GROUNDWATER MONITORING AND MONITOR WELL ABANDONMENT REPORT LEONARD'S CONOCO SANTA ROSA, NEW MEXICO

Prepared For:

Ms. Lorena Goerger
New Mexico Environment Department
Petroleum Storage Tank Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505

Facility:

Leonard's Conoco
603 Parker Avenue
Santa Rosa, New Mexico
PSTB Facility #29084

Prepared By:

Haller & Associates, Inc.
Environmental Services & Geoscience

P.O. Box 1667, 12216 N. Highway 14, Suite 6
Cedar Crest, NM 87008
Phone: 505-281-9333 • Fax: 505-281-9338
License #92466

Deliverable ID# 3727-1

April 1, 2014

Lorena Goerger – NMED PSTB
Leonard's Conoco Deliverable ID #3727-1
April 1, 2014

STATEMENT OF FAMILIARITY

I, the undersigned, am personally familiar with the information submitted in this report and the attached documents and attest that it is true and complete.

Signature: Timothy M. Haller

Name: Timothy M. Haller, CPG

Affiliation: Haller & Associates, Inc.

Title: Hydrogeologist

Date: April 1, 2014

I. INTRODUCTION

A. Scope of Work

This groundwater monitoring report was completed in accordance with a workplan prepared by Haller & Associates, Inc. (HAI), dated December 20, 2013. The workplan was approved by the New Mexico Environment Department-Petroleum Storage Tank Bureau (NMED PSTB) in a letter to HAI, dated January 29, 2014.

The scope of work consisted of the following: 1) plugging and abandonment of well MW-1; 2) static water level measurements; 3) groundwater sampling; and 4) report preparation.

A Site Location Map is presented as Figure 1. A Site Map showing monitor well locations and physical features is presented as Figure 2.

B. Executive Summary

Monitor well MW-1 became partially filled with concrete to a depth of 9.4 feet below ground surface (bgs) during concrete slab construction in 2000. On March 24, 2014, the last 9.4 feet of MW-1 were properly plugged and abandoned. Off-site monitor well MW-4 could not be located during prior attempts, and appears to have been destroyed.

Static water levels were gauged and groundwater samples were collected on March 24, 2014. MW-2A was found to be dry and could not be sampled. Groundwater samples were collected from MW-1A and MW-3. Monitor well sampling protocols are presented in Appendix A.

Only two of the three monitor wells contained water; therefore, shallow groundwater flow direction and gradient could not be determined. However, groundwater elevations at MW-1A and MW-3 imply an apparent flow direction to the northwest as shown on Figure 3.

Petroleum contaminants were not detected in the groundwater sample from MW-3. The groundwater sample from MW-1A exceeded New Mexico Water Quality Control Commission (NMWQCC) standards with 250 micrograms per liter (µg/L) of benzene and 84 µg/L of total naphthalenes. Dissolved benzene and naphthalenes have increased since the previous monitoring event in October 2013. Analytical data are summarized in Table 2 and Figure 4. The laboratory report is presented in Appendix E.

II. ACTIVITIES PERFORMED DURING THIS EVENT

A. Site Background

A confirmed petroleum release was documented during removal of three gasoline underground storage tanks (USTs) and one waste oil UST in June 1991. Four monitor wells (MW-1, MW-2, MW-3 and MW-4) were completed by Monteverde, Inc. in 1995. The former Leonard's Conoco building was demolished and the present-day building was constructed in 2000. During construction, MW-2 was destroyed. Replacement well MW-2A was subsequently completed. In June 2009, Tecumseh Professional Associates, Inc. (TPA) performed a groundwater monitoring event. TPA located and sampled MW-2A and MW-3, but was unable to locate MW-1 and MW-4. In October 2013, HAI located MW-1 but was unsuccessful in locating MW-4 using a metal detector. MW-4 appears to have been destroyed. The site is occupied by the Guadalupe County Magistrate Court Division 1.

B. Operation & Maintenance Activities Performed

The minimum site assessment report (Monteverde, April 1995) stated that the fuel UST pit was allowed to aerate for two weeks prior to backfilling with clean fill. No other remedial activities have been performed at the site. Subsequent activities have been limited to soil and groundwater investigation and groundwater monitoring.

C. Monitor Well Abandonment

Monitor well MW-1 was plugged and abandoned by Rodgers Environmental Services, Inc. on March 24, 2014. Work was supervised and documented by HAI. A separate report of well abandonment dated March 25, 2014 was submitted to the New Mexico Office of the State Engineer and to the PSTB. A copy of the Plugging Record is presented in Appendix B. Photographs of monitor well abandonment are presented in Appendix C.

D. Monitor Well Sampling

Monitor wells MW-1A, MW-2A and MW-3 gauged on March 24, 2014. The wells were gauged using an electronic water level indicator in order of increasing constituent concentrations, based on historic data. MW-2 was found to be dry. MW-1A and MW-3 were then purged and sampled in order of increasing contaminant concentrations ("clean to dirty"). Purge volumes, field parameter data and field observations were recorded on field sampling forms (Appendix C).

Purging and sampling of the monitor wells were performed using new disposable bailers. All samples were preserved and stored in a chilled cooler until delivery to Hall Environmental Analysis Laboratory, Inc., with a trip blank and chain-of-custody record. Each groundwater sample was analyzed for volatile organic compounds (VOCs) and total naphthalenes using EPA Method 8260B. Sampling protocols are presented in Appendix A.

III. SUMMARY AND CONCLUSIONS

A. Discussion of Trends or Changes

Water Levels – Groundwater elevations are within the fluctuation range that was observed between March 1995 and October 2013. Currently, depth to groundwater at the site ranges from 14.04 to 15.30 feet below top of casing. Water levels have declined approximately 1.4 feet since the previous monitoring event in October 2013. Although only two of the three monitor wells contained water during this event, water level elevations imply an apparent flow direction to the northwest, consistent with previous observations.

NAPL – NAPL was not reported to be present in any monitor wells between 1995 and 2009. NAPL was detected in any monitor wells during this monitoring event (March 24, 2014) or during the previous monitoring event (October 30, 2013).

Distribution of Groundwater Contaminants – Actionable groundwater contaminants are present only at monitor well MW-1A which is located in the vicinity of the former fuel UST pit. Actionable groundwater contaminants consist of benzene and total naphthalenes. Dissolved benzene was detected at 250 µg/L, an increase from 79 µg/L in October 2013. Dissolved naphthalenes were detected at 84 µg/L, an increase from 79 µg/L in October 2013. Groundwater contaminant concentrations have not exceeded NMWQCC standards at MW-2/MW-2A and MW-3 since November 1997.

Actionable dissolved benzene and naphthalenes extend northwest from the vicinity of MW-1A. The off-site extent of actionable groundwater contamination appears to be limited, based on the relatively low concentrations of benzene and naphthalenes at MW-1A (Figure 5).

B. On-Going Assessment

Over the long term, natural attenuation processes have contributed to decreasing groundwater contaminant concentrations at MW-1/MW-1A. Although benzene moderately increased during this event, long term concentrations generally appear to exhibit a very slow declining trend, based on the graph of benzene concentrations versus time (Figure 6).

C. Conclusions and Recommendations

Groundwater analytical data and groundwater flow direction indicate off-site migration of dissolved benzene and naphthalenes may be present. However, the lateral extent of off-site migration appears to be limited, based on the relatively low concentrations of benzene (250 µg/L) and naphthalenes (84 µg/L) at MW-1A (Figures 4 and 5).

- HAI recommends a groundwater monitoring event in another year to evaluate dissolved benzene and naphthalenes concentration trends.

TABLES

1. Groundwater Elevation Data
2. Groundwater Analytical Data

FIGURES

1. Site Location Map
2. Site Map
3. Water Table Map
4. Dissolved Organics Map
5. Dissolved Benzene Map
6. Graph of MW-1/MW-1A Benzene and MTBE Versus Time

APPENDICES

A. Sampling Protocols
B. Monitor Well Plugging Record
C. Groundwater Field Sampling Forms
D. Photographs
E. Laboratory Report

TABLES

Table 1. Groundwater Elevation Data
Leonard's Conoco, 603 Parker Avenue, Santa Rosa, New Mexico

Well ID	Date	TOC Elevation (ft MSL)	Depth to NAPL (ft below TOC)	Depth to Water (ft below TOC)	Ground Water Elevation (ft MSL)
MW-1	03-29-95	4595.44	---	14.40	4581.04
	09-23-01	4595.44	---	14.04	4581.40
	06-11-09	4595.44		WELL NOT FOUND	
	10-30-13	4595.44	---	DRY AT 9.40	---
	03-24-14	4595.44		PLUGGED AND ABANDONED	
MW-1A	10-30-13	4616.02	---	13.96	4602.06
TD=19.7	03-24-14	4616.02	---	15.30	4600.72
MW-2	03-29-95	4595.68	---	14.76	4580.92
	03-20-00	4595.68		PLUGGED AND ABANDONED	
MW-2A	09-23-01	4613.39	---	---	4580.85
TD=13.7	06-11-09	4613.39	---	DRY AT 13.97	---
	10-30-13	4613.39	---	12.54	4600.85
	03-24-14	4613.39	---	DRY AT 13.70	---
MW-3	03-29-95	4615.02	---	10.10	4604.92
TD=28.8	09-23-01	4615.02	---	12.49	4581.57
	06-11-09	4615.02	---	13.90	4601.12
	10-30-13	4615.02	---	12.50	4602.52
	03-24-14	4615.02	---	14.04	4600.98
MW-4	03-29-95	4590.18	---	10.86	4579.32
	09-23-01	4590.18	---	9.57	4580.61
	06-11-09	4590.18		WELL NOT FOUND	
	10-30-13	4590.18		WELL NOT FOUND	

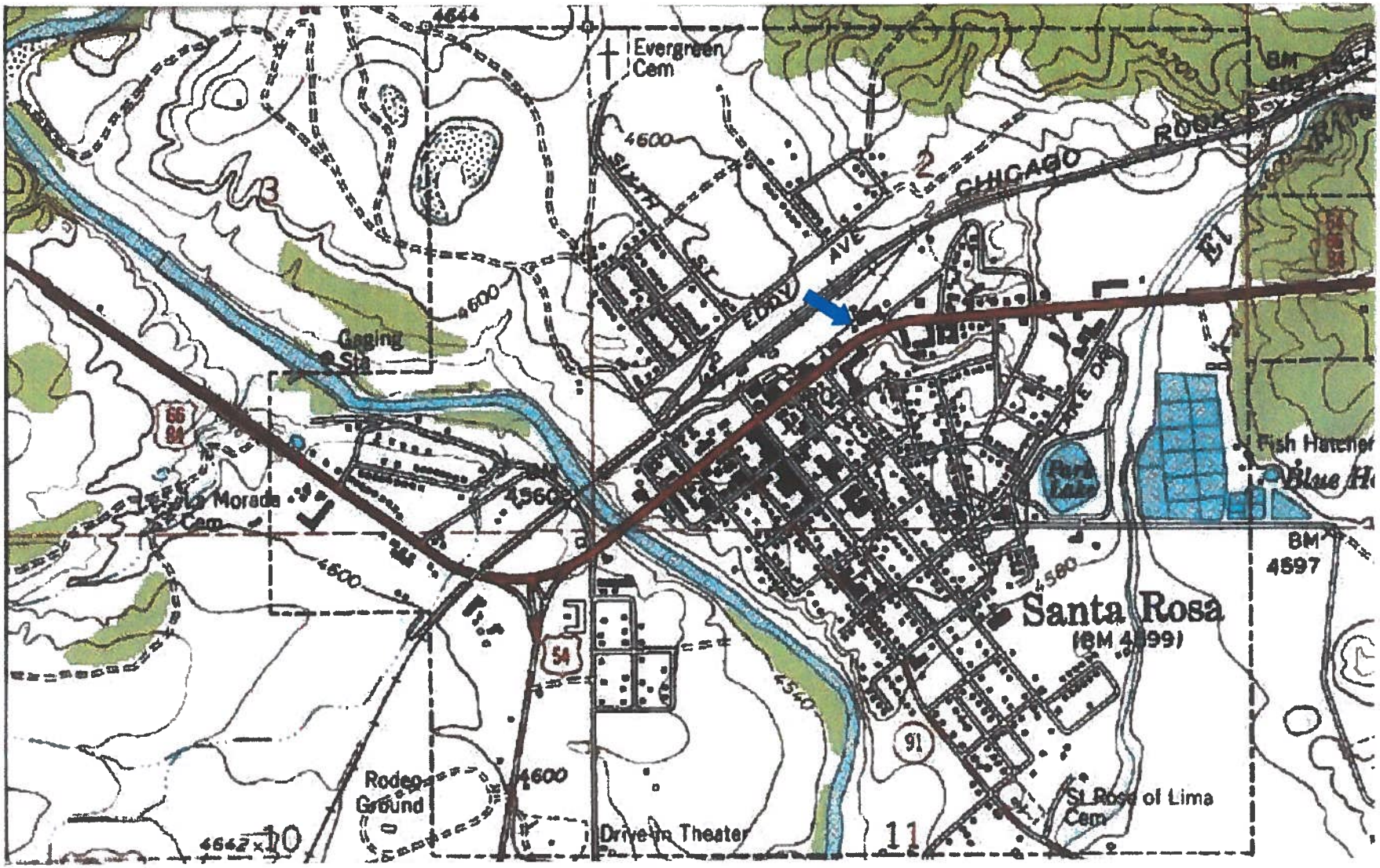
--- not detected
MSL mean sea level
NAPL non-aqueous phase liquid
TOC top of casing
* MW-1A, MW-2A and MW-3 were surveyed by Dennis Engineering on November 7, 2013.

Table 2. Groundwater Analytical Data
Leonard's Conoco, 603 Parker Avenue, Santa Rosa, New Mexico

Well ID	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	EDB (µg/L)	EDC (µg/L)	Naphthalenes (µg/L)
MW-1	03-31-95	**440**	26	400	81	**320**	---	---	---
	11-07-97	**180**	2.7	36	6.5	**150**	ND	**13**	---
	10-18-98	**83**	2.7	71	12	43	ND	2.2	---
	03-20-99	**57**	ND	90	4.1	10	ND	ND	---
	12-31-00				WELL NOT SAMPLED				
	10-25-13				WELL DRY AT 9.4 FEET - NOT SAMPLED				
	03-24-14				PLUGGED AND ABANDONED				
MW-1A	10-25-13	**79**	<5.0	210	<7.5	<5.0	<5.0	<5.0	**79**
	03-24-14	**250**	<5.0	250	<7.5	18	<5.0	<5.0	**84**
MW-2	03-31-95	**420**	6.4	540	86	4.5	---	---	---
	11-07-97	3.3	ND	1.6	2.3	1.2	ND	**15**	---
	10-18-98	6.3	ND	0.7	2.5	ND	ND	---	---
	03-20-00				MW-2 PLUGGED & ABANDONED				
MW-2A	12-31-00	ND	ND	ND	ND	ND	ND	ND	---
	09-23-01	ND	ND	ND	ND	ND	ND	ND	---
	06-11-09				WELL DRY - NOT SAMPLED				
	10-25-13	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<4.0
	03-24-14				WELL DRY - NOT SAMPLED				
MW-3	03-31-95	**39**	8.2	6.3	15	ND	---	---	---
	11-07-97	ND	ND	ND	ND	ND	ND	3.2	---
	10-18-98	ND	ND	ND	ND	ND	ND	0.8	---
	03-20-99	ND	ND	ND	ND	ND	ND	0.6	---
	12-31-00	ND	ND	ND	ND	ND	ND	ND	---
	09-23-01	ND	ND	ND	ND	ND	ND	ND	---
	06-11-09	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<10
	10-25-13	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<4.0
	03-24-14	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<4.0
MW-4	03-29-95	<0.5	3.0	<0.5	2.9	<2.5	---	---	---
	11-07-97	ND	ND	ND	ND	ND	ND	ND	---
	10-18-98	ND	ND	ND	ND	ND	ND	0.9	---
	03-20-99	ND	ND	ND	ND	ND	ND	0.3	---
	12-31-00	ND	ND	ND	ND	ND	ND	ND	---
	09-23-01	ND	ND	ND	ND	ND	ND	ND	---
	06-11-09				WELL NOT FOUND				
	10-25-13				WELL NOT FOUND				
NMWQCC/EIB Standard		**10**	**750**	**750**	**620**	**100**	**0.1**	**10**	**30**

EDB	ethylene dibromide	ND	not detected
EDC	ethylene dichloride	---	not analyzed
MTBE	methyl-tert-butyl ether	µg/L	micrograms per liter

FIGURES



N

Haller & Associates, Inc.
Environmental Services & Geoscience

P.O. BOX 1667, 12216B N. HWY 14, SUITE 6
CEDAR CREST, NEW MEXICO 87008

SITE LOCATION MAP

LEONARD'S CONOCO
603 PARKER AVENUE
SANTA ROSA, NEW MEXICO

Source: www.msrmaps.com

FIGURE

1

Haller & Associates, Inc.
Environmental Services & Geoscience
P.O. BOX 1667, 12216B N. HWY 14, SUITE 6
CEDAR CREST, NEW MEXICO 87008

SITE MAP

LEONARD'S CONOCO
603 PARKER AVENUE
SANTA ROSA, NEW MEXICO
Source: Google Earth Image-2012

FIGURE
2

Haller & Associates, Inc.
Environmental Services & Geoscience

P.O. BOX 1667, 12216B N. HWY 14, SUITE 6
CEDAR CREST, NEW MEXICO 87008

WATER TABLE MAP

MARCH 24, 2014

LEONARD'S CONOCO
603 PARKER AVENUE
SANTA ROSA, NEW MEXICO

Source: Google Earth Image-2012

FIGURE

3

Haller & Associates, Inc.
Environmental Services & Geoscience
P.O. BOX 1667, 12216B N. HWY 14, SUITE 6
CEDAR CREST, NEW MEXICO 87008

DISSOLVED ORGANICS RESULTS MAP

MARCH 24, 2014

LEONARD'S CONOCO
603 PARKER AVENUE
SANTA ROSA, NEW MEXICO

Source: Google Earth Image-2012

FIGURE

4

Haller & Associates, Inc.
Environmental Services & Geoscience
P.O. BOX 1667, 12216B N. HWY 14, SUITE 6
CEDAR CREST, NEW MEXICO 87008

DISSOLVED BENZENE MAP

MARCH 24, 2014

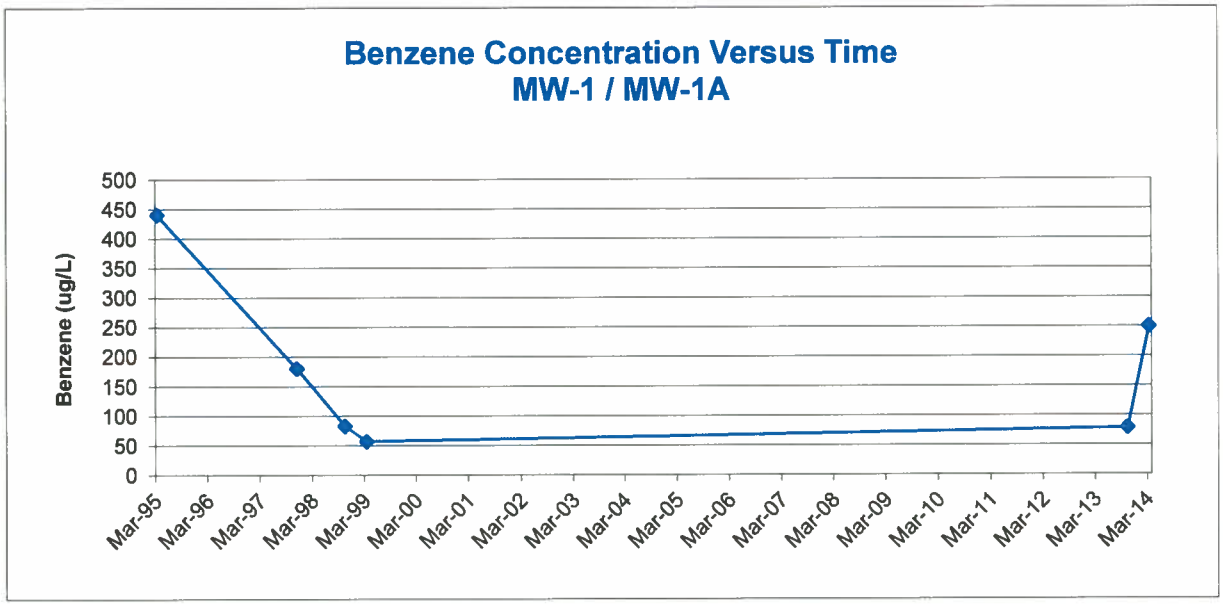
LEONARD'S CONOCO
603 PARKER AVENUE
SANTA ROSA, NEW MEXICO

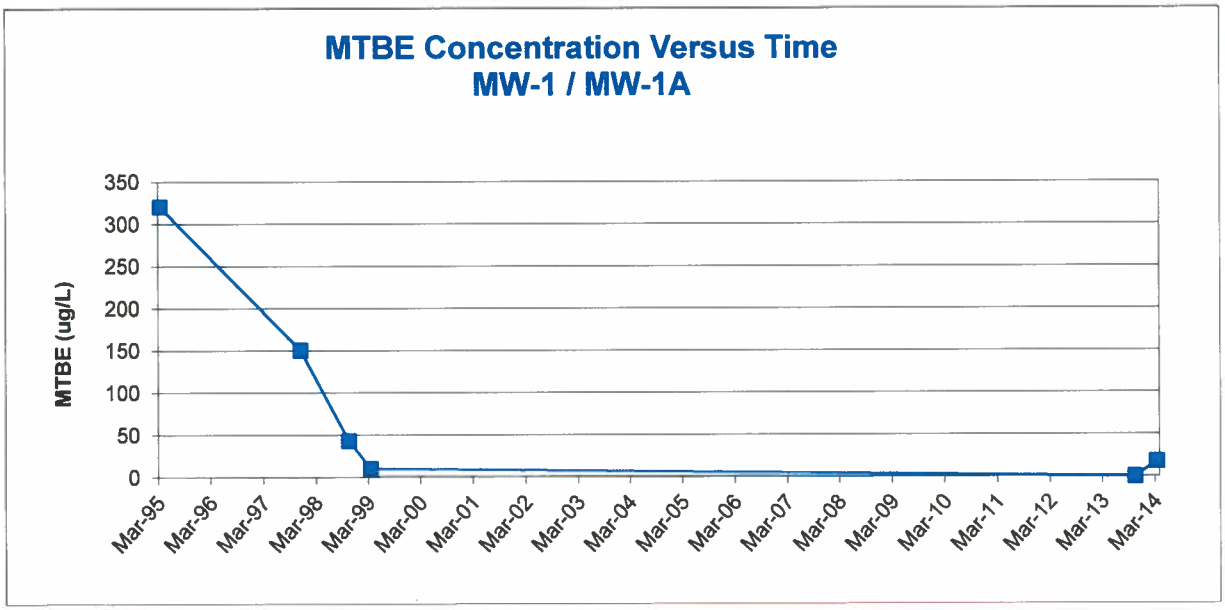
Source: Google Earth Image-2012

FIGURE

5

FIGURE 6
MW-1 / MW-1A BENZENE AND MTBE CONCENTRATIONS VERSUS TIME
LEONARD'S CONOCOO, SANTA ROSA, NEW MEXICO





APPENDIX A

Sampling Protocols

GROUNDWATER MONITORING AND MONITOR WELL ABANDONMENT WORKPLAN LEONARD'S CONOCO SANTA ROSA, NEW MEXICO

1.0 OVERVIEW

The scope of this workplan includes one groundwater monitoring event, plugging and abandonment of monitor well MW-1, and associated reports. Fieldwork will be performed in accordance with the Petroleum Storage Tank Bureau (PSTB) *Guidelines for Corrective Action, March 13, 2000.*

The groundwater monitoring report will be prepared using PSTB standard report format. Abandonment of monitor well MW-1 will be performed pursuant to a Well Plugging Plan of Operations that will be submitted to the New Mexico Office of the State Engineer (NMOSE). A certified professional geologist will have direct supervisory control over all fieldwork and reports. Fieldwork will be subject to the existing site specific health and safety plan.

2.0 NOTIFICATIONS

2.1 Groundwater Monitoring Event

Email notification will be provided to the PSTB approximately 96 hours prior to fieldwork. Verbal notification will be provided to Mr. Joseph Campos, property owner.

2.2 Monitor Well Abandonment

HAI will prepare a Well Plugging Plan of Operations and submit it to the NMOSE for approval. Following receipt of plan approval from the NMOSE, HAI will notify the PSTB and the site owner of the field schedule for abandonment of MW-1.

3.0 GROUNDWATER MONITORING EVENT

One groundwater monitoring event will be performed in accordance with the schedule of deliverables as specified in the PSTB workplan approval letter.

3.1 Static Water Levels

Prior to sampling, monitor wells MW-1A, MW-2A and MW-3 will be opened and allowed to barometrically equilibrate for approximately five minutes. A full set of static water levels will then be obtained from the three monitor wells. The wells will be gauged in order of increasing

contaminant concentration, based on historic data. Static water levels and total depths will be measured to the nearest 0.01 foot using an electronic water level indicator. The probe will be decontaminated prior to use and between wells using an Alconox detergent solution and clean tap water rinse. (MW-1 is partially filled with concrete to a depth of 9.4 feet below ground surface and will not be gauged or sampled.)

3.2 Monitor Well Sampling

Three monitor wells (MW-1A, MW-2A and MW-3) will be purged and sampled using new disposable bailers. Purge water will be observed for the presence of sheen and/or odor. Each monitor well will be purged of at least three well volumes, or until dry. Field measurements of SC, T, pH, DO and ORP will be recorded during purging. Purge water will be ground-discharged in close proximity to each well. Field data will be recorded on field sampling forms and presented in the groundwater monitoring report.

3.3 Groundwater Analytical Requirements

During this groundwater monitoring event, groundwater samples collected from three monitor wells will be analyzed for the following:

- volatile organic compounds (VOCs) + naphthalenes – EPA Method 8260B, $HgCl_2$ preservative

The samples will also be field-tested for ferrous iron using Hach test kit IR-18C. Samples for organics analyses will be decanted at a slow, non-turbulent rate into clean 40-milliliter vials with mercuric chloride ($HgCl_2$) preservative. Each vial will be filled leaving no headspace.

The suggested groundwater monitoring regimen and schedule are summarized below:

EVENT →	Deliverable Deadline – February 28, 2014
WELLS TO BE SAMPLED:	MW-1A, MW-2A, MW-3
LABORATORY ANALYSES:	VOCs + naphthalenes EPA Method 8260B (full list)
FIELD PARAMETERS:	T, pH, SC, DO, ORP

The suggested deliverable deadline of February 28, 2013 allows for fieldwork to be performed approximately three months after the previous sampling event in October 2013.

APPENDIX B

Monitor Well Plugging Record

PLUGGING RECORD

NOTE: A Well Plugging Plan of Operations shall be approved by the State Engineer prior to plugging - 19.27.4 NMAC

I. GENERAL / WELL OWNERSHIP:

State Engineer Well Number: Unknown

Well owner: Joseph Campos Phone No.: 505-472-3361

Mailing address: 1775 US 66

City: Santa Rosa State: NM Zip code: 88435

II. WELL PLUGGING INFORMATION:

1) Name of well drilling company that plugged well: Rodgers & Co., Inc.

2) New Mexico Well Driller License No.: WD225 Expiration Date: 1/31/15

3) Well plugging activities were supervised by the following well driller(s)/rig supervisor(s): Jeff Watson

4) Date well plugging began: 3/24/14 Date well plugging concluded: 3/24/14

5) GPS Well Location: Latitude: 34 deg, 56 min, 37.36 sec
Longitude: 104 deg, 41 min, 6.18 sec, WGS 84

6) Depth of well confirmed at initiation of plugging as: 9' 4" ft below ground level (bgl), by the following manner: well sounder

7) Static water level measured at initiation of plugging: dry ft bgl

8) Date well plugging plan of operations was approved by the State Engineer: 3/13/14

9) Were all plugging activities consistent with an approved plugging plan? yes If not, please describe differences between the approved plugging plan and the well as it was plugged (attach additional pages as needed):

APPENDIX C

Groundwater Field Sampling Forms

Haller & Associates, Inc.
Environmental Services & Geoscience

MONITOR WELL SAMPLING FIELD FORM

Well ID MW-1A | Date Gauged 5/24/14
Site Leonard's Conoco | Time Gauged 1125

Depth to NAPL — ft. | Well diameter 2 in.
Depth to water 15.30 ft. | Height of fluid column 4.38 ft.
Total Depth 19.68 ft. | Volume in well 0.74 gal.

(3 well volumes = 2.23 gallons)

GROUNDWATER SAMPLING DATA

Time/date purged 1210 3/24/14 | Purge method new disoposable bailer

Temp.	17.2	Cond.	2309	pH	6.95	ORP	-41.3	DO 0.00	Gal 0.75
Temp.	17.0	Cond.	2288	pH	7.04	ORP	-57.9	DO 0.12	Gal 1.5 Bailed Down
Temp.	17.0	Cond.	2272	pH	7.09	ORP	-63.0	DO 0.09	Gal 2.25 Bailed Down
Temp.		Cond.		pH		ORP		DO	Gal
Temp.		Cond.		pH		ORP		DO	Gal

Actual purged volume 2.25 gal. | Field measurements stabilized within ±10%? yes

Time/date sampled 1225 3/24/14 | Purged/Sampled by ECH

Sample method new disoposable bailer

Requested analyses 8260

Comments/observations bailed cloudy (gray); slight HC odor; no HC sheen
ferrous iron: 1.6 ppm

Volumes of Borehole, Annulus, and Casing

Borehole Diameter (inches)	Volume per linear ft. of Hole		Nominal Casing Diam (in)	Gallons per linear ft. of Casing	Volume per lin. ft. of annulus	
	Gallons	Cubic Feet			Gallons	Ft^3
7.25	2.14	0.29	2	0.17	1.91	0.26
7.75	2.45	0.33	2	0.17	2.22	0.30
8.25	2.78	0.37	2	0.17	2.55	0.34
10.25	4.29	0.57	2	0.17	4.06	0.54
8.25	2.78	0.37	4	0.66	1.95	0.26
10.25	4.29	0.57	4	0.66	3.46	0.46
12.25	6.13	0.82	4	0.66	5.30	0.71
12.25	6.13	0.82	6	1.50	4.33	0.58

Miscellaneous Data (approximations)

1 cubic foot = 7.481 gal
1 gallon = 0.134 cu ft
1 cubic yard = 202 gal
1 gallon = 0.005 cu yd
1 gallon of water = 8.34 lb
1 barrel = 42 gal
1 cubic foot of fresh water = 62.4 lb
PSI 0.434 x the height of the water column in ft
Feet of head = PSI x 2.304
Source: *Longyear Environmental Products, Inc. Specifications and Technical Information*

Haller & Associates, Inc.
Environmental Services & Geoscience

MONITOR WELL SAMPLING FIELD FORM

Well ID MW-3 Date Gauged 3/24/14

Site Leonard's Conoco Time Gauged 1120

Depth to NAPL — ft. Well diameter 2 in.

Depth to water 14.04 ft. Height of fluid column 14.77 ft.

Total Depth 28.81 ft. Volume in well 2.51 gal.

(3 well volumes = 7.53 gallons)

GROUNDWATER SAMPLING DATA

Time/date purged 1140 3/24/14 Purge method new disoposable bailer

Temp.	20.0	Cond.	2380	pH	7.14	ORP	106.4	DO	2.62	Gal	2.5
Temp.	19.0	Cond.	2401	pH	7.17	ORP	101.1	DO	1.88	Gal	5.0
Temp.	18.8	Cond.	2410	pH	7.15	ORP	99.2	DO	1.87	Gal	6.5
Temp.		Cond.		pH		ORP		DO		Gal	DRY
Temp.		Cond.		pH		ORP		DO		Gal	

Actual purged volume 6.5 gal. Field measurements stabilized within ±10%? NA

Time/date sampled 1200 3/24/14 Purged/Sampled by ECH

Sample method new disoposable bailer

Requested analyses 8260

Comments/observations very cloudy (brown); no odor; no sheen

ferrous iron: <0.1

Volumes of Borehole, Annulus, and Casing

Borehole Diameter	Volume per linear ft. of Hole		Nominal Casing	Gallons per linear ft. of	Volume per lin. ft. of annulus	
(inches)	Gallons	Cubic Feet	Diam (in)	Casing	Gallons	Ft^3
7.25	2.14	0.29	2	0.17	1.91	0.26
7.75	2.45	0.33	2	0.17	2.22	0.30
8.25	2.78	0.37	2	0.17	2.55	0.34
10.25	4.29	0.57	2	0.17	4.06	0.54
8.25	2.78	0.37	4	0.66	1.95	0.26
10.25	4.29	0.57	4	0.66	3.46	0.46
12.25	6.13	0.82	4	0.66	5.30	0.71
12.25	6.13	0.82	6	1.50	4.33	0.58

Miscellaneous Data (approximations)

1 cubic foot = 7.481 gal
1 gallon = 0.134 cu ft
1 cubic yard = 202 gal
1 gallon = 0.005 cu yd
1 gallon of water = 8.34 lb
1 barrel = 42 gal
1 cubic foot of fresh water = 62.4 lb
PSI 0.434 x the height of the water column in ft
Feet of head = PSI x 2.304
Source: *Longyear Environmental Products, Inc. Specifications and Technical Information*

APPENDIX D

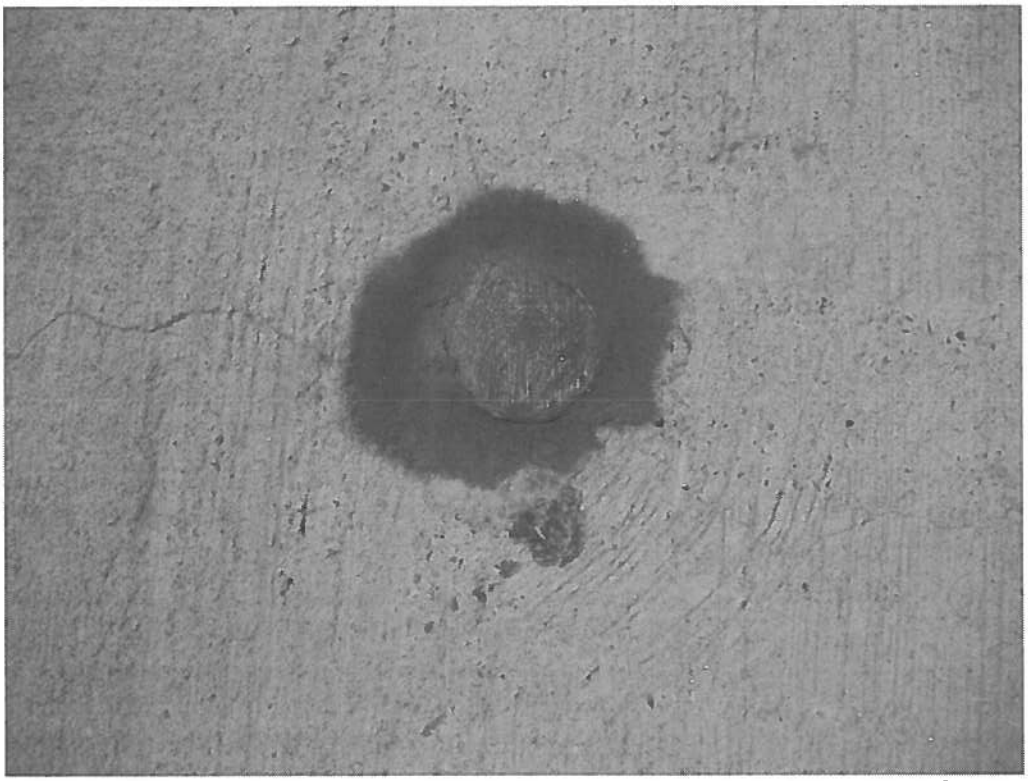
Photographs

Leonard's Conoco-Santa Rosa, NM
MW-1 Plugging and Abandonment Photos
March 25, 2014

Photograph 1. View of monitor well MW-1 casing in concrete pavement (pre-abandonment).

Photograph 2. Close up of MW-1 showing how concrete was poured around casing during concrete pavement construction in 2000.

Photograph 3. Pouring neat cement grout into MW-1; keeping grout off of pavement using small piece of visqueen liner with a 2-inch diameter hole placed over the well casing.



Photograph 4. View of MW-1 approximately 2 hours after placement of cement grout.

APPENDIX E

Laboratory Report

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

March 31, 2014

Tim Haller
Haller and Associates
P. O. Box 1667
Cedar Crest, NM 87008-1667
TEL: (505) 281-9333
FAX (505) 281-9338

RE: Leonard's Conoco OrderNo.: 1403979

Dear Tim Haller:

Hall Environmental Analysis Laboratory received 3 sample(s) on 3/24/2014 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: Haller and Associates
Project: Leonard's Conoco
Lab ID: 1403979-001
Matrix: AQUEOUS
Client Sample ID: MW-1A
Collection Date: 3/24/2014 12:25:00 PM
Received Date: 3/24/2014 3:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
Benzene	250	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
Toluene	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
Ethylbenzene	250	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
Methyl tert-butyl ether (MTBE)	18	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
1,2,4-Trimethylbenzene	12	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
1,3,5-Trimethylbenzene	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
1,2-Dichloroethane (EDC)	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
1,2-Dibromoethane (EDB)	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
Naphthalene	84	10		µg/L	5	3/26/2014 4:19:34 PM	R17578
1-Methylnaphthalene	ND	20		µg/L	5	3/26/2014 4:19:34 PM	R17578
2-Methylnaphthalene	ND	20		µg/L	5	3/26/2014 4:19:34 PM	R17578
Acetone	ND	50		µg/L	5	3/26/2014 4:19:34 PM	R17578
Bromobenzene	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
Bromodichloromethane	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
Bromoform	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
Bromomethane	ND	15		µg/L	5	3/26/2014 4:19:34 PM	R17578
2-Butanone	ND	50		µg/L	5	3/26/2014 4:19:34 PM	R17578
Carbon disulfide	ND	50		µg/L	5	3/26/2014 4:19:34 PM	R17578
Carbon Tetrachloride	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
Chlorobenzene	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
Chloroethane	ND	10		µg/L	5	3/26/2014 4:19:34 PM	R17578
Chloroform	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
Chloromethane	ND	15		µg/L	5	3/26/2014 4:19:34 PM	R17578
2-Chlorotoluene	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
4-Chlorotoluene	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
cis-1,2-DCE	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
cis-1,3-Dichloropropene	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
1,2-Dibromo-3-chloropropane	ND	10		µg/L	5	3/26/2014 4:19:34 PM	R17578
Dibromochloromethane	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
Dibromomethane	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
1,2-Dichlorobenzene	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
1,3-Dichlorobenzene	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
1,4-Dichlorobenzene	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
Dichlorodifluoromethane	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
1,1-Dichloroethane	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
1,1-Dichloroethene	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
1,2-Dichloropropane	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
1,3-Dichloropropane	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
2,2-Dichloropropane	ND	10		µg/L	5	3/26/2014 4:19:34 PM	R17578

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Haller and Associates
Project: Leonard's Conoco
Lab ID: 1403979-001 **Matrix:** AQUEOUS

Client Sample ID: MW-1A
Collection Date: 3/24/2014 12:25:00 PM
Received Date: 3/24/2014 3:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
1,1-Dichloropropene	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
Hexachlorobutadiene	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
2-Hexanone	ND	50		µg/L	5	3/26/2014 4:19:34 PM	R17578
Isopropylbenzene	12	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
4-Isopropyltoluene	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
4-Methyl-2-pentanone	ND	50		µg/L	5	3/26/2014 4:19:34 PM	R17578
Methylene Chloride	ND	15		µg/L	5	3/26/2014 4:19:34 PM	R17578
n-Butylbenzene	ND	15		µg/L	5	3/26/2014 4:19:34 PM	R17578
n-Propylbenzene	33	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
sec-Butylbenzene	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
Styrene	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
tert-Butylbenzene	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
1,1,1,2-Tetrachloroethane	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
1,1,2,2-Tetrachloroethane	ND	10		µg/L	5	3/26/2014 4:19:34 PM	R17578
Tetrachloroethene (PCE)	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
trans-1,2-DCE	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
trans-1,3-Dichloropropene	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
1,2,3-Trichlorobenzene	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
1,2,4-Trichlorobenzene	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
1,1,1-Trichloroethane	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
1,1,2-Trichloroethane	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
Trichloroethene (TCE)	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
Trichlorofluoromethane	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
1,2,3-Trichloropropane	ND	10		µg/L	5	3/26/2014 4:19:34 PM	R17578
Vinyl chloride	ND	5.0		µg/L	5	3/26/2014 4:19:34 PM	R17578
Xylenes, Total	ND	7.5		µg/L	5	3/26/2014 4:19:34 PM	R17578
Surr: 1,2-Dichloroethane-d4	102	70-130		%REC	5	3/26/2014 4:19:34 PM	R17578
Surr: 4-Bromofluorobenzene	94.7	70-130		%REC	5	3/26/2014 4:19:34 PM	R17578
Surr: Dibromofluoromethane	101	70-130		%REC	5	3/26/2014 4:19:34 PM	R17578
Surr: Toluene-d8	98.1	70-130		%REC	5	3/26/2014 4:19:34 PM	R17578

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
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Haller and Associates
Project: Leonard's Conoco
Lab ID: 1403979-002 **Matrix:** AQUEOUS

Client Sample ID: MW-3
Collection Date: 3/24/2014 12:00:00 PM
Received Date: 3/24/2014 3:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
Benzene	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
Toluene	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
Ethylbenzene	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
Naphthalene	ND	2.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
1-Methylnaphthalene	ND	4.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
2-Methylnaphthalene	ND	4.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
Acetone	ND	10		µg/L	1	3/26/2014 5:45:49 PM	R17578
Bromobenzene	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
Bromodichloromethane	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
Bromoform	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
Bromomethane	ND	3.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
2-Butanone	ND	10		µg/L	1	3/26/2014 5:45:49 PM	R17578
Carbon disulfide	ND	10		µg/L	1	3/26/2014 5:45:49 PM	R17578
Carbon Tetrachloride	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
Chlorobenzene	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
Chloroethane	ND	2.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
Chloroform	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
Chloromethane	ND	3.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
2-Chlorotoluene	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
4-Chlorotoluene	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
cis-1,2-DCE	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
Dibromochloromethane	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
Dibromomethane	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
1,2-Dichlorobenzene	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
1,3-Dichlorobenzene	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
1,4-Dichlorobenzene	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
Dichlorodifluoromethane	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
1,1-Dichloroethane	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
1,1-Dichloroethene	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
1,2-Dichloropropane	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
1,3-Dichloropropane	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
2,2-Dichloropropane	ND	2.0		µg/L	1	3/26/2014 5:45:49 PM	R17578

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
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Haller and Associates
Project: Leonard's Conoco
Lab ID: 1403979-002
Matrix: AQUEOUS
Client Sample ID: MW-3
Collection Date: 3/24/2014 12:00:00 PM
Received Date: 3/24/2014 3:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
1,1-Dichloropropene	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
Hexachlorobutadiene	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
2-Hexanone	ND	10		µg/L	1	3/26/2014 5:45:49 PM	R17578
Isopropylbenzene	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
4-Isopropyltoluene	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
4-Methyl-2-pentanone	ND	10		µg/L	1	3/26/2014 5:45:49 PM	R17578
Methylene Chloride	ND	3.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
n-Butylbenzene	ND	3.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
n-Propylbenzene	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
sec-Butylbenzene	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
Styrene	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
tert-Butylbenzene	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
trans-1,2-DCE	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
1,1,1-Trichloroethane	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
1,1,2-Trichloroethane	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
Trichloroethene (TCE)	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
Trichlorofluoromethane	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
1,2,3-Trichloropropane	ND	2.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
Vinyl chloride	ND	1.0		µg/L	1	3/26/2014 5:45:49 PM	R17578
Xylenes, Total	ND	1.5		µg/L	1	3/26/2014 5:45:49 PM	R17578
Surr: 1,2-Dichloroethane-d4	104	70-130		%REC	1	3/26/2014 5:45:49 PM	R17578
Surr: 4-Bromofluorobenzene	99.3	70-130		%REC	1	3/26/2014 5:45:49 PM	R17578
Surr: Dibromofluoromethane	104	70-130		%REC	1	3/26/2014 5:45:49 PM	R17578
Surr: Toluene-d8	103	70-130		%REC	1	3/26/2014 5:45:49 PM	R17578

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
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Haller and Associates
Project: Leonard's Conoco
Lab ID: 1403979-003
Matrix: AQUEOUS
Client Sample ID: Trip Blank
Collection Date:
Received Date: 3/24/2014 3:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
Benzene	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
Toluene	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
Ethylbenzene	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
Naphthalene	ND	2.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
1-Methylnaphthalene	ND	4.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
2-Methylnaphthalene	ND	4.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
Acetone	ND	10		µg/L	1	3/26/2014 6:14:36 PM	R17578
Bromobenzene	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
Bromodichloromethane	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
Bromoform	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
Bromomethane	ND	3.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
2-Butanone	ND	10		µg/L	1	3/26/2014 6:14:36 PM	R17578
Carbon disulfide	ND	10		µg/L	1	3/26/2014 6:14:36 PM	R17578
Carbon Tetrachloride	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
Chlorobenzene	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
Chloroethane	ND	2.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
Chloroform	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
Chloromethane	ND	3.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
2-Chlorotoluene	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
4-Chlorotoluene	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
cis-1,2-DCE	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
Dibromochloromethane	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
Dibromomethane	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
1,2-Dichlorobenzene	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
1,3-Dichlorobenzene	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
1,4-Dichlorobenzene	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
Dichlorodifluoromethane	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
1,1-Dichloroethane	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
1,1-Dichloroethene	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
1,2-Dichloropropane	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
1,3-Dichloropropane	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
2,2-Dichloropropane	ND	2.0		µg/L	1	3/26/2014 6:14:36 PM	R17578

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
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- O RSD is greater than RSDlimit
- P Sample pH greater than 2.
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Haller and Associates
Project: Leonard's Conoco
Lab ID: 1403979-003
Matrix: AQUEOUS
Client Sample ID: Trip Blank
Collection Date:
Received Date: 3/24/2014 3:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
1,1-Dichloropropene	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
Hexachlorobutadiene	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
2-Hexanone	ND	10		µg/L	1	3/26/2014 6:14:36 PM	R17578
Isopropylbenzene	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
4-Isopropyltoluene	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
4-Methyl-2-pentanone	ND	10		µg/L	1	3/26/2014 6:14:36 PM	R17578
Methylene Chloride	ND	3.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
n-Butylbenzene	ND	3.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
n-Propylbenzene	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
sec-Butylbenzene	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
Styrene	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
tert-Butylbenzene	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
trans-1,2-DCE	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
1,1,1-Trichloroethane	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
1,1,2-Trichloroethane	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
Trichloroethene (TCE)	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
Trichlorofluoromethane	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
1,2,3-Trichloropropane	ND	2.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
Vinyl chloride	ND	1.0		µg/L	1	3/26/2014 6:14:36 PM	R17578
Xylenes, Total	ND	1.5		µg/L	1	3/26/2014 6:14:36 PM	R17578
Surr: 1,2-Dichloroethane-d4	100	70-130		%REC	1	3/26/2014 6:14:36 PM	R17578
Surr: 4-Bromofluorobenzene	102	70-130		%REC	1	3/26/2014 6:14:36 PM	R17578
Surr: Dibromofluoromethane	103	70-130		%REC	1	3/26/2014 6:14:36 PM	R17578
Surr: Toluene-d8	107	70-130		%REC	1	3/26/2014 6:14:36 PM	R17578

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
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1403979**

31-Mar-14

Client: Haller and Associates

Project: Leonard's Conoco

Sample ID **5mL rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R17578**	RunNo: **17578**
Prep Date:	Analysis Date: **3/26/2014**	SeqNo: **506737** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								

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	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1403979**

31-Mar-14

Client: Haller and Associates

Project: Leonard's Conoco

Sample ID **5mL rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R17578**	RunNo: **17578**
Prep Date:	Analysis Date: **3/26/2014**	SeqNo: **506737** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		105	70	130			
Surr: Dibromofluoromethane	10		10.00		105	70	130			
Surr: Toluene-d8	11		10.00		105	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R17578**	RunNo: **17578**
Prep Date:	Analysis Date: **3/26/2014**	SeqNo: **506739** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	107	70	130			
Toluene	19	1.0	20.00	0	95.6	80	120			
Chlorobenzene	20	1.0	20.00	0	98.4	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
E	Value above quantitation range
J	Analyte detected below quantitation limits
O	RSD is greater than RSDlimit
R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2.
RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1403979**

31-Mar-14

Client: Haller and Associates

Project: Leonard's Conoco

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R17578**	RunNo: **17578**
Prep Date:	Analysis Date: **3/26/2014**	SeqNo: **506739** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	22	1.0	20.00	0	109	90	143			
Trichloroethene (TCE)	19	1.0	20.00	0	94.9	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		104	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	10		10.00		103	70	130			
Surr: Toluene-d8	9.9		10.00		99.3	70	130			

Sample ID **1403979-001a ms**	SampType: **MS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **MW-1A**	Batch ID: **R17578**	RunNo: **17578**
Prep Date:	Analysis Date: **3/26/2014**	SeqNo: **506746** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	360	5.0	100.0	249.8	112	70	130			
Toluene	99	5.0	100.0	0	99.4	67.5	123			
Chlorobenzene	97	5.0	100.0	0	96.6	70	130			
1,1-Dichloroethene	110	5.0	100.0	0	107	81.9	134			
Trichloroethene (TCE)	93	5.0	100.0	0	93.3	70	130			
Surr: 1,2-Dichloroethane-d4	52		50.00		104	70	130			
Surr: 4-Bromofluorobenzene	49		50.00		98.0	70	130			
Surr: Dibromofluoromethane	53		50.00		106	70	130			
Surr: Toluene-d8	50		50.00		99.9	70	130			

Sample ID **1403979-001a msd**	SampType: **MSD**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **MW-1A**	Batch ID: **R17578**	RunNo: **17578**
Prep Date:	Analysis Date: **3/26/2014**	SeqNo: **506747** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	350	5.0	100.0	249.8	100	70	130	3.20	20	
Toluene	97	5.0	100.0	0	97.3	67.5	123	2.18	20	
Chlorobenzene	97	5.0	100.0	0	97.4	70	130	0.823	20	
1,1-Dichloroethene	100	5.0	100.0	0	105	81.9	134	2.58	20	
Trichloroethene (TCE)	93	5.0	100.0	0	93.1	70	130	0.187	20	
Surr: 1,2-Dichloroethane-d4	53		50.00		107	70	130	0	0	
Surr: 4-Bromofluorobenzene	46		50.00		92.9	70	130	0	0	
Surr: Dibromofluoromethane	52		50.00		104	70	130	0	0	
Surr: Toluene-d8	50		50.00		101	70	130	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- 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

Sample Log-In Check List

Client Name: HAL | Work Order Number: 1403979 | RcptNo: 1

Received by/date: AT 03/24/14

Logged By: Anne Thorne 3/24/2014 3:10:00 PM

Completed By: Anne Thorne 3/25/2014

Reviewed By: 03/25/14

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?	Client		

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	4.9	Good	Not Present			

Chain-of-Custody Record

Client: Haller & Assoc

Mailing Address: P.O. Box 1667
Cedar Crest, NM 87047

Phone #: 505-281-9333

email or Fax#: 505-281-9338

QA/QC Package:
☑ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☑ Standard ☐ Rush _____

Project Name:
Leonard's Conoco

Project #:
1401

Project Manager:
Tim Haller

Sampler: Eddie Hubbert

On Ice: ☑ Yes ☐ No

Sample Temperature: 4°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1403199	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Air Bubbles (Y or N)
3/24/14	1225	water	MW-1A	3-40ml	HgCl2	-001										X		
3/24/14	1200	water	MW-3	3-40ml	HgCl2	-002										X		
			trip Blank	2-40ml	HgCl2	-003										X		

Date	Time	Relinquished by:	Received by:	Date	Time
3/24/14	1510			03/24/14	1510
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.