MONITOR WELL REPLACEMENT AND GROUNDWATER MONITORING 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# 3678-2

December 5, 2013

Lorena Goerger – NMED PSTB
Leonard's Conoco Deliverable ID #3678-2
December 5, 2013

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: _____

Name: Timothy M. Haller, CPG

Affiliation: Haller & Associates, Inc.

Title: Hydrogeologist

Date: December 5, 2013

I. INTRODUCTION

A. Scope of Work

This groundwater monitoring report was completed in accordance with a workplan prepared by Haller & Associates, Inc. (HAI), dated March 1, 2013. The workplan was approved by the New Mexico Environment Department-Petroleum Storage Tank Bureau (NMED PSTB) in a letter to HAI, dated March 6, 2013. A six month extension of deliverable deadlines was granted by PSTB in a letter dated October 16, 2013, to account for delays by the New Mexico Office of the State Engineer in issuing a monitor well permit.

The scope of work consisted of the following: 1) completion of replacement well MW-1A; 2) inventory and assessment of existing monitor wells; 3) water level measurements; 4) groundwater sampling; 5) survey of monitor well coordinates; and 6) report preparation.

The site location is shown on Figure 1. Monitor well locations and site features are shown on Figure 2.

B. Executive Summary

Monitor well MW-1 was previously assumed to have been destroyed; however, HAI located MW-1 with the assistance of the property owner, Mr. Joseph Campos. MW-1 was found to be dry at a depth of 9.4 feet below ground surface (bgs). Monitor wells MW-2A and MW-3 were found to be in good condition. Off-site monitor well MW-4 could not be located with a metal detector and appears to have been destroyed.

Replacement monitor well MW-1A was completed and developed on October 25, 2013. MW-1A, MW-2A and MW-3 were sampled on October 25, 2013. Static water levels were gauged on October 30, 2013. Monitor well sampling protocols are presented in Appendix A.

Shallow groundwater currently flows to the northwest at a gradient of 0.02 foot per foot (ft/ft) as shown on Figure 3. The hydraulic gradient calculation is presented in Appendix B.

Petroleum contaminants were not detected in groundwater samples from MW-2A and MW-3. The groundwater sample from MW-1A exceeded New Mexico Water Quality Control Commission (NMWQCC) standards with 79 micrograms per liter (µg/L) of benzene and 79 µg/L of total naphthalenes. Analytical data are summarized in Table 2 and Figure 5. The laboratory report is presented in Appendix G.

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 this time, MW-2 was destroyed and replacement well MW-2A was completed. Tecumseh Professional Associates, Inc. (TPA) performed the previous groundwater monitoring event in June 2009. TPA located and sampled MW-2A and MW-3. MW-1 and MW-4 were not located and were assumed to have been destroyed. In October 2013, HAI located MW-1 but was unsuccessful in locating MW-4 using a metal detector.

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 Inventory and Condition Assessment

Existing Monitor Well Inventory – A site reconnaissance was performed on October 10, 2013 to locate and visually assess existing monitor wells. Three monitor wells were located. MW-4 was not located after a thorough search using a metal detector and visual reconnaissance.

Existing Monitor Well Assessment – The condition of existing wells is summarized below.

MW-1 – The well is located in the concrete pavement approximately 61.3 feet from the building. The open casing is flush with the concrete pavement, indicating the concrete slab was poured around the casing without a manhole or well vault. The well log of MW-1 (Monteverde, April 1995) indicates MW-1 was completed at a total depth of 25 feet bgs. INEX (June 2004) reported that MW-1 was partially filled during concrete paving in 2000, rendering the well unusable. In October 2013, HAI gauged a very solid well bottom at 9.4 feet bgs, suggesting the monitor well may indeed be partly filled with concrete.

MW-2A – The well casing and vault were found to be in relatively good condition. The concrete pad around the vault is cracked but intact. The vault lid bolts were present and threads were in good condition.

MW-3 – The well casing and vault were found to be in relatively good condition. The concrete pad around the vault is cracked but intact. The vault lid bolts were present and threads were in good condition.

D. Monitor Well Replacement

Replacement monitor well MW-1A was installed 9.9 feet south of MW-1 on October 25, 2013. Drilling and well construction were performed by Rodgers Environmental Services, Inc. using 7-5/8 inch outer diameter hollow-stem augers. Soil samples were collected at 5-foot intervals using stainless steel split spoon samplers. Each soil sample was field-screened for organic vapors using a photoionization detector as per the heated headspace method. Vapor screening results and lithologic descriptions of soil samples were recorded on a field boring log.

MW-1A was completed at a total depth of 19 feet bgs. Screen, casing, filter pack and bentonite seal were emplaced through the augers. Open hole well methods were not performed. The surface completion consisted of an 8-inch diameter traffic-rated well vault set in six-inch thick concrete. The well vault was set flush with the concrete to prevent well vault damage from snow plows. Lithologic descriptions and monitor well completion details are presented on the monitor well log in Appendix C.

MW-1A was developed by surging and bailing with a new poly disposable bailer. Ten times the standing water volume in the well were bailed during development. Field parameters of pH, specific conductivity, temperature, dissolved oxygen and oxidation-reduction potential were recorded every two well volumes.

E. Soil Sampling and Analysis

Two subsurface soil samples (MW-1A 9-11' and MW-1A 14-16') were analyzed for VOCs by EPA Method 8260B. Analytical results are summarized in Table 3 and Figure 4.

Soil sample MW-1A 9-11' contained 0.087 milligrams per kilogram (mg/kg) of ethylbenzene 0.13 mg/kg of naphthalenes. These concentrations did not exceed Tier 1 risk-based screening levels (RBSLs) for groundwater protection in scenarios where depth to groundwater is less than 20 feet.

Soil sample MW-1A 14-16' contained 1.4 mg/kg of benzene, 20 mg/kg of ethylbenzene and 6.3 mg/kg of naphthalenes. The benzene and naphthalenes concentrations exceeded Tier 1 RBSLs for groundwater protection in scenarios where depth to groundwater is less than 20 feet. This is consistent with dissolved benzene and naphthalenes concentrations at MW-1A, which exceeded NMWQCC groundwater standards.

F. Monitor Well Sampling

Monitor wells MW-1A, MW-2A and MW-3 were sampled on October 25, 2013. MW-1A was gauged prior to development; MW-2A and MW-3 were gauged prior to purging. The wells were gauged using an electronic oil/water interface probe in order of increasing constituent concentrations, based on historic data. The wells 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 1995 and 2009. Currently, depth to groundwater at the site ranges from 12.50 to 13.96 feet below top of casing. Shallow groundwater currently flows to the northwest at a gradient of 0.02 ft/ft, which is generally consistent with previously observed conditions.

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.

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 of concern consist of benzene (79 µg/L) and total naphthalenes (79 µg/L). Groundwater contaminant concentrations have not exceeded NMWQCC standards at MW-2/MW-2A and MW-3 since November 1997.

Dissolved actionable benzene and naphthalenes extends northwest from the vicinity of MW-1 and 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.

B. On-Going Assessment

On-going natural attenuation processes have contributed to decreasing groundwater contaminant concentrations at MW-1/MW-1A. Dissolved benzene has decreased from 440 µg/L in March 1995 to 79 µg/L in October 2013. Groundwater contaminants have not been detected at MW-2/MW-2A and MW-3 since December 2000.

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 (79 µg/L) and naphthalenes (79 µg/L) at MW-1A (Figures 5 and 6).

The soil sample from MW-1A at a depth of 14 to 16 feet bgs exceeded Tier 1 groundwater protection RBSLs for benzene and naphthalenes. This is consistent with MW-1A groundwater sample data which indicate dissolved benzene and naphthalenes exceed NMWQCC standards.

- HAI recommends plugging and abandonment of MW-1. This well was reportedly completed at a depth of 25 feet bgs, but appears to have been partly filled with concrete during concrete paving in 2000. However, the well presently consists of an open casing flush with the concrete parking lot pavement.

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

TABLES

1. Groundwater Elevation Data
2. Groundwater Analytical Data
3. Soil Sample Analytical Data

FIGURES

1. Site Location Map
2. Site Map
3. Water Table Map
4. Organic Results Map - Soil
5. Organic Results Map – Groundwater
6. Dissolved Benzene Map
7. Graph of MW-1/MW-1A Benzene and MTBE Versus Time

APPENDICES

A. Sampling Protocols
B. Hydraulic Gradient Calculation
C. Monitor Well Log
D. Groundwater Field Sampling Forms
E. Photographs
F. Survey Report
G. 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	---
MW-1A	10-30-13	4616.02	---	13.96	4602.06
MW-2	03-29-95	4595.68	---	14.76	4580.92
MW-2A	09-23-01	4613.39	---	---	4580.85
	06-11-09	4613.39	---	DRY AT 13.97	---
	10-30-13	4613.39	---	12.54	4600.85
MW-3	03-29-95	4615.02	---	10.10	4604.92
	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
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 - NOT SAMPLED				
MW-1A	10-25-13	**79**	<5.0	210	<7.5	<5.0	<5.0	<5.0	**79**
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
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
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**

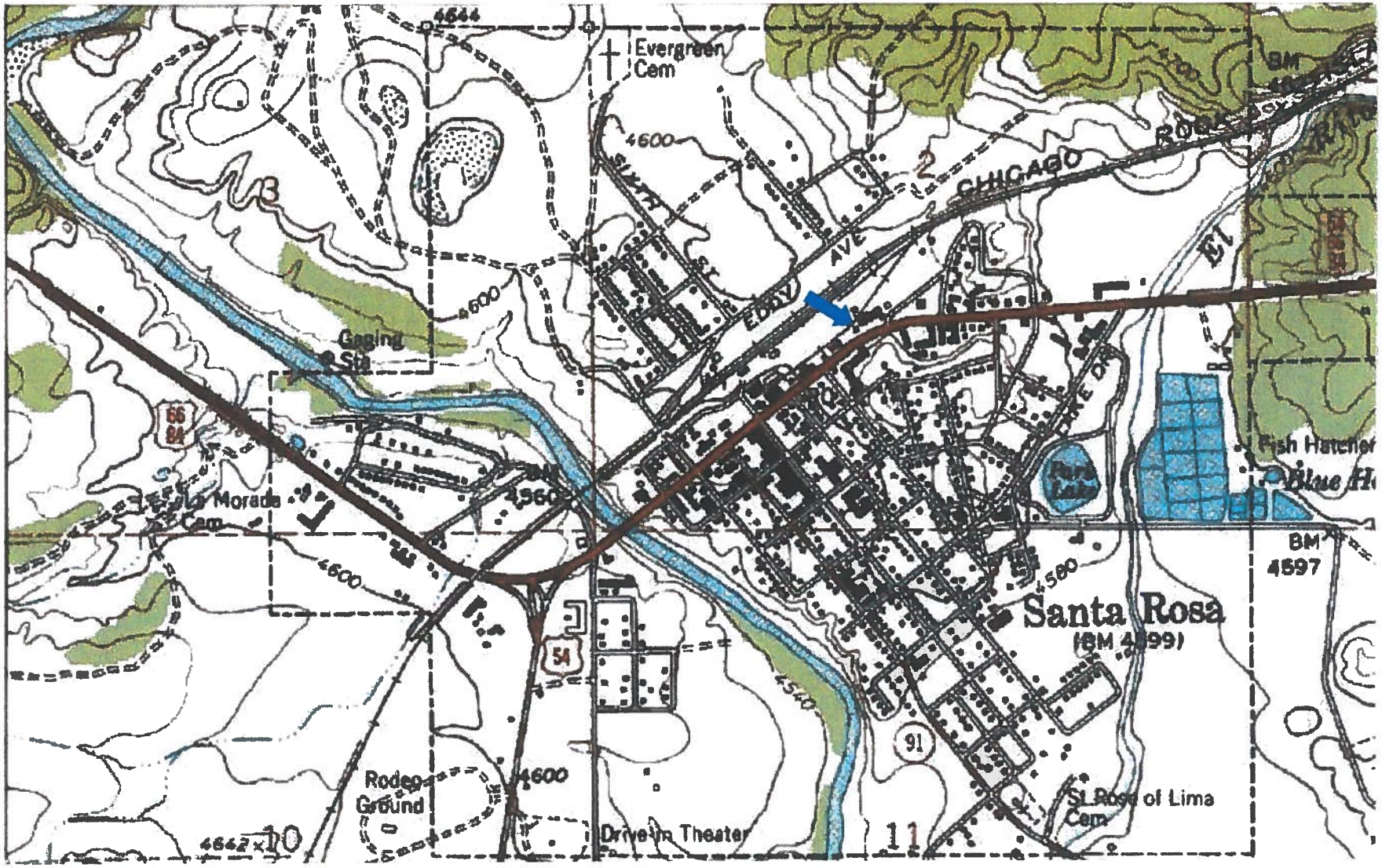
EDB	ethylene dibromide	ND	not detected
EDC	ethylene dichloride	---	not analyzed
MTBE	methyl-tert-butyl ether	µg/L	micrograms per liter
NAPL	non-aquous phase liquid		

Table 3. **Soil Sample Analytical Data**
Leonard's Conoco, 603 Parker Avenue, Santa Rosa, New Mexico

Sample ID	Sample Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)	EDB (mg/kg)	EDC (mg/kg)	Naphthalenes (mg/kg)
MW-1A 9-11'	10-25-13	<0.050	<0.050	0.087	<0.10	<0.050	<0.050	<0.050	0.13
MW-1A 14-16'	10-25-13	**1.4**	<2.5	20	<5.0	<2.5	<2.5	<2.5	**6.3**
Tier 1 GW Protection RBSL		**0.23**	**18.37**	**125.75**	**20.1**	**0.9**	**0.0006**	**0.06**	**2.24**

EDB	ethylene dibromide	MTBE	methyl-tert-butyl ether
EDC	ethylene dichloride	RBSL	risk-based screening level
GW	groundwater	mg/kg	milligrams per kilogram

FIGURES



Haller & Associates, Inc.
Environmental Services & Geoscience

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

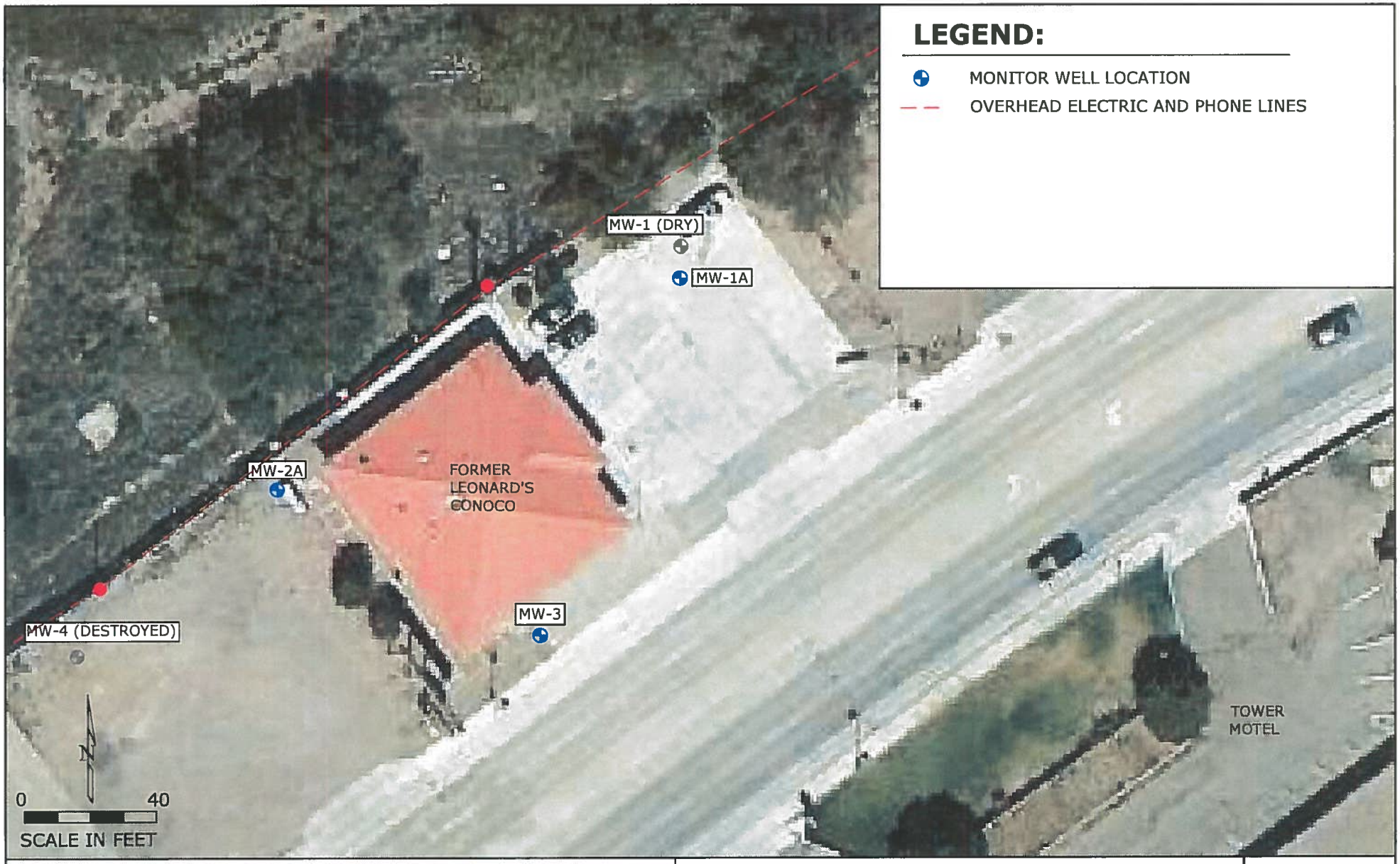
SITE LOCATION MAP

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

OCTOBER 30, 2013

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

ORGANIC RESULTS MAP - SOIL

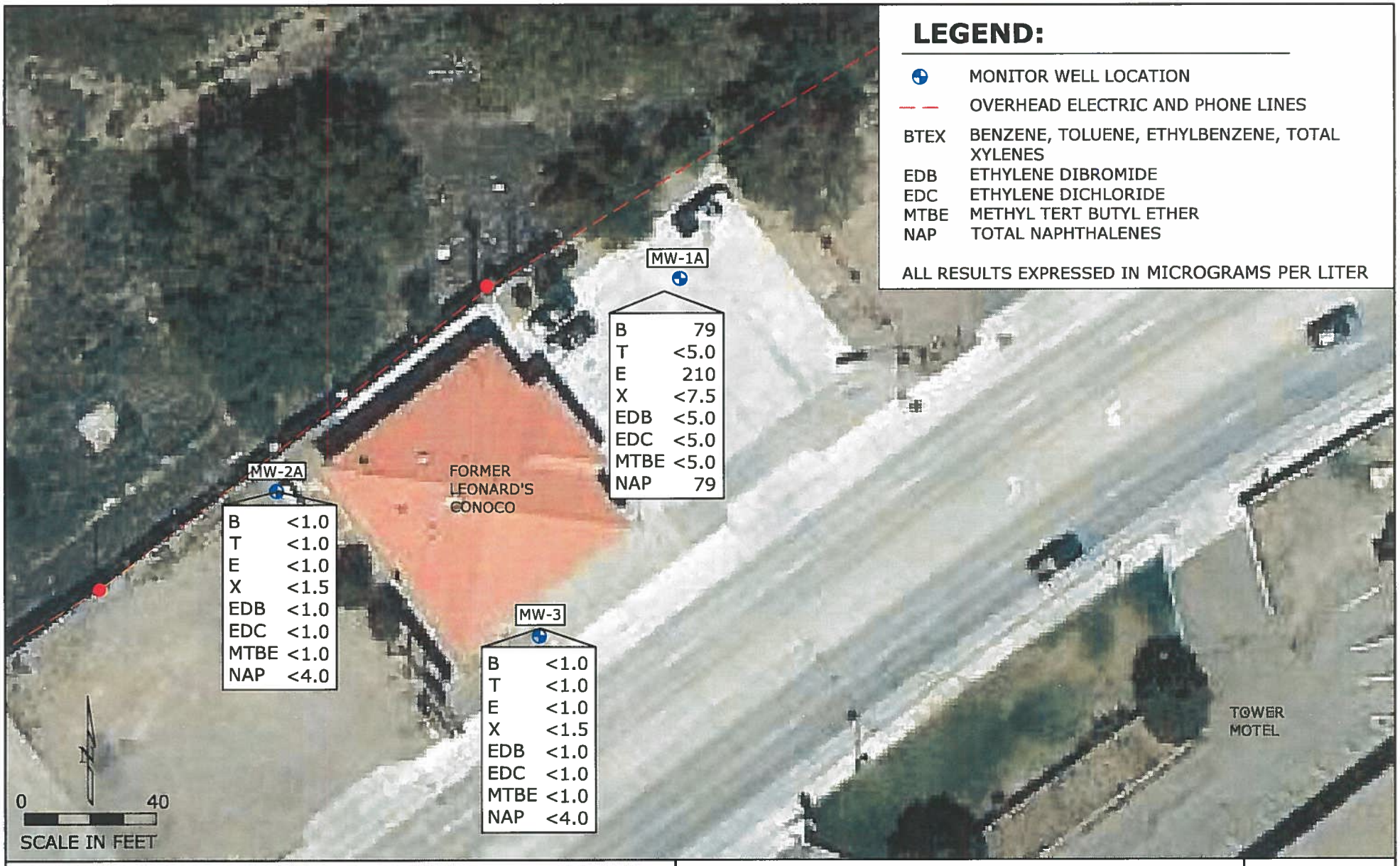
OCTOBER 25, 2013

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

ORGANICS RESULTS MAP - GROUNDWATER

OCTOBER 25, 2013

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

Source: Google Earth Image-2012

FIGURE

5

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

DISSOLVED BENZENE MAP

OCTOBER 25, 2013

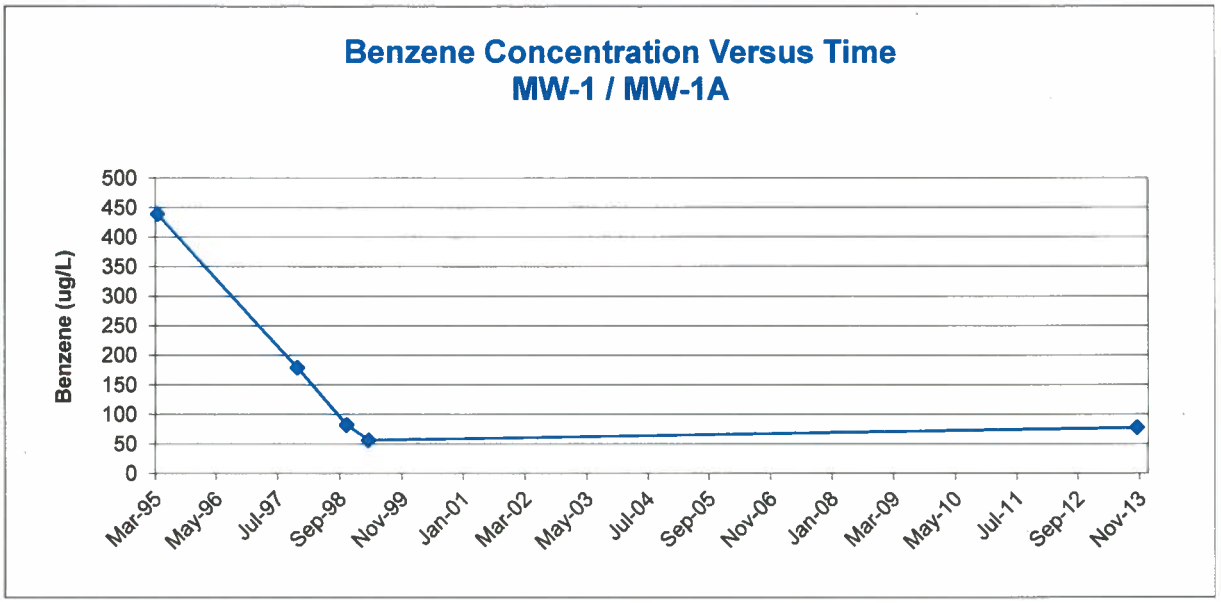
LEONARD'S CONOCO
603 PARKER AVENUE
SANTA ROSA, NEW MEXICO

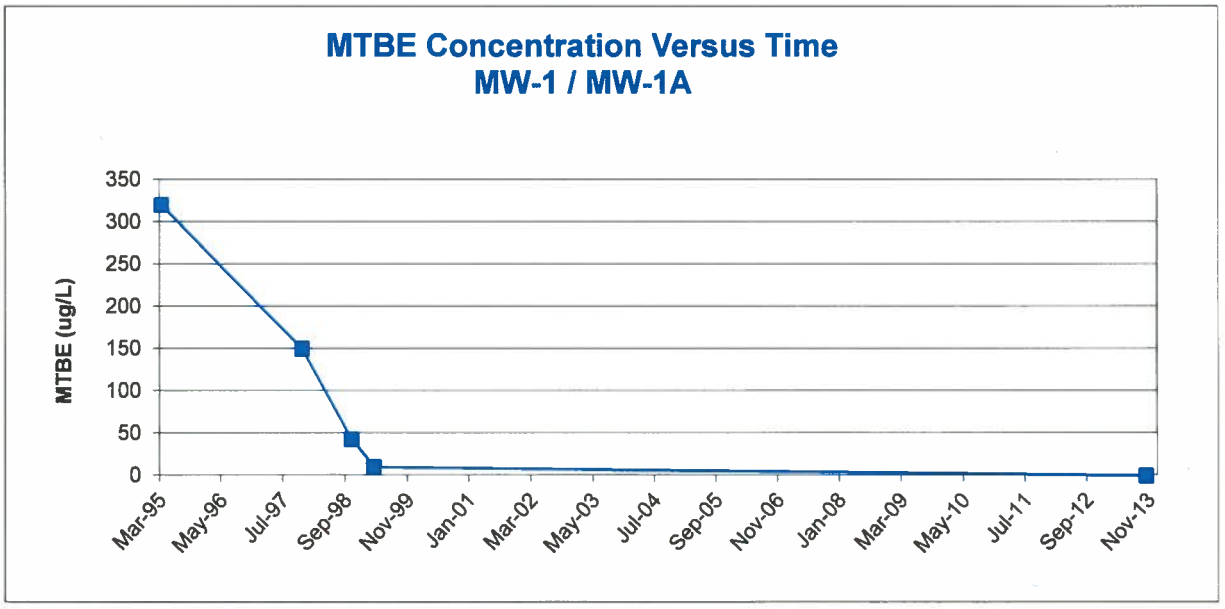
Source: Google Earth Image-2012

FIGURE

6

FIGURE 7
MW-1 / MW-1A BENZENE AND MTBE CONCENTRATIONS VERSUS TIME
LEONARD'S CONOCOO, SANTA ROSA, NEW MEXICO





APPENDIX A

SAMPLING PROTOCOLS

The current depth to groundwater is undetermined; however, depth to groundwater has been assumed to be approximately 14 feet for cost estimating purposes. Drilling will proceed at MW-1A until the depth to groundwater and vertical extent of petroleum contamination have been determined.

The split spoon soil samplers will be decontaminated prior to use and between core runs using Alconox detergent solution and tap water rinse. The augers and associated drilling equipment will be pressure washed prior to arrival at the site to prevent cross-contamination.
Each soil sample will be field-screened for organic vapors in accordance with the heated headspace methods described in the GCA. Disposable nitrile gloves will be worn and replaced between samples. Samples will not be exposed to direct sunlight during testing. Soil samples will be described on boring logs with respect to color, lithology, plasticity, moisture content, grain size, staining, odor and vapor concentration. Petroleum-saturation, if observed, will also be documented.

6.2 Soil Sample Analyses

Subsurface Soil Sample Selection – To evaluate the soil to water pathway, two subsurface soil samples for laboratory analyses will be selected the boring using the following criteria:

- the sample with the greatest headspace vapor concentration, and
- the sample obtained at the air/water interface

(If the sample at the air/water interface contains the greatest headspace vapor concentration, the sample from mid-depth of the boring will also be selected.)

Laboratory Analyses – The release is attributed to both gasoline and diesel. Therefore, each laboratory soil sample (2 subsurface) will be analyzed in accordance with Table 4-1 of the GCA for the following:

- volatile organic compounds + naphthalenes (VOCs + naphthalenes) – EPA Method 8260

Both soil samples for volatiles analysis will be field-preserved using methanol extraction procedures. The samples will be extruded from clean 10-cc plungers into clean vials with pre-measured methanol. Both soil samples and a methanol trip blank will be stored on ice pending delivery to the laboratory. Soil sample analyses are summarized in Table 1.

6.3 Monitor Well Construction

The monitor well will be constructed of 2-inch-diameter Sch 40 PVC threaded pipe and 10 feet of 0.010-inch slotted screen with a threaded bottom cap. The screen will be placed approximately 3 feet above and 7 feet below the water table (estimated total depth of 21 feet). Graded 10/20 silica sand filterpack will be placed two feet above the top of the screen. Three feet of bentonite pellets will be placed above the sand pack and hydrated with a minimum of five gallons of clean tap water. Well construction materials will be installed through the augers for maximum well integrity.
The remaining annular space will be filled with Portland neat cement. The monitor well will be completed with an 8-inch diameter steel flush-mount manhole cover set in a 6-inch thick concrete pad. The monitor well casing will be sealed with a watertight compression cap. The north side of the top-of-casing will be permanently marked to establish a consistent water level measuring point.

As previously described, depth to groundwater is estimated at 14 feet. HAI will communicate with the PSTB from the field if groundwater is not encountered within the upper 14-15 feet. Drilling costs will be adjusted accordingly (with PSTB approval) using the unit costs presented in Table 2 and the Cost Detail Forms.

6.4 Monitor Well Development

Monitor well MW-1A will be developed within 48 hours of completion using new disposable bailers. The well will be developed of a minimum of 10 well volumes, or until dry. Development will be considered complete when minimal turbidity is observed and measurements of conductivity, temperature, pH, dissolved oxygen and oxidation-reduction potential have stabilized to within ±10 percent over two successive well volumes. Unless non-aqueous phase liquid (NAPL) is present, development water will be ground-discharged on-site. Monitor well development data will be recorded on a monitor well sampling form and presented in the monitor well installation and groundwater monitoring report.

7.0 GROUNDWATER MONITORING

7.1 Static Water Levels

Prior to sampling, all located monitor wells and new monitor well MW-1A will be opened and allowed to barometrically equilibrate for approximately five minutes. A full set of static water levels will then be obtained from all 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 oil/water interface probe. The probe and tape will be decontaminated prior to use and between wells using an Alconox detergent solution and clean tap water rinse.

7.2 Monitor Well Sampling

New monitor well MW-1A and existing monitor well MW-3 will be purged and sampled using new disposable poly bailers. Purge water will be observed for the presence of odor, product or sheen. Each well will be purged of a minimum of three well volumes. Purging will not be considered complete until a minimum of three well volumes have been removed, and field measurements of pH, temperature, specific conductivity (SC), oxidation-reduction potential (ORP), and dissolved oxygen (DO) have stabilized to within ±10 percent. Purge water will be ground-discharged in close proximity to each well. Purge volumes, field parameter measurements, and observations of NAPL or sheen will be recorded on field sampling forms and presented in the report. Any monitor wells containing measurable NAPL will not be sampled.

7.3 Groundwater Sample Analysis

Each groundwater sample will be analyzed for the following:

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

Groundwater samples for organics analyses will be decanted at a slow, non-turbulent rate into clean 40-milliliter vials with $HgCl_2$ preservative. Each vial will be filled to a meniscus, leaving no air or headspace in the vial.

APPENDIX B

HYDRAULIC GRADIENT CALCULATION

HYDRAULIC GRADIENT CALCULATION

Leonard's Conoco
603 Parker Avenue
Santa Rosa, New Mexico

Hydraulic Gradient – October 30, 2013

$$\frac{4602.52 - 4600.85}{90\ ft} = \frac{1.67\ ft}{90\ ft} = \textbf{0.02 ft/ft to the NW}$$

MW-3 static groundwater elevation:	6804.93
MW-2A static groundwater elevation:	6804.46
Distance between MW-2A and MW-3:	90 feet

APPENDIX C

MONITOR WELL LOG

Haller & Associates, Inc.
Environmental Services & Geoscience
PO Box 1667, 12216B N Hwy 14, Suite 6, Cedar Crest, NM 87008

WELL LOG: MW-1A

COMPLETION DATE: OCTOBER 25, 2013
TOTAL WELL DEPTH: 19 FT BGS

PROJECT INFORMATION

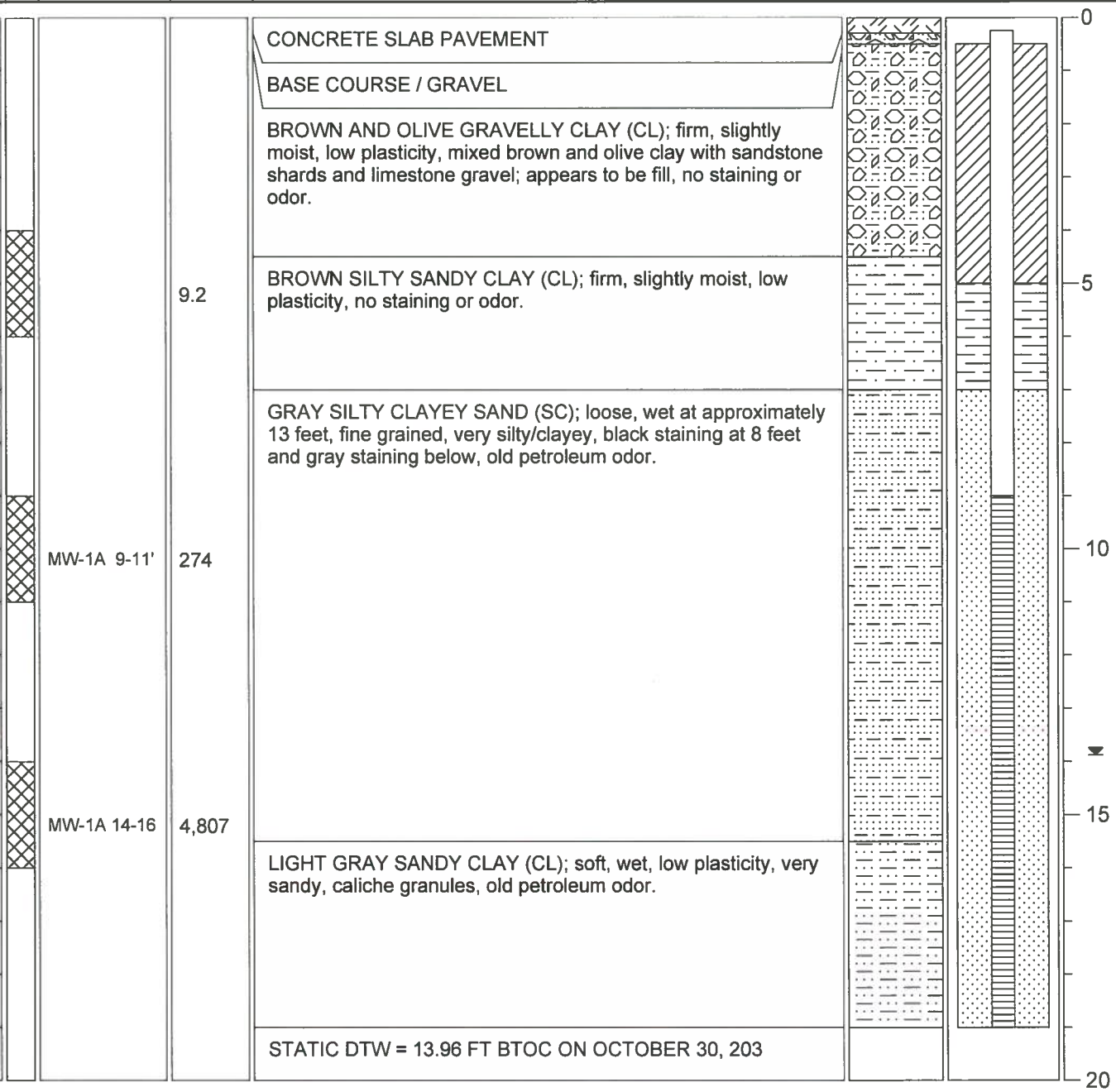
LOCATION	LEONARD'S CONOCO
ADDRESS:	603 PARKER AVE, SANTA ROSA, NM
GEOLOGIST:	TIMOTHY M. HALLER, CPG
DRILLER:	RODGERS ENVIRONMENTAL
DRILL METHOD:	7-5/8" HOLLOW-STEM AUGERS
SAMPLE TYPE:	SPLIT SPOONS

CONSTRUCTION DETAILS

CASING ELEVATION:	4616.02 FT MSL
SCREEN INTERVAL:	9-19 FT BGS
BENTONITE INTERVAL:	5-7 FT BGS
SANDPACK INTERVAL:	7-19 FT BGS
CASING TYPE:	2" ID PVC
SCREEN SIZE:	0.020" SLOTS

NOTES: MW-1A DRILLED 9.9 FEET SOUTH OF MW-1

DEPTH (FEET)	SAMPLE ID	PID (PPM-V)	LITHOLOGIC DESCRIPTION
0			CONCRETE SLAB PAVEMENT
			BASE COURSE / GRAVEL
			BROWN AND OLIVE GRAVELLY CLAY (CL); firm, slightly moist, low plasticity, mixed brown and olive clay with sandstone shards and limestone gravel; appears to be fill, no staining or odor.
5		9.2	BROWN SILTY SANDY CLAY (CL); firm, slightly moist, low plasticity, no staining or odor.
			GRAY SILTY CLAYEY SAND (SC); loose, wet at approximately 13 feet, fine grained, very silty/clayey, black staining at 8 feet and gray staining below, old petroleum odor.
10	MW-1A 9-11'	274	
15	MW-1A 14-16	4,807	LIGHT GRAY SANDY CLAY (CL); soft, wet, low plasticity, very sandy, caliche granules, old petroleum odor.
			STATIC DTW = 13.96 FT BTOC ON OCTOBER 30, 203
20			



APPENDIX D

GROUNDWATER FIELD SAMPLING FORMS

Haller & Associates, Inc.
Environmental Services & Geoscience

MONITOR WELL SAMPLING FIELD FORM

Well ID MW-1A
Site Leonard's Conoco - Santa Rosa, NM

Date Gauged 10-25-13
Time Gauged

Depth to NAPL — ft.
Depth to water 13.88 ft.
Total Depth 19.7 ft.

Well diameter 2 in.
Height of fluid column 5.82 ft.
Volume in well 1.0 gal.

(3 well volumes = 3.0 gallons)

GROUNDWATER SAMPLING DATA

Time/date purged 1630/10-25-13 Purge method new poly disposable bailer

Temp.	17.5	Cond.	2418	pH	6.96	ORP	-40.2	DO	0.00	Gal	2.0
Temp.	16.5	Cond.	2322	pH	6.97	ORP	-44.5	DO	0.00	Gal	4.0
Temp.	16.2	Cond.	2318	pH	6.96	ORP	-32.7	DO	0.00	Gal	6.0
Temp.	16.1	Cond.	2307	pH	6.95	ORP	-20.1	DO	0.00	Gal	8.0
Temp.	15.9	Cond.	2311	pH	6.97	ORP	-24.6	DO	0.00	Gal	10
Temp.		Cond.		pH		ORP		DO		Gal	

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

Time/date sampled 1640/10-25-13 Purged/Sampled by TMH

Sample method new poly disposable bailer

Requested analyses VOCs 8260B, $HgCl_2$ preservative

Comments/observations V. CLOUDY; GRAY; SLIGHT HC ODOR; NO SHEEN
ferrous iron: <0.1 mg/L

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-2A
Site Leonard's Conoco - Santa Rosa, NM

Date Gauged 10-25-13
Time Gauged 1400

Depth to NAPL — ft.
Depth to water 12.36 ft.
Total Depth 13.7 ft.

Well diameter 2 in.
Height of fluid column 1.34 ft.
Volume in well 0.23 gal.

(3 well volumes = 0.7 gallons)

GROUNDWATER SAMPLING DATA

Time/date purged 1430/10-25-13 Purge method new poly disposable bailer

Temp.	17.3	Cond.	2230	pH	6.99	ORP	-13.8	DO 0.00	Gal 0.5
Temp.	16.4	Cond.	1955	pH	6.89	ORP	-22.7	DO 0.00	Gal 1.0 (DRY)
Temp.		Cond.		pH		ORP		DO	Gal
Temp.		Cond.		pH		ORP		DO	Gal
Temp.		Cond.		pH		ORP		DO	Gal
Temp.		Cond.		pH		ORP		DO	Gal

Actual purged volume 1.0 gal. Field measurements stabilized within ±10%? NO

Time/date sampled 1440/10-25-13 Purged/Sampled by TMH

Sample method new poly disposable bailer

Requested analyses VOCs 8260B, $HgCl_2$ preservative

Comments/observations SEWER ODOR, GRAY, CLOUDY, NO SHEEN.
ferrous iron: N/A - TOO TURBID TO TEST

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*

Haller & Associates, Inc.
Environmental Services & Geoscience

MONITOR WELL SAMPLING FIELD FORM

Well ID MW-3 Date Gauged 10-25-13

Site Leonard's Conoco - Santa Rosa, NM Time Gauged 1410

Depth to NAPL — ft. Well diameter 2 in.

Depth to water 12.22 ft. Height of fluid column 16.58 ft.

Total Depth 28.8 ft. Volume in well 2.8 gal.

(3 well volumes = 8.5 gallons)

GROUNDWATER SAMPLING DATA

Time/date purged 1510/10-25-13 Purge method new poly disposable bailer

Temp.	16.6	Cond.	1970	pH	7.02	ORP	53.3	DO	0.81	Gal	3
Temp.	16.1	Cond.	1943	pH	7.01	ORP	41.0	DO	0.22	Gal	6
Temp.	16.0	Cond.	1935	pH	7.01	ORP	32.4	DO	0.16	Gal	9
Temp.		Cond.		pH		ORP		DO		Gal	
Temp.		Cond.		pH		ORP		DO		Gal	
Temp.		Cond.		pH		ORP		DO		Gal	

Actual purged volume 9 gal. Field measurements stabilized within ±10%? YES

Time/date sampled 1515/10-25-13 Purged/Sampled by TMH

Sample method new poly disposable bailer

Requested analyses VOCs 8260B, $HgCl_2$ preservative

Comments/observations BROWN CLOUDY; NO ODOR OR SHEEN

ferrous iron: <0.1 mg/L

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 E

PHOTOGRAPHS

Leonard's Conoco Monitor Well Photos
October 2013

Photograph 1. View existing monitor well MW-1 in concrete slab pavement.

Photograph 2. MW-1 casing in foreground, looking toward site building.

Leonard's Conoco Monitor Well Photos
October 2013

Photograph 3. MW-2A casing and well cover, both in relatively good condition.

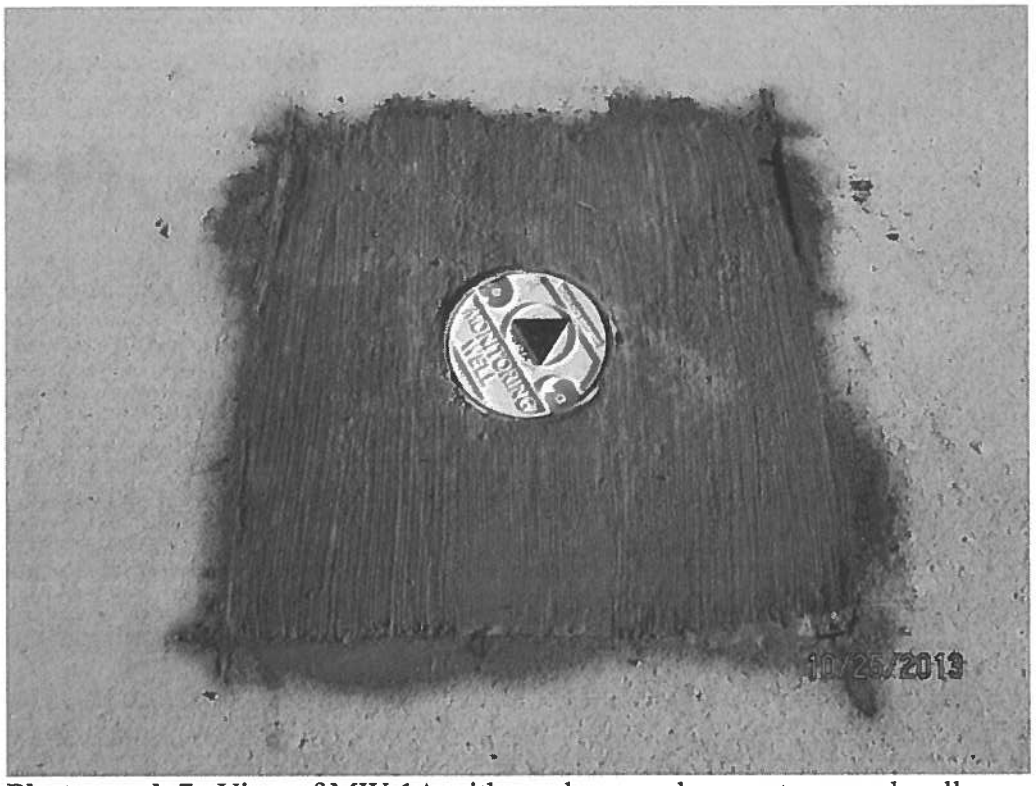
Photograph 4. View of MW-2A, showing location near propane tank near northwest corner of site building.

Leonard's Conoco Monitor Well Photos
October 2013

Photograph 5. MW-3 casing and well cover, with cracked concrete collar.

Photograph 6. View of MW-3, showing location near south-central side of site building.

Leonard's Conoco Monitor Well Photos
October 2013



Photograph 7. View of MW-1A with newly poured concrete around well cover.

Photograph 8. MW-1 casing (lower left) and replacement well MW-1A located 9.9 feet away, looking toward site building.

APPENDIX F

SURVEY REPORT

Project Information		Coordinate System	
Name:	DEC-Haller-SantaRosa-Nov7-13.vce	Name:	US State Plane 1983
Size:	218 KB	Datum:	NAD 1983 (Conus)
Modified:	11/7/2013(UTC:-7)	Zone:	New Mexico East 3001
Time zone:	Mountain Standard Time	Geoid:	GEOID09 (Conus)
Description:		Vertical datum:	NAVD88

Point List

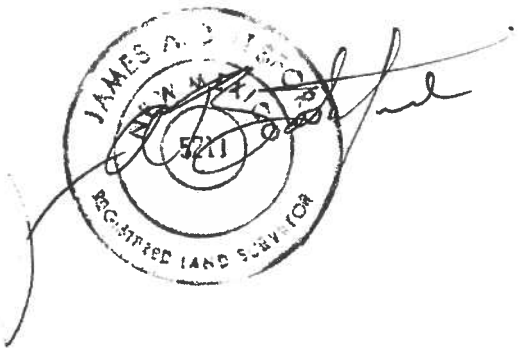
ID	Northing (US survey foot)	Easting (US survey foot)	Elevation (US survey foot)	Feature Code
1	1434993.033	435933.768	4616.019	MW-1A TOP N-SIDE PVC
2	1434926.723	435823.767	4613.391	MW-2A TOP N-SIDE PVC
3	1434884.020	435902.517	4615.021	MW-3A TOP N-SIDE PVC
100	1434920.483	435831.529	4614.387	PROPANE TANK
101	1434928.517	435825.397	4613.800	PROPANE TANK
102	1434936.422	435823.798	4616.779	OUTSIDE WALL COR
103	1434931.341	435834.632	4616.552	BLDG 4FT E
104	1434880.104	435874.690	4616.503	BLDG 4FT E
105	1434879.521	435880.724	4616.361	BLDG 4FT N
106	1434915.495	435926.188	4616.523	BLDG 4FT N
107	1434962.969	436011.952	4618.760	BK WALK
108	1434972.584	436015.164	4619.145	WATER METER
109	1434963.116	436021.674	4618.913	TOP BK CURB
110	1434952.052	436006.522	4618.376	TOP BK CURB
111	1434938.087	435988.332	4617.894	TOP BK CURB CUT ST
112	1434913.605	435956.790	4616.725	TOP BK CURB CUT ND
113	1434877.575	435910.875	4614.998	TOP BK CURB
114	1434845.417	435869.917	4613.414	TOP BK CURB
115	1434849.192	435866.911	4613.470	BK WALK
116	1434880.370	435906.555	4615.169	BK WALK
117	1434880.704	435906.345	4615.264	BK WALK
118	1434866.786	435889.510	4614.436	STREET LIGHL 2FT N
119	1434865.371	435885.053	4614.252	ENMR PLATEAU BOX
120	1434863.627	435883.024	4614.159	ENMR PLATEAU BOX
121	1434865.079	435881.690	4614.201	ENMR PLATEAU BOX
122	1434866.614	435883.768	4614.264	ENMR PLATEAU BOX
123	1434865.838	435880.713	4614.076	ENMR PLATEAU FO SIGN
124	1434869.322	435876.726	4616.051	TOP OUTSIDE WALL
125	1434885.185	435897.269	4616.316	TOP OUTSIDE WALL

ID	Northing (US survey foot)	Easting (US survey foot)	Elevation (US survey foot)	Feature Code
126	1434917.498	435930.951	4616.505	FLAG POLE 2FT N
127	1434956.151	436006.396	4618.605	STREET LIGHT 2FT N
128	1434984.529	435882.795	4616.304	PWR POLE 2FT W
129	1434898.793	435773.747	4612.007	PWR POLE 2FT W
5000	1434918.630	435820.536	4613.314	NAI SET BASE

Field data for this project was obtained using Trimble R8 dual frequency GPS receivers in RTK and Static mode. Horizontal and vertical control calibration was generated from National Geodetic Survey's Online Positioning User Service (OPUS) with an observation at the base control point-Point 5000.

Coordinates are NAD83, New Mexico State Plane East Zone, in US survey feet. All coordinates are on the State Plane "Grid". All elevations are NAVD88.

All work was completed by James a. Botsford, NMPS No. 5211 on November 7, 2013.



APPENDIX G

LABORATORY REPORTS

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 05, 2013

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.: 1310D36

Dear Tim Haller:

Hall Environmental Analysis Laboratory received 8 sample(s) on 10/28/2013 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: 1310D36-001

Client Sample ID: MW-1A 9-11'
Collection Date: 10/25/2013 8:40:00 AM
Matrix: MEOH (SOIL) **Received Date:** 10/28/2013 4:03:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **JMP**	
Benzene	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
Toluene	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
Ethylbenzene	0.087	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
Methyl tert-butyl ether (MTBE)	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
1,2,4-Trimethylbenzene	0.097	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
1,3,5-Trimethylbenzene	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
1,2-Dichloroethane (EDC)	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
1,2-Dibromoethane (EDB)	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
Naphthalene	0.13	0.10		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
1-Methylnaphthalene	ND	0.20		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
2-Methylnaphthalene	ND	0.20		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
Acetone	ND	0.75		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
Bromobenzene	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
Bromodichloromethane	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
Bromoform	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
Bromomethane	ND	0.15		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
2-Butanone	ND	0.50		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
Carbon disulfide	ND	0.50		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
Carbon tetrachloride	ND	0.10		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
Chlorobenzene	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
Chloroethane	ND	0.10		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
Chloroform	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
Chloromethane	ND	0.15		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
2-Chlorotoluene	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
4-Chlorotoluene	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
cis-1,2-DCE	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
cis-1,3-Dichloropropene	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
1,2-Dibromo-3-chloropropane	ND	0.10		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
Dibromochloromethane	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
Dibromomethane	ND	0.10		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
1,2-Dichlorobenzene	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
1,3-Dichlorobenzene	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
1,4-Dichlorobenzene	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
Dichlorodifluoromethane	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
1,1-Dichloroethane	ND	0.10		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
1,1-Dichloroethene	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
1,2-Dichloropropane	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
1,3-Dichloropropane	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
2,2-Dichloropropane	ND	0.10		mg/Kg	1	10/30/2013 1:07:46 AM	R14424

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 for VOA and TOC only.
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
Client Sample ID: MW-1A 9-11'
Project: Leonard's Conoco
Collection Date: 10/25/2013 8:40:00 AM
Lab ID: 1310D36-001
Matrix: MEOH (SOIL)
Received Date: 10/28/2013 4:03:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **JMP**	
1,1-Dichloropropene	ND	0.10		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
Hexachlorobutadiene	ND	0.10		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
2-Hexanone	ND	0.50		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
Isopropylbenzene	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
4-Isopropyltoluene	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
4-Methyl-2-pentanone	ND	0.50		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
Methylene chloride	ND	0.15		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
n-Butylbenzene	ND	0.15		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
n-Propylbenzene	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
sec-Butylbenzene	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
Styrene	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
tert-Butylbenzene	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
1,1,1,2-Tetrachloroethane	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
1,1,2,2-Tetrachloroethane	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
Tetrachloroethene (PCE)	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
trans-1,2-DCE	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
trans-1,3-Dichloropropene	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
1,2,3-Trichlorobenzene	ND	0.10		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
1,2,4-Trichlorobenzene	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
1,1,1-Trichloroethane	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
1,1,2-Trichloroethane	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
Trichloroethene (TCE)	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
Trichlorofluoromethane	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
1,2,3-Trichloropropane	ND	0.10		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
Vinyl chloride	ND	0.050		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
Xylenes, Total	ND	0.10		mg/Kg	1	10/30/2013 1:07:46 AM	R14424
Surr: 1,2-Dichloroethane-d4	92.8	70-130		%REC	1	10/30/2013 1:07:46 AM	R14424
Surr: 4-Bromofluorobenzene	91.7	70-130		%REC	1	10/30/2013 1:07:46 AM	R14424
Surr: Dibromofluoromethane	95.8	70-130		%REC	1	10/30/2013 1:07:46 AM	R14424
Surr: Toluene-d8	97.4	70-130		%REC	1	10/30/2013 1:07:46 AM	R14424

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 for VOA and TOC only.
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
Client Sample ID: MW-1A 14-16'
Project: Leonard's Conoco
Collection Date: 10/25/2013 9:00:00 AM
Lab ID: 1310D36-002
Matrix: MEOH (SOIL)
Received Date: 10/28/2013 4:03:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **JMP**	
Benzene	1.4	1.2		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
Toluene	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
Ethylbenzene	20	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
Methyl tert-butyl ether (MTBE)	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
1,2,4-Trimethylbenzene	30	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
1,3,5-Trimethylbenzene	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
1,2-Dichloroethane (EDC)	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
1,2-Dibromoethane (EDB)	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
Naphthalene	6.3	5.0		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
1-Methylnaphthalene	ND	10		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
2-Methylnaphthalene	ND	10		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
Acetone	ND	38		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
Bromobenzene	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
Bromodichloromethane	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
Bromoform	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
Bromomethane	ND	7.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
2-Butanone	ND	25		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
Carbon disulfide	ND	25		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
Carbon tetrachloride	ND	5.0		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
Chlorobenzene	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
Chloroethane	ND	5.0		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
Chloroform	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
Chloromethane	ND	7.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
2-Chlorotoluene	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
4-Chlorotoluene	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
cis-1,2-DCE	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
cis-1,3-Dichloropropene	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
1,2-Dibromo-3-chloropropane	ND	5.0		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
Dibromochloromethane	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
Dibromomethane	ND	5.0		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
1,2-Dichlorobenzene	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
1,3-Dichlorobenzene	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
1,4-Dichlorobenzene	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
Dichlorodifluoromethane	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
1,1-Dichloroethane	ND	5.0		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
1,1-Dichloroethene	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
1,2-Dichloropropane	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
1,3-Dichloropropane	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
2,2-Dichloropropane	ND	5.0		mg/Kg	50	10/30/2013 3:00:56 AM	R14424

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 for VOA and TOC only.
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
Client Sample ID: MW-1A 14-16'
Project: Leonard's Conoco
Collection Date: 10/25/2013 9:00:00 AM
Lab ID: 1310D36-002
Matrix: MEOH (SOIL)
Received Date: 10/28/2013 4:03:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **JMP**	
1,1-Dichloropropene	ND	5.0		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
Hexachlorobutadiene	ND	5.0		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
2-Hexanone	ND	25		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
Isopropylbenzene	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
4-Isopropyltoluene	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
4-Methyl-2-pentanone	ND	25		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
Methylene chloride	ND	7.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
n-Butylbenzene	ND	7.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
n-Propylbenzene	7.8	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
sec-Butylbenzene	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
Styrene	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
tert-Butylbenzene	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
1,1,1,2-Tetrachloroethane	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
1,1,2,2-Tetrachloroethane	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
Tetrachloroethene (PCE)	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
trans-1,2-DCE	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
trans-1,3-Dichloropropene	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
1,2,3-Trichlorobenzene	ND	5.0		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
1,2,4-Trichlorobenzene	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
1,1,1-Trichloroethane	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
1,1,2-Trichloroethane	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
Trichloroethene (TCE)	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
Trichlorofluoromethane	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
1,2,3-Trichloropropane	ND	5.0		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
Vinyl chloride	ND	2.5		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
Xylenes, Total	ND	5.0		mg/Kg	50	10/30/2013 3:00:56 AM	R14424
Surr: 1,2-Dichloroethane-d4	96.0	70-130		%REC	50	10/30/2013 3:00:56 AM	R14424
Surr: 4-Bromofluorobenzene	91.8	70-130		%REC	50	10/30/2013 3:00:56 AM	R14424
Surr: Dibromofluoromethane	93.1	70-130		%REC	50	10/30/2013 3:00:56 AM	R14424
Surr: Toluene-d8	94.6	70-130		%REC	50	10/30/2013 3:00:56 AM	R14424

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 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Analytical Report
Lab Order **1310D36**
Date Reported: **11/5/2013**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Haller and Associates
Client Sample ID: Drill Cuttings
Project: Leonard's Conoco
Collection Date: 10/25/2013 4:20:00 PM
Lab ID: 1310D36-003
Matrix: MEOH (SOIL)
Received Date: 10/28/2013 4:03:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	66	10		mg/Kg	1	10/30/2013 6:18:18 PM	10068
Surr: DNOP	103	66-131		%REC	1	10/30/2013 6:18:18 PM	10068
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	540	25		mg/Kg	5	10/30/2013 1:30:42 AM	R14419
Surr: BFB	353	74.5-129	S	%REC	5	10/30/2013 1:30:42 AM	R14419
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.50		mg/Kg	5	10/30/2013 1:30:42 AM	R14419
Benzene	ND	0.12		mg/Kg	5	10/30/2013 1:30:42 AM	R14419
Toluene	ND	0.25		mg/Kg	5	10/30/2013 1:30:42 AM	R14419
Ethylbenzene	9.6	0.25		mg/Kg	5	10/30/2013 1:30:42 AM	R14419
Xylenes, Total	ND	0.50		mg/Kg	5	10/30/2013 1:30:42 AM	R14419
Surr: 4-Bromofluorobenzene	151	80-120	S	%REC	5	10/30/2013 1:30:42 AM	R14419
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Lead	4.1	0.25		mg/Kg	1	11/5/2013 10:02:56 AM	10159

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 for VOA and TOC only.
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
Client Sample ID: MeOH BLANK
Project: Leonard's Conoco
Collection Date:
Lab ID: 1310D36-004
Matrix: MEOH BLAN
Received Date: 10/28/2013 4:03:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **JMP**	
Benzene	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
Toluene	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
Ethylbenzene	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
Methyl tert-butyl ether (MTBE)	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
1,2,4-Trimethylbenzene	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
1,3,5-Trimethylbenzene	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
1,2-Dichloroethane (EDC)	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
1,2-Dibromoethane (EDB)	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
Naphthalene	ND	0.10		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
1-Methylnaphthalene	ND	0.20		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
2-Methylnaphthalene	ND	0.20		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
Acetone	ND	0.75		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
Bromobenzene	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
Bromodichloromethane	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
Bromoform	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
Bromomethane	ND	0.15		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
2-Butanone	ND	0.50		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
Carbon disulfide	ND	0.50		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
Carbon tetrachloride	ND	0.10		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
Chlorobenzene	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
Chloroethane	ND	0.10		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
Chloroform	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
Chloromethane	ND	0.15		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
2-Chlorotoluene	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
4-Chlorotoluene	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
cis-1,2-DCE	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
cis-1,3-Dichloropropene	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
1,2-Dibromo-3-chloropropane	ND	0.10		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
Dibromochloromethane	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
Dibromomethane	ND	0.10		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
1,2-Dichlorobenzene	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
1,3-Dichlorobenzene	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
1,4-Dichlorobenzene	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
Dichlorodifluoromethane	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
1,1-Dichloroethane	ND	0.10		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
1,1-Dichloroethene	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
1,2-Dichloropropane	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
1,3-Dichloropropane	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
2,2-Dichloropropane	ND	0.10		mg/Kg	1	10/30/2013 12:39:35 AM	R14424

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 for VOA and TOC only.
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
Client Sample ID: MeOH BLANK
Project: Leonard's Conoco
Collection Date:
Lab ID: 1310D36-004
Matrix: MEOH BLAN
Received Date: 10/28/2013 4:03:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **JMP**	
1,1-Dichloropropene	ND	0.10		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
Hexachlorobutadiene	ND	0.10		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
2-Hexanone	ND	0.50		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
Isopropylbenzene	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
4-Isopropyltoluene	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
4-Methyl-2-pentanone	ND	0.50		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
Methylene chloride	ND	0.15		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
n-Butylbenzene	ND	0.15		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
n-Propylbenzene	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
sec-Butylbenzene	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
Styrene	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
tert-Butylbenzene	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
1,1,1,2-Tetrachloroethane	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
1,1,2,2-Tetrachloroethane	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
Tetrachloroethene (PCE)	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
trans-1,2-DCE	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
trans-1,3-Dichloropropene	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
1,2,3-Trichlorobenzene	ND	0.10		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
1,2,4-Trichlorobenzene	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
1,1,1-Trichloroethane	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
1,1,2-Trichloroethane	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
Trichloroethene (TCE)	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
Trichlorofluoromethane	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
1,2,3-Trichloropropane	ND	0.10		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
Vinyl chloride	ND	0.050		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
Xylenes, Total	ND	0.10		mg/Kg	1	10/30/2013 12:39:35 AM	R14424
Surr: 1,2-Dichloroethane-d4	90.1	70-130		%REC	1	10/30/2013 12:39:35 AM	R14424
Surr: 4-Bromofluorobenzene	98.3	70-130		%REC	1	10/30/2013 12:39:35 AM	R14424
Surr: Dibromofluoromethane	93.3	70-130		%REC	1	10/30/2013 12:39:35 AM	R14424
Surr: Toluene-d8	95.7	70-130		%REC	1	10/30/2013 12:39:35 AM	R14424

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 for VOA and TOC only.
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: 1310D36-005
Matrix: AQUEOUS
Client Sample ID: MW-1A
Collection Date: 10/25/2013 4:40:00 PM
Received Date: 10/28/2013 4:03:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
Benzene	79	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
Toluene	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
Ethylbenzene	210	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
Methyl tert-butyl ether (MTBE)	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
1,2,4-Trimethylbenzene	64	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
1,3,5-Trimethylbenzene	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
1,2-Dichloroethane (EDC)	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
1,2-Dibromoethane (EDB)	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
Naphthalene	58	10		µg/L	5	10/30/2013 1:36:19 PM	R14462
1-Methylnaphthalene	ND	20		µg/L	5	10/30/2013 1:36:19 PM	R14462
2-Methylnaphthalene	21	20		µg/L	5	10/30/2013 1:36:19 PM	R14462
Acetone	ND	50		µg/L	5	10/30/2013 1:36:19 PM	R14462
Bromobenzene	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
Bromodichloromethane	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
Bromoform	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
Bromomethane	ND	15		µg/L	5	10/30/2013 1:36:19 PM	R14462
2-Butanone	ND	50		µg/L	5	10/30/2013 1:36:19 PM	R14462
Carbon disulfide	ND	50		µg/L	5	10/30/2013 1:36:19 PM	R14462
Carbon Tetrachloride	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
Chlorobenzene	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
Chloroethane	ND	10		µg/L	5	10/30/2013 1:36:19 PM	R14462
Chloroform	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
Chloromethane	ND	15		µg/L	5	10/30/2013 1:36:19 PM	R14462
2-Chlorotoluene	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
4-Chlorotoluene	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
cis-1,2-DCE	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
cis-1,3-Dichloropropene	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
1,2-Dibromo-3-chloropropane	ND	10		µg/L	5	10/30/2013 1:36:19 PM	R14462
Dibromochloromethane	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
Dibromomethane	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
1,2-Dichlorobenzene	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
1,3-Dichlorobenzene	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
1,4-Dichlorobenzene	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
Dichlorodifluoromethane	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
1,1-Dichloroethane	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
1,1-Dichloroethene	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
1,2-Dichloropropane	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
1,3-Dichloropropane	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
2,2-Dichloropropane	ND	10		µg/L	5	10/30/2013 1:36:19 PM	R14462

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 for VOA and TOC only.
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: 1310D36-005
Matrix: AQUEOUS
Client Sample ID: MW-1A
Collection Date: 10/25/2013 4:40:00 PM
Received Date: 10/28/2013 4:03:00 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	10/30/2013 1:36:19 PM	R14462
Hexachlorobutadiene	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
2-Hexanone	ND	50		µg/L	5	10/30/2013 1:36:19 PM	R14462
Isopropylbenzene	13	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
4-Isopropyltoluene	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
4-Methyl-2-pentanone	ND	50		µg/L	5	10/30/2013 1:36:19 PM	R14462
Methylene Chloride	ND	15		µg/L	5	10/30/2013 1:36:19 PM	R14462
n-Butylbenzene	ND	15		µg/L	5	10/30/2013 1:36:19 PM	R14462
n-Propylbenzene	38	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
sec-Butylbenzene	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
Styrene	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
tert-Butylbenzene	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
1,1,1,2-Tetrachloroethane	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
1,1,2,2-Tetrachloroethane	ND	10		µg/L	5	10/30/2013 1:36:19 PM	R14462
Tetrachloroethene (PCE)	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
trans-1,2-DCE	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
trans-1,3-Dichloropropene	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
1,2,3-Trichlorobenzene	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
1,2,4-Trichlorobenzene	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
1,1,1-Trichloroethane	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
1,1,2-Trichloroethane	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
Trichloroethene (TCE)	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
Trichlorofluoromethane	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
1,2,3-Trichloropropane	ND	10		µg/L	5	10/30/2013 1:36:19 PM	R14462
Vinyl chloride	ND	5.0		µg/L	5	10/30/2013 1:36:19 PM	R14462
Xylenes, Total	ND	7.5		µg/L	5	10/30/2013 1:36:19 PM	R14462
Surr: 1,2-Dichloroethane-d4	106	70-130		%REC	5	10/30/2013 1:36:19 PM	R14462
Surr: 4-Bromofluorobenzene	79.5	70-130		%REC	5	10/30/2013 1:36:19 PM	R14462
Surr: Dibromofluoromethane	104	70-130		%REC	5	10/30/2013 1:36:19 PM	R14462
Surr: Toluene-d8	97.9	70-130		%REC	5	10/30/2013 1:36:19 PM	R14462

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 for VOA and TOC only.
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: 1310D36-006 **Matrix:** AQUEOUS

Client Sample ID: MW-2A
Collection Date: 10/25/2013 2:40:00 PM
Received Date: 10/28/2013 4:03:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
Benzene	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
Toluene	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
Ethylbenzene	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
Naphthalene	ND	2.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
1-Methylnaphthalene	ND	4.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
2-Methylnaphthalene	ND	4.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
Acetone	ND	10		µg/L	1	10/29/2013 4:55:49 PM	R14426
Bromobenzene	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
Bromodichloromethane	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
Bromoform	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
Bromomethane	ND	3.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
2-Butanone	ND	10		µg/L	1	10/29/2013 4:55:49 PM	R14426
Carbon disulfide	ND	10		µg/L	1	10/29/2013 4:55:49 PM	R14426
Carbon Tetrachloride	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
Chlorobenzene	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
Chloroethane	ND	2.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
Chloroform	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
Chloromethane	ND	3.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
2-Chlorotoluene	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
4-Chlorotoluene	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
cis-1,2-DCE	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
Dibromochloromethane	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
Dibromomethane	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
1,2-Dichlorobenzene	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
1,3-Dichlorobenzene	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
1,4-Dichlorobenzene	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
Dichlorodifluoromethane	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
1,1-Dichloroethane	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
1,1-Dichloroethene	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
1,2-Dichloropropane	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
1,3-Dichloropropane	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
2,2-Dichloropropane	ND	2.0		µg/L	1	10/29/2013 4:55:49 PM	R14426

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 for VOA and TOC only.
RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Haller and Associates
Client Sample ID: MW-2A
Project: Leonard's Conoco
Collection Date: 10/25/2013 2:40:00 PM
Lab ID: 1310D36-006
Matrix: AQUEOUS
Received Date: 10/28/2013 4:03:00 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	10/29/2013 4:55:49 PM	R14426
Hexachlorobutadiene	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
2-Hexanone	ND	10		µg/L	1	10/29/2013 4:55:49 PM	R14426
Isopropylbenzene	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
4-Isopropyltoluene	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
4-Methyl-2-pentanone	ND	10		µg/L	1	10/29/2013 4:55:49 PM	R14426
Methylene Chloride	ND	3.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
n-Butylbenzene	ND	3.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
n-Propylbenzene	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
sec-Butylbenzene	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
Styrene	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
tert-Butylbenzene	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
trans-1,2-DCE	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
1,1,1-Trichloroethane	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
1,1,2-Trichloroethane	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
Trichloroethene (TCE)	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
Trichlorofluoromethane	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
1,2,3-Trichloropropane	ND	2.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
Vinyl chloride	ND	1.0		µg/L	1	10/29/2013 4:55:49 PM	R14426
Xylenes, Total	ND	1.5		µg/L	1	10/29/2013 4:55:49 PM	R14426
Surr: 1,2-Dichloroethane-d4	103	70-130		%REC	1	10/29/2013 4:55:49 PM	R14426
Surr: 4-Bromofluorobenzene	99.4	70-130		%REC	1	10/29/2013 4:55:49 PM	R14426
Surr: Dibromofluoromethane	106	70-130		%REC	1	10/29/2013 4:55:49 PM	R14426
Surr: Toluene-d8	98.8	70-130		%REC	1	10/29/2013 4:55:49 PM	R14426

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 for VOA and TOC only.
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
Client Sample ID: MW-3
Project: Leonard's Conoco
Collection Date: 10/25/2013 3:15:00 PM
Lab ID: 1310D36-007
Matrix: AQUEOUS
Received Date: 10/28/2013 4:03:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
Benzene	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
Toluene	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
Ethylbenzene	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
Naphthalene	ND	2.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
1-Methylnaphthalene	ND	4.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
2-Methylnaphthalene	ND	4.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
Acetone	ND	10		µg/L	1	10/29/2013 5:24:27 PM	R14426
Bromobenzene	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
Bromodichloromethane	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
Bromoform	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
Bromomethane	ND	3.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
2-Butanone	ND	10		µg/L	1	10/29/2013 5:24:27 PM	R14426
Carbon disulfide	ND	10		µg/L	1	10/29/2013 5:24:27 PM	R14426
Carbon Tetrachloride	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
Chlorobenzene	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
Chloroethane	ND	2.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
Chloroform	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
Chloromethane	ND	3.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
2-Chlorotoluene	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
4-Chlorotoluene	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
cis-1,2-DCE	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
Dibromochloromethane	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
Dibromomethane	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
1,2-Dichlorobenzene	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
1,3-Dichlorobenzene	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
1,4-Dichlorobenzene	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
Dichlorodifluoromethane	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
1,1-Dichloroethane	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
1,1-Dichloroethene	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
1,2-Dichloropropane	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
1,3-Dichloropropane	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
2,2-Dichloropropane	ND	2.0		µg/L	1	10/29/2013 5:24:27 PM	R14426

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 for VOA and TOC only.
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: 1310D36-007 **Matrix:** AQUEOUS

Client Sample ID: MW-3
Collection Date: 10/25/2013 3:15:00 PM
Received Date: 10/28/2013 4:03:00 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	10/29/2013 5:24:27 PM	R14426
Hexachlorobutadiene	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
2-Hexanone	ND	10		µg/L	1	10/29/2013 5:24:27 PM	R14426
Isopropylbenzene	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
4-Isopropyltoluene	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
4-Methyl-2-pentanone	ND	10		µg/L	1	10/29/2013 5:24:27 PM	R14426
Methylene Chloride	ND	3.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
n-Butylbenzene	ND	3.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
n-Propylbenzene	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
sec-Butylbenzene	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
Styrene	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
tert-Butylbenzene	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
trans-1,2-DCE	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
1,1,1-Trichloroethane	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
1,1,2-Trichloroethane	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
Trichloroethene (TCE)	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
Trichlorofluoromethane	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
1,2,3-Trichloropropane	ND	2.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
Vinyl chloride	ND	1.0		µg/L	1	10/29/2013 5:24:27 PM	R14426
Xylenes, Total	ND	1.5		µg/L	1	10/29/2013 5:24:27 PM	R14426
Surr: 1,2-Dichloroethane-d4	102	70-130		%REC	1	10/29/2013 5:24:27 PM	R14426
Surr: 4-Bromofluorobenzene	99.6	70-130		%REC	1	10/29/2013 5:24:27 PM	R14426
Surr: Dibromofluoromethane	108	70-130		%REC	1	10/29/2013 5:24:27 PM	R14426
Surr: Toluene-d8	99.7	70-130		%REC	1	10/29/2013 5:24:27 PM	R14426

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 for VOA and TOC only.
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
Client Sample ID: Trip Blank
Project: Leonard's Conoco
Collection Date:
Lab ID: 1310D36-008
Matrix: TRIP BLANK
Received Date: 10/28/2013 4:03:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
Benzene	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
Toluene	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
Ethylbenzene	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
Naphthalene	ND	2.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
1-Methylnaphthalene	ND	4.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
2-Methylnaphthalene	ND	4.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
Acetone	ND	10		µg/L	1	10/29/2013 6:21:53 PM	R14426
Bromobenzene	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
Bromodichloromethane	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
Bromoform	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
Bromomethane	ND	3.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
2-Butanone	ND	10		µg/L	1	10/29/2013 6:21:53 PM	R14426
Carbon disulfide	ND	10		µg/L	1	10/29/2013 6:21:53 PM	R14426
Carbon Tetrachloride	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
Chlorobenzene	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
Chloroethane	ND	2.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
Chloroform	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
Chloromethane	ND	3.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
2-Chlorotoluene	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
4-Chlorotoluene	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
cis-1,2-DCE	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
Dibromochloromethane	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
Dibromomethane	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
1,2-Dichlorobenzene	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
1,3-Dichlorobenzene	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
1,4-Dichlorobenzene	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
Dichlorodifluoromethane	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
1,1-Dichloroethane	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
1,1-Dichloroethene	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
1,2-Dichloropropane	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
1,3-Dichloropropane	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
2,2-Dichloropropane	ND	2.0		µg/L	1	10/29/2013 6:21:53 PM	R14426

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 for VOA and TOC only.
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
Client Sample ID: Trip Blank
Project: Leonard's Conoco
Collection Date:
Lab ID: 1310D36-008
Matrix: TRIP BLANK
Received Date: 10/28/2013 4:03:00 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	10/29/2013 6:21:53 PM	R14426
Hexachlorobutadiene	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
2-Hexanone	ND	10		µg/L	1	10/29/2013 6:21:53 PM	R14426
Isopropylbenzene	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
4-Isopropyltoluene	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
4-Methyl-2-pentanone	ND	10		µg/L	1	10/29/2013 6:21:53 PM	R14426
Methylene Chloride	ND	3.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
n-Butylbenzene	ND	3.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
n-Propylbenzene	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
sec-Butylbenzene	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
Styrene	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
tert-Butylbenzene	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
trans-1,2-DCE	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
1,1,1-Trichloroethane	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
1,1,2-Trichloroethane	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
Trichloroethene (TCE)	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
Trichlorofluoromethane	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
1,2,3-Trichloropropane	ND	2.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
Vinyl chloride	ND	1.0		µg/L	1	10/29/2013 6:21:53 PM	R14426
Xylenes, Total	ND	1.5		µg/L	1	10/29/2013 6:21:53 PM	R14426
Surr: 1,2-Dichloroethane-d4	97.1	70-130		%REC	1	10/29/2013 6:21:53 PM	R14426
Surr: 4-Bromofluorobenzene	100	70-130		%REC	1	10/29/2013 6:21:53 PM	R14426
Surr: Dibromofluoromethane	102	70-130		%REC	1	10/29/2013 6:21:53 PM	R14426
Surr: Toluene-d8	94.6	70-130		%REC	1	10/29/2013 6:21:53 PM	R14426

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 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

ESC
L·A·B S·C·I·E·N·C·E·S
YOUR LAB OF CHOICE

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Anne Thorne
Hall Environmental Analysis Laborat
4901 Hawkins NE
Albuquerque, NM 87109

November 04, 2013

ESC Sample # : L665744-01

Date Received : October 30, 2013
Description :

Site ID :

Sample ID : 1310D36-003B DRILL CUTTINGS

Project # :

Collected By :
Collection Date : 10/25/13 16:20

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Ignitability	See Footnote		Deg. F	D93/1010A	11/02/13	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 11/04/13 12:10 Printed: 11/04/13 13:17
L665744-01 (IGNITABILITY) - Did Not Ignite @ 170 F

ESC
L·A·B S·C·I·E·N·C·E·S
YOUR LAB OF CHOICE

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

Hall Environmental Analysis Laboratory
Anne Thorne
4901 Hawkins NE

Albuquerque, NM 87109

Quality Assurance Report
Level II

L665744

November 04, 2013

Analyte	Units	Result	Duplicate	RPD	Limit	Ref Samp	Batch
			Duplicate				
Ignitability	Deg. F	0.00	0.00	0.00	10	L665933-01	WG690255

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
		Laboratory Control Sample				
Ignitability	Deg. F	82	82.0	100.	93-107	WG690255

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
		Laboratory Control Sample Duplicate						
Ignitability	Deg. F	82.0	82.0	100.	93-107	0.00	20	WG690255

Batch number /Run number / Sample number cross reference

WG690255: R2848469: L665744-01

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1310D36**

05-Nov-13

Client: Haller and Associates

Project: Leonard's Conoco

Sample ID	**MB-10068**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Diesel Range Organics**					
Client ID:	**PBS**	Batch ID:	**10068**	RunNo:	**14415**					
Prep Date:	**10/29/2013**	Analysis Date:	**10/29/2013**	SeqNo:	**414162**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Surr: DNOP	10		10.00		105	66	131			

Sample ID	**LCS-10068**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Diesel Range Organics**					
Client ID:	**LCSS**	Batch ID:	**10068**	RunNo:	**14415**					
Prep Date:	**10/29/2013**	Analysis Date:	**10/29/2013**	SeqNo:	**414163**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	10	50.00	0	92.4	77.1	128			
Surr: DNOP	4.9		5.000		98.7	66	131			

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 for VOA and TOC only.
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#: **1310D36**

05-Nov-13

Client: Haller and Associates

Project: Leonard's Conoco

Sample ID	**MB-10056 MK**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**R14419**	RunNo:	**14419**					
Prep Date:		Analysis Date:	**10/29/2013**	SeqNo:	**414270**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	930		1000		92.7	74.5	129			

Sample ID	**LCS-10056 MK**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**R14419**	RunNo:	**14419**					
Prep Date:		Analysis Date:	**10/29/2013**	SeqNo:	**414271**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	88.4	74.5	126			
Surr: BFB	1000		1000		101	74.5	129			

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 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1310D36**

05-Nov-13

Client: Haller and Associates

Project: Leonard's Conoco

Sample ID **MB-10056 MK**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **R14419**	RunNo: **14419**
Prep Date:	Analysis Date: **10/29/2013**	SeqNo: **414353** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.10								
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		101	80	120			

Sample ID **LCS-10056 MK**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **R14419**	RunNo: **14419**
Prep Date:	Analysis Date: **10/29/2013**	SeqNo: **414355** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	1.0	0.10	1.000	0	102	64.5	131			
Benzene	0.94	0.050	1.000	0	93.8	80	120			
Toluene	0.95	0.050	1.000	0	94.5	80	120			
Ethylbenzene	0.98	0.050	1.000	0	98.2	80	120			
Xylenes, Total	3.1	0.10	3.000	0	103	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		103	80	120			

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 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1310D36**

05-Nov-13

Client: Haller and Associates

Project: Leonard's Conoco

Sample ID **b3**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **R14424**	RunNo: **14424**
Prep Date:	Analysis Date: **10/29/2013**	SeqNo: **414223** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	ND	0.75								
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.10								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.10								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.10								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								

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 for VOA and TOC only.
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#: **1310D36**

05-Nov-13

Client: Haller and Associates

Project: Leonard's Conoco

Sample ID **b3**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **R14424**	RunNo: **14424**
Prep Date:	Analysis Date: **10/29/2013**	SeqNo: **414223** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.45		0.5000		90.2	70	130			
Surr: 4-Bromofluorobenzene	0.51		0.5000		102	70	130			
Surr: Dibromofluoromethane	0.46		0.5000		92.4	70	130			
Surr: Toluene-d8	0.48		0.5000		95.3	70	130			

Sample ID **100ng lcs2**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS**	Batch ID: **R14424**	RunNo: **14424**
Prep Date:	Analysis Date: **10/29/2013**	SeqNo: **414224** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.050	1.000	0	108	70	130			
Toluene	1.1	0.050	1.000	0	108	69.9	139			
Chlorobenzene	1.0	0.050	1.000	0	100	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 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1310D36**

05-Nov-13

Client: Haller and Associates

Project: Leonard's Conoco

Sample ID **100ng lcs2**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles**							
Client ID: **LCSS**	Batch ID: **R14424**	RunNo: **14424**							
Prep Date:	Analysis Date: **10/29/2013**	SeqNo: **414224**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	1.2	0.050	1.000	0	124	69.3	131			
Trichloroethene (TCE)	0.97	0.050	1.000	0	96.7	70	130			
Surr: 1,2-Dichloroethane-d4	0.46		0.5000		91.9	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.5000		99.1	70	130			
Surr: Dibromofluoromethane	0.48		0.5000		96.7	70	130			
Surr: Toluene-d8	0.47		0.5000		94.6	70	130			

Sample ID **1310d36-001ams**	SampType: **MS**	TestCode: **EPA Method 8260B: Volatiles**							
Client ID: **MW-1A 9-11'**	Batch ID: **R14424**	RunNo: **14424**							
Prep Date:	Analysis Date: **10/30/2013**	SeqNo: **414228**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.69	0.050	0.6196	0.01509	109	65.1	127			
Toluene	0.71	0.050	0.6196	0	115	54.2	148			
Chlorobenzene	0.66	0.050	0.6196	0	107	66.8	129			
1,1-Dichloroethene	0.77	0.050	0.6196	0	124	44.1	148			
Trichloroethene (TCE)	0.63	0.050	0.6196	0	102	63.2	122			
Surr: 1,2-Dichloroethane-d4	0.29		0.3098		93.0	70	130			
Surr: 4-Bromofluorobenzene	0.29		0.3098		93.7	70	130			
Surr: Dibromofluoromethane	0.29		0.3098		94.2	70	130			
Surr: Toluene-d8	0.31		0.3098		98.6	70	130			

Sample ID **1310d36-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8260B: Volatiles**							
Client ID: **MW-1A 9-11'**	Batch ID: **R14424**	RunNo: **14424**							
Prep Date:	Analysis Date: **10/30/2013**	SeqNo: **414229**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.66	0.050	0.6196	0.01509	104	65.1	127	4.41	20	
Toluene	0.67	0.050	0.6196	0	108	54.2	148	5.95	20	
Chlorobenzene	0.64	0.050	0.6196	0	103	66.8	129	4.11	20	
1,1-Dichloroethene	0.73	0.050	0.6196	0	118	44.1	148	4.58	20	
Trichloroethene (TCE)	0.60	0.050	0.6196	0	96.6	63.2	122	5.65	20	
Surr: 1,2-Dichloroethane-d4	0.29		0.3098		92.2	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.29		0.3098		94.9	70	130	0	0	
Surr: Dibromofluoromethane	0.29		0.3098		93.1	70	130	0	0	
Surr: Toluene-d8	0.30		0.3098		95.8	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 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1310D36**

05-Nov-13

Client: Haller and Associates

Project: Leonard's Conoco

Sample ID **5mL rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R14424**	RunNo: **14424**
Prep Date:	Analysis Date: **10/29/2013**	SeqNo: **414193** 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 for VOA and TOC only.
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#: **1310D36**

05-Nov-13

Client: Haller and Associates

Project: Leonard's Conoco

Sample ID **5mL rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R14424**	RunNo: **14424**
Prep Date:	Analysis Date: **10/29/2013**	SeqNo: **414193** 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	9.2		10.00		92.4	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.4	70	130			
Surr: Dibromofluoromethane	9.4		10.00		93.6	70	130			
Surr: Toluene-d8	9.6		10.00		96.2	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R14424**	RunNo: **14424**
Prep Date:	Analysis Date: **10/29/2013**	SeqNo: **414195** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	112	70	130			
Toluene	23	1.0	20.00	0	115	82.2	124			
Chlorobenzene	22	1.0	20.00	0	112	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 for VOA and TOC only.
RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1310D36**

05-Nov-13

Client: Haller and Associates

Project: Leonard's Conoco

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R14424**	RunNo: **14424**
Prep Date:	Analysis Date: **10/29/2013**	SeqNo: **414195** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	26	1.0	20.00	0	132	83.5	155			
Trichloroethene (TCE)	21	1.0	20.00	0	106	70	130			
Surr: 1,2-Dichloroethane-d4	9.3		10.00		93.0	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		97.3	70	130			
Surr: Dibromofluoromethane	9.3		10.00		92.7	70	130			
Surr: Toluene-d8	9.4		10.00		94.4	70	130			

Sample ID **5mL rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R14426**	RunNo: **14426**
Prep Date:	Analysis Date: **10/29/2013**	SeqNo: **414295** 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								

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 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1310D36**

05-Nov-13

Client: Haller and Associates

Project: Leonard's Conoco

Sample ID **5mL rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R14426**	RunNo: **14426**
Prep Date:	Analysis Date: **10/29/2013**	SeqNo: **414295** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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								
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		99.7	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 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1310D36**

05-Nov-13

Client: Haller and Associates

Project: Leonard's Conoco

Sample ID **5mL rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R14426**	RunNo: **14426**
Prep Date:	Analysis Date: **10/29/2013**	SeqNo: **414295** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	9.8		10.00		98.0	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	10		10.00		99.9	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R14426**	RunNo: **14426**
Prep Date:	Analysis Date: **10/29/2013**	SeqNo: **414313** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	106	70	130			
Toluene	20	1.0	20.00	0	102	82.2	124			
Chlorobenzene	19	1.0	20.00	0	94.9	70	130			
1,1-Dichloroethene	27	1.0	20.00	0	137	83.5	155			
Trichloroethene (TCE)	20	1.0	20.00	0	97.7	70	130			
Surr: 1,2-Dichloroethane-d4	9.3		10.00		93.5	70	130			
Surr: 4-Bromofluorobenzene	9.3		10.00		93.4	70	130			
Surr: Dibromofluoromethane	9.5		10.00		95.5	70	130			
Surr: Toluene-d8	9.4		10.00		94.3	70	130			

Sample ID **b6**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R14426**	RunNo: **14426**
Prep Date:	Analysis Date: **10/29/2013**	SeqNo: **414347** 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								

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 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1310D36**

05-Nov-13

Client: Haller and Associates

Project: Leonard's Conoco

Sample ID **b6**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R14426**	RunNo: **14426**
Prep Date:	Analysis Date: **10/29/2013**	SeqNo: **414347** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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								
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								

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 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1310D36**

05-Nov-13

Client: Haller and Associates

Project: Leonard's Conoco

Sample ID **b6**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R14426**	RunNo: **14426**
Prep Date:	Analysis Date: **10/29/2013**	SeqNo: **414347** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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	9.9		10.00		99.0	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	9.4		10.00		94.4	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R14426**	RunNo: **14426**
Prep Date:	Analysis Date: **10/29/2013**	SeqNo: **414351** 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	22	1.0	20.00	0	108	82.2	124			
Chlorobenzene	20	1.0	20.00	0	97.8	70	130			
1,1-Dichloroethene	24	1.0	20.00	0	122	83.5	155			
Trichloroethene (TCE)	20	1.0	20.00	0	98.6	70	130			
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.5	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	9.4		10.00		93.8	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID **5mL rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R14462**	RunNo: **14462**
Prep Date:	Analysis Date: **10/30/2013**	SeqNo: **415438** 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								

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 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1310D36**

05-Nov-13

Client: Haller and Associates

Project: Leonard's Conoco

Sample ID **5mL rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R14462**	RunNo: **14462**
Prep Date:	Analysis Date: **10/30/2013**	SeqNo: **415438** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								

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 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1310D36**

05-Nov-13

Client: Haller and Associates

Project: Leonard's Conoco

Sample ID **5mL rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R14462**	RunNo: **14462**
Prep Date:	Analysis Date: **10/30/2013**	SeqNo: **415438** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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		100	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		99.9	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	9.5		10.00		94.9	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R14462**	RunNo: **14462**
Prep Date:	Analysis Date: **10/30/2013**	SeqNo: **415440** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	114	70	130			
Toluene	21	1.0	20.00	0	105	82.2	124			
Chlorobenzene	20	1.0	20.00	0	98.6	70	130			
1,1-Dichloroethene	26	1.0	20.00	0	132	83.5	155			
Trichloroethene (TCE)	20	1.0	20.00	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.0	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 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1310D36**

05-Nov-13

Client: Haller and Associates

Project: Leonard's Conoco

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R14462**	RunNo: **14462**
Prep Date:	Analysis Date: **10/30/2013**	SeqNo: **415440** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Toluene-d8	9.8		10.00		98.0	70	130			

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 for VOA and TOC only.
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#: **1310D36**

05-Nov-13

Client: Haller and Associates

Project: Leonard's Conoco

Sample ID	**MB-10159**	SampType:	**MBLK**	TestCode:	**EPA Method 6010B: Soil Metals**					
Client ID:	**PBS**	Batch ID:	**10159**	RunNo:	**14580**					
Prep Date:	**11/4/2013**	Analysis Date:	**11/5/2013**	SeqNo:	**418911**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.25								

Sample ID	**LCS-10159**	SampType:	**LCS**	TestCode:	**EPA Method 6010B: Soil Metals**					
Client ID:	**LCSS**	Batch ID:	**10159**	RunNo:	**14580**					
Prep Date:	**11/4/2013**	Analysis Date:	**11/5/2013**	SeqNo:	**418912**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	23	0.25	25.00	0	90.0	80	120			

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 for VOA and TOC only.
- 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: 1310D36 | RcptNo: 1

Received by/date: MG 10/28/13

Logged By: Lindsay Mangin 10/28/2013 4:03:00 PM

Completed By: Lindsay Mangin 10/29/2013 8:23:44 AM

Reviewed By: MG 10/29/13

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	1.7	Good	Not Present			

Chain-of-Custody Record

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

Client: HALLER & ASSOCIATES, INC.
Mailing Address: P.O. BOX 1667
CEDAR CREST, NM 87008
Phone #: 505-281-9373
email or Fax#: 505-281-9338
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other _____
☐ EDD (Type) _____

Turn-Around Time: * Metals and Flashpoint 5 Day TAT
☒ Standard ☐ Rush _____
Project Name: LEONARD'S CONOCO
Project #: 1310
Project Manager: TIM HALLER
Sampler: TIM HALLER
On Ice: ☑ Yes ☐ No
Sample Temperature: 1.7

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1310136	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)	TOTAL Pb	FLASHPOINT			Air Bubbles (Y or N)
10-25-13	0840	SOIL	MW-1A 9-11'	MEOH KIT	MEOH	-001										X						
10-25-13	0900	SOIL	MW-1A 14-16'	MEOH KIT	MEOH	-002										X						
10-25-13	1620	SOIL	DRILL CUTTINGS	MEOH KIT	MEOH	-003	X		X									X	X			
~~10~~	—	MEOH	MEOH BLANK	1X2@ML	MEOH	-004										X						
10-25-13	1640	GW	MW-1A	3X40ML	$HgCl_2$	-005										X						
10-25-13	1440	GW	MW-2A	3X40ML	$HgCl_2$	-006										X						
10-25-13	1515	GW	MW-3	3X40ML	$HgCl_2$	-007										X						
—	—	W	TRIP BLANK	2X40ML	$HgCl_2$	-008										X						

Date	Time	Relinquished by:	Received by:	Date	Time
10-28-13	1603	Tim M. Haller			
				10/28/13	1603
Date	Time	Relinquished by:	Received by:	Date	Time

Remarks: * 1 WEEK TAT ON Pb AND FLASHPOINT

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.