1.0
Toluene	ND	µg/L	1.0
Ethylbenzene	ND	µg/L	1.0
Methyl tert-butyl ether (MTBE)	ND	µg/L	1.0
1,2,4-Trimethylbenzene	ND	µg/L	1.0
1,3,5-Trimethylbenzene	ND	µg/L	1.0
1,2-Dichloroethane (EDC)	ND	µg/L	1.0
1,2-Dibromoethane (EDB)	ND	µg/L	1.0
Naphthalene	ND	µg/L	2.0
1-Methylnaphthalene	ND	µg/L	4.0
2-Methylnaphthalene	ND	µg/L	4.0
Acetone	ND	µg/L	10
Bromobenzene	ND	µg/L	1.0
Bromochloromethane	ND	µg/L	1.0
Bromodichloromethane	ND	µg/L	1.0
Bromoform	ND	µg/L	1.0
Bromomethane	ND	µg/L	2.0
2-Butanone	ND	µg/L	10
Carbon disulfide	ND	µg/L	10
Carbon Tetrachloride	ND	µg/L	2.0
Chlorobenzene	ND	µg/L	1.0
Chloroethane	ND	µg/L	2.0
Chloroform	ND	µg/L	1.0
Chloromethane	ND	µg/L	1.0
2-Chlorotoluene	ND	µg/L	1.0
4-Chlorotoluene	ND	µg/L	1.0
cis-1,2-DCE	ND	µg/L	1.0
cis-1,3-Dichloropropene	ND	µg/L	1.0
1,2-Dibromo-3-chloropropane	ND	µg/L	2.0
Dibromochloromethane	ND	µg/L	1.0
Dibromomethane	ND	µg/L	2.0
1,2-Dichlorobenzene	ND	µg/L	1.0
1,3-Dichlorobenzene	ND	µg/L	1.0
1,4-Dichlorobenzene	ND	µg/L	1.0
Dichlorodifluoromethane	ND	µg/L	1.0
1,1-Dichloroethane	ND	µg/L	2.0
1,1-Dichloroethene	ND	µg/L	1.0
1,2-Dichloropropane	ND	µg/L	1.0
1,3-Dichloropropane	ND	µg/L	1.0
2,2-Dichloropropane	ND	µg/L	2.0
1,1-Dichloropropene	ND	µg/L	1.0
Hexachlorobutadiene	ND	µg/L	2.0
2-Hexanone	ND	µg/L	10
Isopropylbenzene	ND	µg/L	1.0

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: Basin Engineering, Inc.

Project: Shamrock # 63

Work Order: 0702206

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: SW8260B

Sample ID: 5ml rb

MBLK

Batch ID: R22650 Analysis Date: 2/28/2007

4-Isopropyltoluene	ND	µg/L	1.0
4-Methyl-2-pentanone	ND	µg/L	10
Methylene Chloride	ND	µg/L	3.0
n-Butylbenzene	ND	µg/L	1.0
n-Propylbenzene	ND	µg/L	1.0
sec-Butylbenzene	ND	µg/L	2.0
Styrene	ND	µg/L	1.5
tert-Butylbenzene	ND	µg/L	1.0
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0
1,1,2,2-Tetrachloroethane	ND	µg/L	1.0
Tetrachloroethene (PCE)	ND	µg/L	1.0
trans-1,2-DCE	ND	µg/L	1.0
trans-1,3-Dichloropropene	ND	µg/L	1.0
1,2,3-Trichlorobenzene	ND	µg/L	1.0
1,2,4-Trichlorobenzene	ND	µg/L	1.0
1,1,1-Trichloroethane	ND	µg/L	1.0
1,1,2-Trichloroethane	ND	µg/L	1.0
Trichloroethene (TCE)	ND	µg/L	1.0
Trichlorofluoromethane	ND	µg/L	1.0
1,2,3-Trichloropropane	ND	µg/L	2.0
Vinyl chloride	ND	µg/L	1.0
Xylenes, Total	ND	µg/L	3.0

Sample ID: 100ng lcs

LCS

Batch ID: R22650 Analysis Date: 2/28/2007

Benzene	21.02	µg/L	1.0	105	75.6	111
Toluene	20.26	µg/L	1.0	101	69.6	113
Chlorobenzene	19.99	µg/L	1.0	100	79.7	112
1,1-Dichloroethene	23.39	µg/L	1.0	117	72.5	121
Trichloroethene (TCE)	19.05	µg/L	1.0	95.2	63.7	123

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 BASIN DURANGO

Date and Time Received:

2/20/2007

Work Order Number 0702206

Received by AT

Checklist completed by

Signature

Date

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?

3°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

**HALL ENVIRONMENTAL
ANALYSIS LABORATORY**

4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenviromental.com

QA/QC Package: ☐ Level 4 ☐

1. *Journal of the American Medical Association*, 2000; 284: 2689-2695.

Line

Received By: (Signature)

2/20/07
0925

[illegible]

Remarks:

DRILL HOLE LOG

BORING NO.: SB-1

PROJECT: Minimum Site Assessment Report
CLIENT: Farmington Oil Company
LOCATION: Santa Fe Shamrock #63 3624 Cerrillos Rd Santa Fe NM
DRILLER: Envirotech
DRILLING METHOD: 4 1/4" HSA
DEPTH TO WATER> **INITIAL:** None

PROJECT NO.: 030116
DATE: 2/16/07
ELEVATION:
LOGGED BY: JEC

AT COMPLETION: None

DEPTH	Description	USCS	SOIL TYPE	SAMPLES	PID (ppm)	N-VALUE BLOW COUNT					DEPTH
						20	40	60	80	100	
0	Fill, Silty Sand Light Brown, Loose, Moist, No Samples Taken in Fill. Inside Old Tank Pit, No Hydrocarbon Odor	FILL									0
	Slight HC Odor										
15	Sands and Gravels, With Cobbles, Very Dense, Moist Brown to Light Brown, Hydrocarbon Odor (Gasoline)	GP-SP			9999						15
	Decomposed Granite - Hard to Very Hard, Moist to Dry, Trace Clay, Brown to Light Brown	ROCK			9999					50/12"	
					4789					50/8"	
					1375					50/14"	
30					4560						30
					5280						
					6000						
										50/12"	
					3400					50/6"	
45					9000						45
					830						
60	Clay, Trace Fine Sand, Brown, Moist, Trace Odor, Very Stiff to Hard, Plastic	CL			1200					50/12"	60
	Decomposed Granite - Hard to Very Hard, Moist to Dry, Trace Clay, Brown to Light Brown	ROCK			300					50/18"	
					270					50/10"	
75	TD-75'				320						75
90											90

All identification based on visual-manual procedures.

This information pertains only to this boring and should not be interpreted as being indicative of the site.



Basin Engineering, Inc.

DRILL HOLE LOG

BORING NO.: SB-2

PROJECT: Minimum Site Assessment Report
CLIENT: Farmington Oil Company
LOCATION: Santa Fe Shamrock #63 3624 Cerrillos Rd Santa Fe NM
DRILLER: Envirotech
DRILLING METHOD: 4 1/4" HSA
DEPTH TO WATER> **INITIAL:** None

PROJECT NO.: 030116
DATE: 2/15/07 & 2/16/07
ELEVATION:
LOGGED BY: JEC

AT COMPLETION: None

DEPTH	Description	USCS	SOIL TYPE	SAMPLES	PID (ppm)	N-VALUE BLOW COUNT					DEPTH
						20	40	60	80	100	
0	Sand & Gravel Fill, Saturated, Brown, No Odor	FILL									0
	Silty Clayey Sand, Light Brown to Brown, Hydrocarbon Odor, Dense, Moist	SC			1190						
					913						
15	Clay, Brown, Slightly Plastic, Moist, Slight Odor (CL)	CL			994						15
	Decomposed Granite, Occasional Cobble, Very Dense, Non-Plastic, No Odor	ROCK			7						
					44						
30					9						30
					12.3						
					8.7						
45					0						45
					0						
	TD-50'										
60											60
75											75
90											90

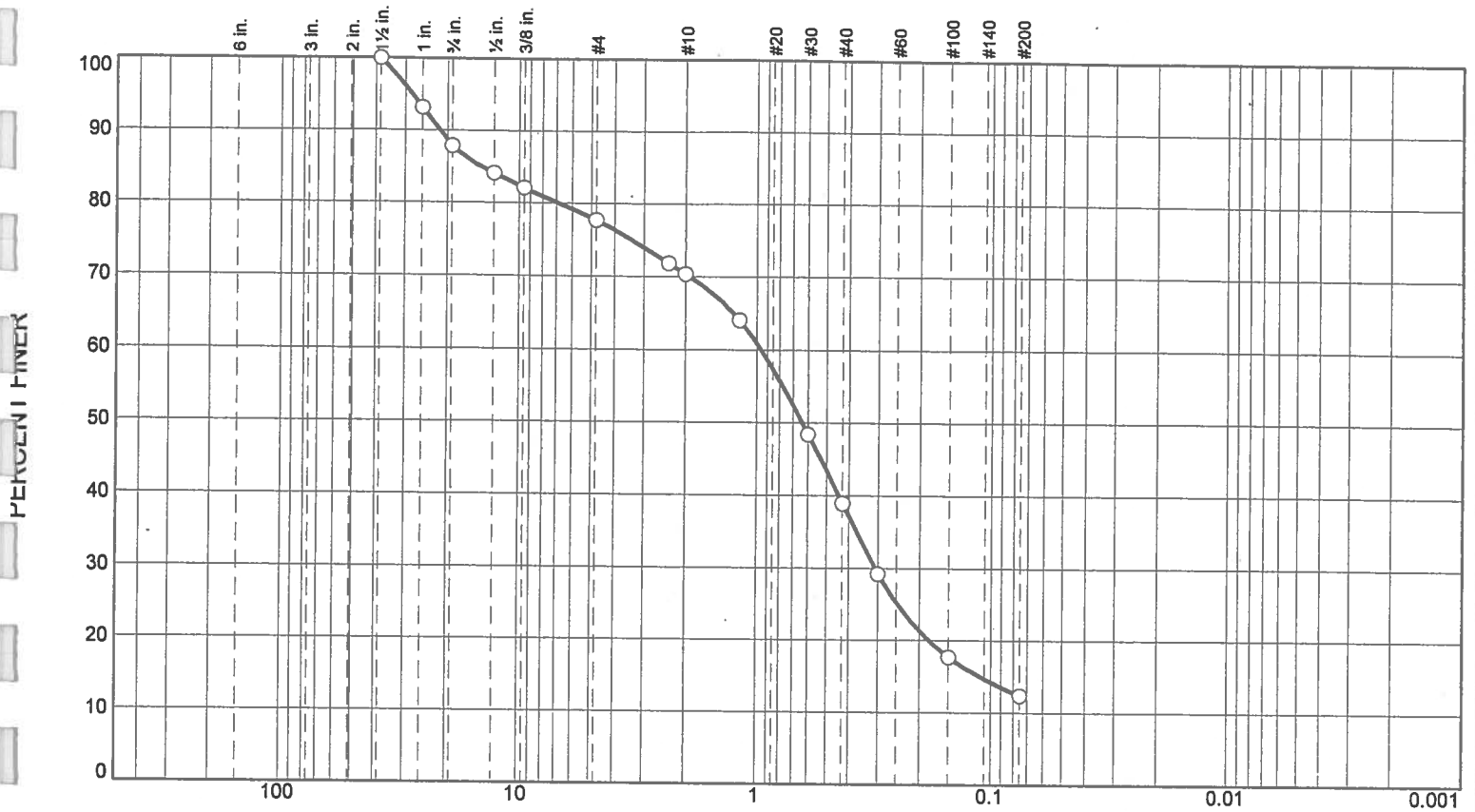
All identification based on visual-manual procedures.

This information pertains only to this boring and should not be interpreted as being indicative of the site.



Basin Engineering, Inc.

Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	12	10	8	31	27	12	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	100		
1	93		
.75	88		
.5	84		
.375	82		
#4	78		
#8	72		
#10	70		
#16	64		
#30	48		
#40	39		
#50	29		
#100	18		
#200	12		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

PL= 22 LL= 31 PI= 9

Classification

USCS= SP-SC AASHTO= A-2-4(0)

Coefficients

D₈₅= 14.4401 D₆₀= 0.9592 D₅₀= 0.6383
D₃₀= 0.3097 D₁₅= 0.1114 D₁₀=
C_u= C_c=

Date Tested: 3-21-07 Tested By: F. Railsback

Remarks

Sample by Basin Engineering
Basin Engineering Project: Shamrock #63
Basin Engineering Proj. No. 0301-16

Sample No.: 1439-A Source of Sample: SB-1

Date Sampled: 2-16-07

Elev./Depth: 28 ft.

Location:

Checked By: G. Denten

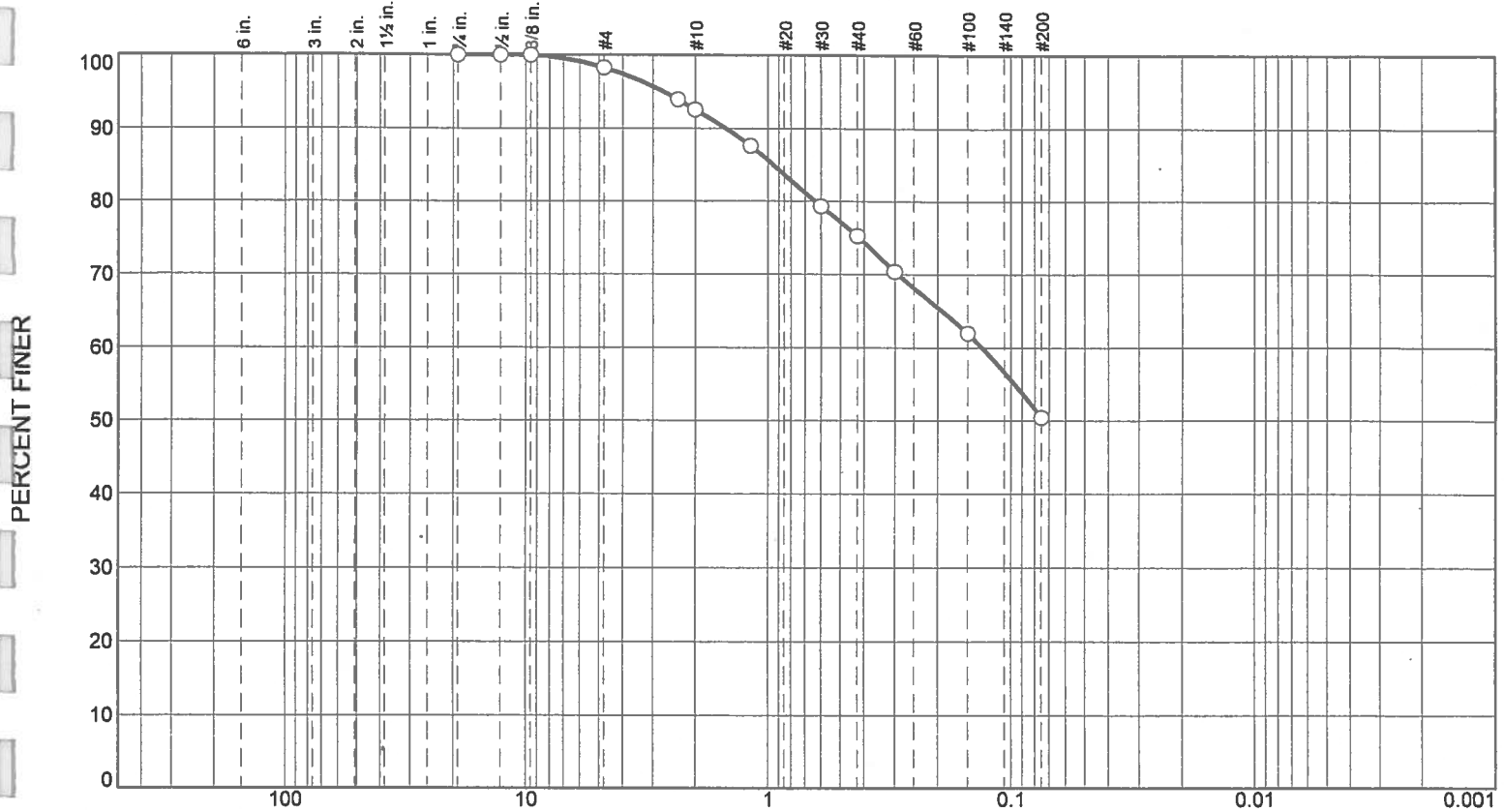
Title: Laboratory Manager

RAUTNER GEOTECH
A DIVISION OF TRIGON

Client: Basin Engineering
Project: Basin Engineering Misc. Testing

Project No: 50237MT

Particle Size Distribution Report



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	5	18	25	50	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100		
.5	100		
.375	100		
#4	98		
#8	94		
#10	93		
#16	88		
#30	79		
#40	75		
#50	70		
#100	62		
#200	50		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

PL= 21 LL= 35 PI= 14

Classification

USCS= CL AASHTO= A-6(4)

Coefficients

D₈₅= 0.9483 D₆₀= 0.1310 D₅₀=
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Date Tested: 3-21-07 Tested By: F. Railsback

Remarks

Sampled by Basin Engineering
Basin Engineering Project: Shamrock #63 Basin Engineering
Project No. 0301-16

Sample No.: 1439-B Source of Sample: SB-1

Location:

Date Sampled: 2-11-07

Elev./Depth: 58 ft.

Checked By: G. Denten

Title: Laboratory Manager

TRAUTNER GEOTECH
A DIVISION OF TRIGON

Client: Basin Engineering
Project: Basin Engineering Misc. Testing

Project No: 50237MT

Heated Headspace Field Screening Method for Soil Samples

All field activities will be conducted in accordance with the New Mexico Environment Department (NMED) Petroleum Storage Tank Regulations (20.5 NMAC), including Section 1.0; Soil and Groundwater Sampling and Disposal, found in the New Mexico Underground Storage Tank Bureau Guidelines for Corrective Action (March 13, 2000).

Soil samples to be screened in the field shall be placed in a sixteen (16)-ounce (or larger) clean glass jar until approximately one-half full. Clean aluminum foil shall be placed over the top of the jar and secured with the lid ring (or equivalent).

The sample shall not be evaluated until it reaches a temperature of at least 60 degrees Fahrenheit but shall not be allowed to reach a temperature in excess of 80 degrees Fahrenheit. When working in cold weather conditions, samples may be warmed to the appropriate evaluation temperature by placing them inside a heated vehicle. Samples shall be protected from exposure to direct sunlight.

Aromatic hydrocarbon vapor concentrations shall be allowed to develop for at least five (5) minutes prior to evaluating each sample. Samples shall be shaken vigorously to assist the development of vapors in the headspace.

After allowing sufficient time for the development of vapors in the headspace, the foil cover of the sample container shall be pierced using the probe of a photo-ionization detector (PID). The highest measurement of headspace vapors in parts per million (ppm) shall be recorded for each sample.

After evaluating the sample and recording the highest measurement of headspace vapors, the sample and the aluminum foil lid shall be disposed of properly. The sample container may be reused after it has been properly cleaned.

Soil Sample Collection Using Methanol Extraction

All field activities will be conducted in accordance with the New Mexico Environment Department (NMED) Petroleum Storage Tank Regulations (20.5 NMAC), including Section 1.0; Soil and Groundwater Sampling and Disposal, found in the New Mexico Underground Storage Tank Bureau Guidelines for Corrective Action (March 13, 2000).

Each soil sample collected shall be representative of the area intended for laboratory analysis. Soil samples may be collected from a backhoe bucket, split spoon sampler or the bottom or sidewall of an excavation only after the soil surface has been scraped away to expose fresh soil. The soil sample shall be collected using a disposable plastic syringe supplied by the laboratory. The graduated syringe shall be filled with approximately ten (10) cubic centimeters (cc) of fresh soil from the intended sample location.

Working carefully but quickly, the screw cap shall be removed from a twenty (20) milliliter (ml) glass sample vial containing methanol (supplied by the laboratory) and the soil sample shall be pushed from the syringe into the vial, taking care not to allow soil particles to adhere to the rim of the vial. The screw cap shall be replaced on the 20 ml glass vial containing the sample and tightened securely. Once the screw cap is secure, the sample shall be gently agitated to completely immerse the soil in the methanol. Excessive agitation of the sample shall be avoided.

Two (2) 40 ml sample vials containing soil and methanol shall be prepared in the field for each intended soil sample location. In addition to the 40 ml sample vials, a minimum of twenty (20) grams of dry soil (no methanol added) from each intended soil sample location shall be placed in a clean four (4) –ounce glass sample jar supplied by the laboratory. The labels on all three (3) sample containers shall correspond to one soil sample location.

All labeled soil sample containers shall be placed under ice in an insulated storage chest, and sealed with custody tape. The collected soil samples will be delivered with chain-of-custody documentation to a certified laboratory. The soil samples will be analyzed by the certified laboratory in accordance with the appropriate EPA Methodology.