

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Avenue, Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources

Form C-141  
Revised August 8, 2011

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Submit 1 Copy to appropriate District Office to  
accordance with 19.15.29 NMAC.

**Release Notification and Corrective Action**

**OPERATOR**  Initial Report  Final Report

Name of Company <b>ConocoPhillips Company</b>	Contact <b>Lisa Hunter</b>
Address <b>3401 East 30<sup>th</sup> St, Farmington, NM</b>	Telephone No. <b>(505) 258-1607</b>
Facility Name: <b>Lucerne D #1</b>	Facility Type: <b>Gas Well</b>
Surface Owner <b>BLM</b>	Mineral Owner <b>BLM (SF-010063)</b>
API No. <b>3004507278</b>	

**LOCATION OF RELEASE**

Unit Letter <b>P</b>	Section <b>21</b>	Township <b>28N</b>	Range <b>11W</b>	Feet from the <b>945</b>	North/South Line <b>South</b>	Feet from the <b>870</b>	East/West Line <b>East</b>	County <b>San Juan</b>
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Latitude 36.64282 Longitude -108.00308

**NATURE OF RELEASE**

Type of Release <b>Hydrocarbon</b>	Volume of Release <b>Unknown</b>	Volume Recovered <b>80 c/yds</b>
Source of Release <b>Below Grade Tank (Closure) – North BGT</b>	Date and Hour of Occurrence <b>Unknown</b>	Date and Hour of Discovery <b>January 31, 2017 @ 9:00 a.m.</b>
Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom? <b>N/A</b>	
By Whom? <b>N/A</b>	Date and Hour <b>N/A</b>	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse <b>N/A</b>	<b>OIL CONS. DIV DIST. 3</b>

**APR 03 2017**

If a Watercourse was Impacted, Describe Fully.\*  
**N/A**

Describe Cause of Problem and Remedial Action Taken.\*

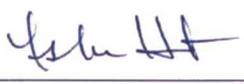
**Below-Grade Tank Closure activities with samples taken resulting in constituents exceeded standards outlined by 19.15.17.13 NMAC.**

Describe Area Affected and Cleanup Action Taken.\*

**NMOCD action levels for releases are specified in NMOCD's Guidelines for Leaks, Spills and Releases and the release was assigned a ranking score of 10. Samples were collected and analytical results are below applicable NMOCD action levels. No further work will be performed. The final report is attached for review.**

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

**OIL CONSERVATION DIVISION**

Signature: 	Approved by Environmental Specialist: 	
Printed Name: <b>Lisa Hunter</b>	Approval Date: <b>6/7/17</b>	Expiration Date:
Title: <b>Field Environmental Specialist</b>	Conditions of Approval:	
E-mail Address: <b>Lisa.Hunter@cop.com</b>	Attached <input type="checkbox"/>	
Date: <b>March 28, 2017</b>	Phone: <b>(505) 258-1607</b>	

\* Attach Additional Sheets If Necessary

**#NCS 1715851705**

# **Rule** Engineering, LLC

Solutions to Regulations for Industry

March 28, 2017

Ms. Lisa Hunter  
ConocoPhillips  
San Juan Business Unit  
5525 Highway 64  
Farmington, New Mexico 87401

**OIL CONS. DIV DIST. 3**

**APR 03 2017**

**Re: Lucerne D #1 – North Below Grade Tank  
Below Grade Tank Closure Sampling Report**

Dear Ms. Hunter:

This report summarizes the below grade tank (BGT) closure sampling activities conducted by Rule Engineering, LLC (Rule) at the ConocoPhillips Lucerne D #1 North BGT located in Unit Letter P, Section 21, Township 28N, Range 11W in San Juan County, New Mexico. Activities included collection and analysis of two 5-point composite soil confirmation samples from beneath the BGT on January 31, 2017. Note that the BGT closure activities were conducted on the same day as BGT closure activities for a second BGT on the same location; details of the activities for the second BGT are included in a separate report. A topographic map of the location is included as Figure 1 and an aerial site map is included as Figure 2.

## **BGT Summary**

**Site Name** – Lucerne D #1 North Below Grade Tank  
**Location** – Unit Letter P, Section 21, Township 28N, Range 11W  
**API Number** – 30-045-07278  
**Wellhead Latitude/Longitude** – N36.64287 and W108.00327  
**BGT Latitude/Longitude** – N36.64282 and W108.00308  
**Land Jurisdiction** – Bureau of Land Management  
**Size of BGT** – Approximately 80 barrels  
**Date of BGT Closure Soil Sampling** – January 31, 2017

## **BGT Closure Standards and NMOCD Site Ranking**

As outlined in 19.15.17.13 New Mexico Administrative Code (NMAC), BGT closure standards for the Lucerne D #1 North BGT are as follows: 0.2 milligrams per kilogram (mg/kg) benzene, 50 mg/kg total benzene, toluene, ethylbenzene, and total xylenes (BTEX), 100 mg/kg total petroleum hydrocarbons (TPH), and 250 mg/kg chlorides.

In accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills, and Releases (August 1993), this site was assigned a ranking score of 10. Depth to groundwater at the site is greater than 100 feet based on the elevation differential between the location and local washes,

and reported depths to groundwater from local cathodic reports. A review of the New Mexico Office of the State Engineer (NMOSE) online New Mexico Water Rights Reporting System and an onsite visual inspection identified no water wells within a 1,000 foot radius of the site. An ephemeral wash traverses the area approximately 660 feet southeast of the location. Based on the ranking score of 10, action levels for remediated soils at the site are as follows: 10 mg/kg benzene, 50 mg/kg total BTEX, and 1,000 mg/kg TPH.

### **Field Activities**

On January 31, 2017, following removal of the BGT and liner, Rule personnel conducted a visual inspection for surface/subsurface indications of a release. No excess moisture was observed, however some discoloration was present in the soils below the tank. Rule personnel then collected one five-point composite sample 0.5 feet beneath the floor of the BGT excavation (BGTN-1). Approximately three feet of discolored soils were excavated and a second five-point composite sample was collected (BGTN-2). Excavated soils were transported to a local NMOCD approved landfarm for disposal/remediation and the excavation was backfilled with clean, imported material. Figure 2 provides the location of the soil samples collected from below the BGT. The field work summary sheet is attached.

### **Soil Sampling**

Two composite soil samples, BGTN-1 and BGTN-2, were collected from below the floor of the BGT excavation at 0.5 feet and 3 feet below the floor of the BGT excavation, respectively. A portion of each sample was field screened for volatile organic compounds (VOCs) and chlorides, and field analyzed for TPH.

Field screening for VOC vapors was conducted with a photo-ionization detector (PID). Prior to field screening, the PID was calibrated with 100 parts per million (ppm) isobutylene gas. Field analysis for TPH was conducted per U.S. Environmental Protection Agency (USEPA) Method 418.1, utilizing a total hydrocarbon analyzer. Prior to field analysis, the analyzer was calibrated following the manufacturer's procedure with includes calculation of a calibration curve using known concentration standards. Rule's reporting limit for TPH using this method is 20 mg/kg. Field screening for chloride was conducted using the Hach chloride low range test kit. Chloride concentrations were determined by drop count titration method using silver nitrate titrant.

The portions of the samples collected for laboratory analysis were placed into laboratory supplied glassware, labeled, and maintained on ice until delivery to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico. The samples were analyzed for BTEX per USEPA Method 8021B, TPH per USEPA Method 418.1 and 8015M/D, and chlorides per USEPA Method 300.0.

### Field and Analytical Results

Field sampling results for soil confirmation sample BGTN-1 indicated a VOC concentration of 1.0 ppm, a TPH concentration of 150 mg/kg, and a field chloride concentration was recorded at 180 mg/kg. Field sampling results for soil confirmation sample BGTN-2 indicated a VOC concentration of 0.8 ppm, a TPH concentration of 178 mg/kg, and a field chloride concentration of 180 mg/kg.

Laboratory analytical results for samples BGTN-1 and BGTN-2 reported benzene and total BTEX concentrations below the laboratory reporting limits, which are below the applicable BGT closure standards and NMOCD action levels. For sample BGTN-1, laboratory analytical results for TPH concentrations were 140 mg/kg per USEPA Method 418.1, and less than 3.6 mg/kg gasoline range organics (GRO), 89 mg/kg diesel range organics (DRO), and 140 mg/kg mineral oil range organics (MRO) per USEPA 8015M/D. For sample BGTN-2, laboratory analytical results for TPH concentrations were 220 mg/kg per USEPA Method 418.1, and less than 4.1 mg/kg gasoline range organics (GRO), 100 mg/kg diesel range organics (DRO), and 170 mg/kg mineral oil range organics (MRO) per USEPA 8015M/D. These TPH concentrations are above the BGT closure standards but below the NMOCD action levels for a site rank of 10. Laboratory analytical results for BGTN-1 and BGTN-2 reported chloride concentrations as below the laboratory reporting limit of 30, which is below the BGT closure standard. Field and laboratory results are summarized in Table 1, and the analytical laboratory report is attached.

### Conclusions

On January 31, 2017, BGT closure sampling activities were conducted at the ConocoPhillips Lucerne D #1 North BGT. Field and laboratory results for confirmation sample BGTN-1 and BGTN-2 were reported benzene, total BTEX and chloride concentrations below the BGT closure standards. Field and laboratory results for the two samples reported TPH concentrations in excess of the BGT closure standard, but below the NMOCD action level for a site rank of 10. Discolored soils from the base of the BGT cellar have been transported to a local NMOCD landfarm for disposal/remediation. Based on field sampling and laboratory analytical results, no further work is recommended.

Rule Engineering appreciates the opportunity to provide services to ConocoPhillips. If you have any questions, please contact me at (505) 325-1055.

Sincerely,  
**Rule Engineering, LLC**

  
Heather M. Woods, P.G.  
Area Manager/Geologist

Ms. Lisa Hunter  
Lucerne D #1 North BGT Closure Sampling Report  
March 28, 2017  
Page 4 of 4

**Attachments:**

Table 1. BGT Soil Sampling Results  
Figure 1. Topographic Map  
Figure 2. Aerial Site Map  
Field Work Summary Sheet  
Analytical Laboratory Report

**Table 1. BGT Soil Sampling Results**  
**ConocoPhillips**  
**Lucerne D #1 North Below Grade Tank**  
**San Juan County, New Mexico**

Sample ID	Date	Sample Type	Sample Depth (ft below BGT liner)	Field Sampling Results			Laboratory Analytical Results						
				VOCs (PID) (ppm)	TPH - 418.1 (mg/kg)	Chloride** (mg/kg)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH - 418.1 (mg/kg)	TPH - GRO (mg/kg)	TPH - DRO (mg/kg)	TPH - MRO (mg/kg)	Chloride*** (mg/kg)
<b>BGT Closure Standards*</b>				--	<b>100</b>	<b>250</b>	<b>0.2</b>	<b>50</b>	<b>100</b>	--			<b>250</b>
<b>NMOCD Action Level†</b>				<b>100</b>	<b>1,000</b>	--	<b>10</b>	<b>50</b>	<b>1,000</b>	<b>1,000</b>			--
BGTN-1	1/31/17	Composite	0.5	1.0	150	180	<0.018	<0.161	140	<3.6	89	140	<30
BGTN-2	1/31/17	Composite	3.0	0.8	178	180	<0.020	<0.183	220	<4.1	100	170	<30

Notes: ppm - parts per million

mg/kg - milligrams/kilograms

PID - photo-ionization detector

NMOCD - New Mexico Oil Conservation Division

\*19.15.17.13 NMAC

\*\*Per Hach chloride low-range test kit

\*\*\*Per USEPA Method 300.0 chlorides

†Based on the NMOCD Guidelines for Remediation of Leaks, Spills and Releases (August 1993)

VOCs - volatile organic compounds

BTEX - benzene, toluene, ethylbenzene, and total xylenes

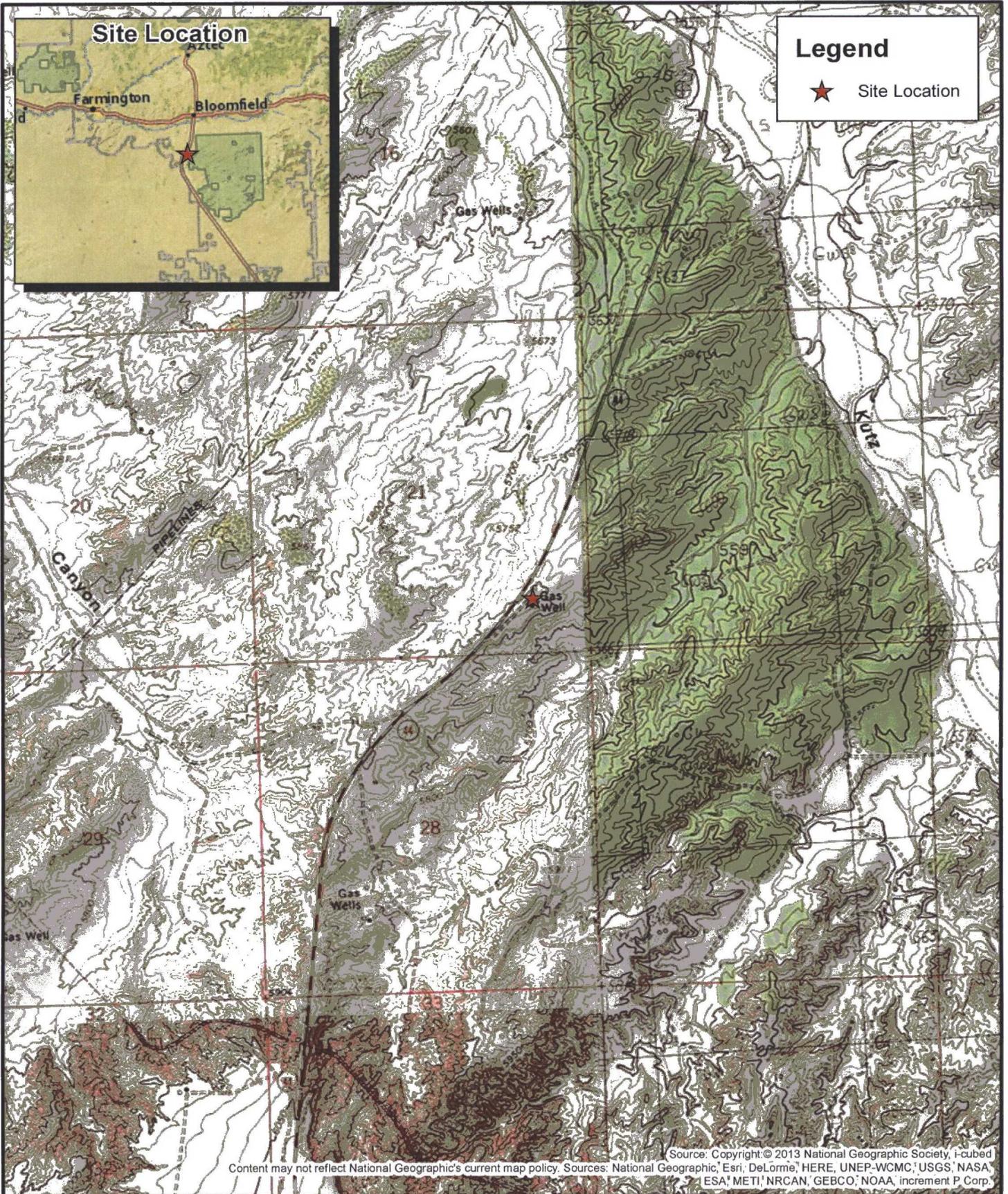
TPH - total petroleum hydrocarbons

GRO - gasoline range organics

DRO - diesel range organics

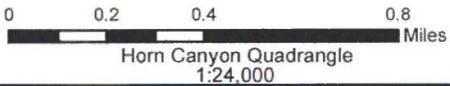
MRO - mineral oil range organics

Document Path: U:\ConocoPhillips\Lucerne D #1\Lucerne D #1 Topo Map.mxd



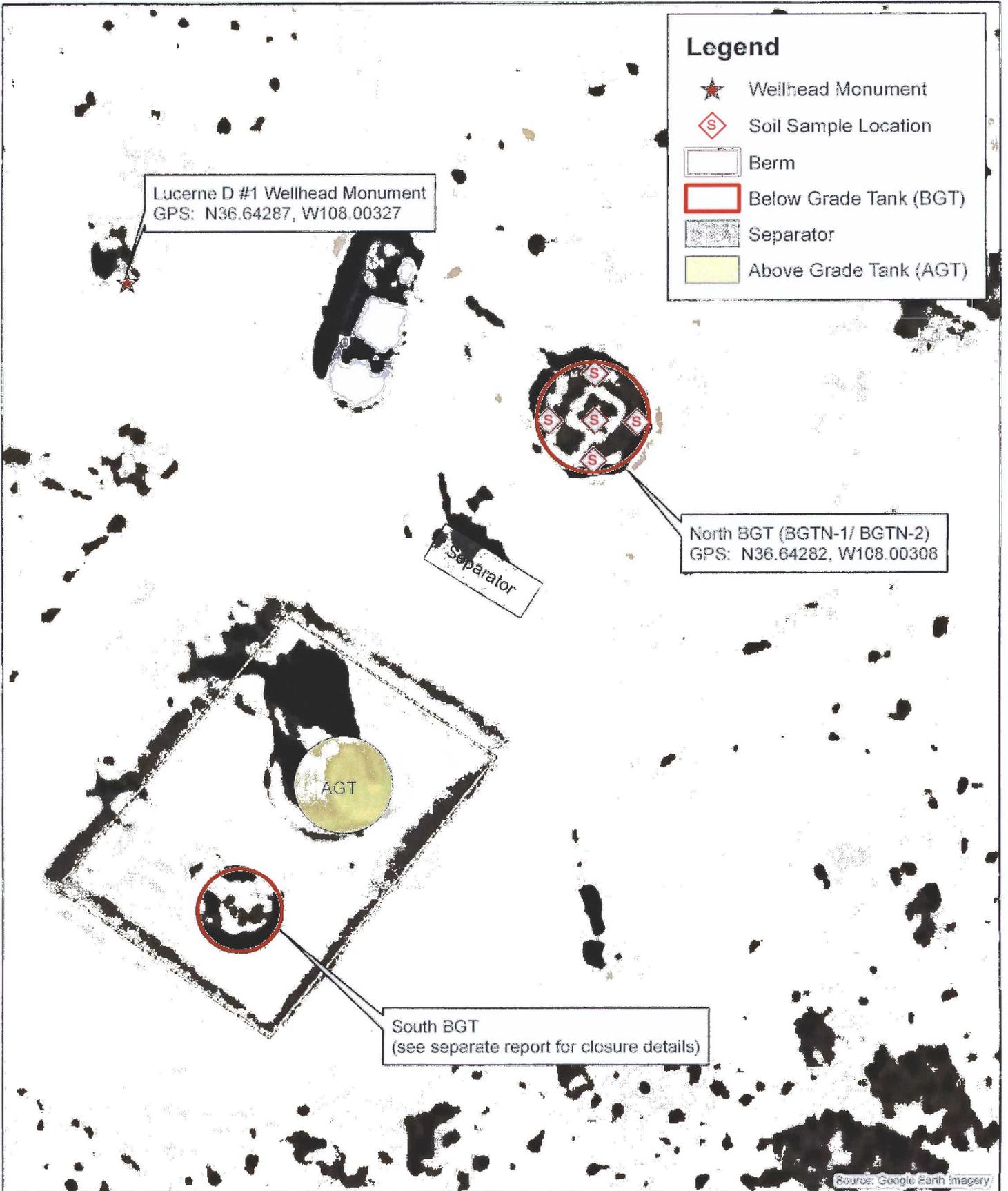
Source: Copyright: © 2013 National Geographic Society, i-cubed Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

**Rule Engineering, LLC**  
Solutions to Regulations for Industry



P-S21-T28N-R11W  
N36.64266, W108.00321  
San Juan County, NM  
API: 30-045-07278

**Figure 1**  
**Topographic Site Map**  
Lucerne D #1 North BGT



**Rule Engineering Field Work Summary Sheet**

Company: ConocoPhillips  
 Location: Lucerne D #1 (North BGT)  
 API: 30-045-07278  
 Legals: P-S21-T28N-R11W  
 County: San Juan  
 Land Jurisdiction: Bureau of Land Management

Date: 1/31/17  
 Staff: Heather Woods

Wellhead GPS: 36.64287, -108.00327  
 BGT GPS: 36.64282, -108.00308

**Siting Information based on BGT Location:**

Site Rank **10**

Groundwater: Estimated to be greater than 100 feet below grade surface, based on elevation differential between location and local washes, and reported depths to groundwater from local cathodic reports.

Surface Water: An ephemeral wash traverses the area approximately 660 feet southeast of the location.

Wellhead Protection: No water wells identified within 1,000 feet of the location.

Objective: Closure sampling for BGT  
 Tank Size: Approximately 90 barrels, removed during closure activities  
 Liner: Liner present, removed during closure activities  
 Observations: No excess moisture, but some discoloration, was observed below the tank.  
 Notes: No NMOCD or BLM representatives were on location during closure activities.

**Field Sampling Information**

Name	Type of Sample	Collection Time	Collection Location	VOCs <sup>1</sup> (ppm)	VOCs time	TPH <sup>2</sup> mg/kg	TPH Time	Chloride <sup>3</sup> mg/kg	Chloride Time
BGTN-1	Composite	10:42	See below	1.0	10:45	150	11:00	180	11:03
BGTN-2	Composite	12:15	See below	0.8	12:17	178	12:45	180	12:48

BGTN-1 and BGTN-2 are 5-point composites of S-1 through S-5, collected 0.5 ft and 3 ft below BGT, respectively. Samples BGTN-1 and BGTN-2 were laboratory analyzed for TPH (8015/418.1), BTEX (8021) and chlorides (300.0).



**Field Sampling Notes:**

<sup>1</sup> Field screening for volatile organic compounds (VOC) vapors was conducted with a photo-ionization detector (PID). Before beginning field screening, the PID was calibrated with 100 parts per million (ppm) isobutylene gas.

<sup>2</sup> Field analysis for TPH was conducted using a total hydrocarbon analyzer. Prior to field analysis, the machine was calibrated following the manufacturer's procedure which includes calculation of a calibration curve using known concentration standards.

<sup>3</sup> Field screening for chlorides was conducted using the Hach chloride low range test kit. Chloride concentrations are determined by drop count titration method using silver nitrate titrant.



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

February 02, 2017

Heather Woods  
Rule Engineering LLC  
501 Airport Dr., Ste 205  
Farmington, NM 87401  
TEL: (505) 325-1055  
FAX

RE: COP Lucerne D #1

OrderNo.: 1702003

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 2 sample(s) on 2/1/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to [www.hallenvironmental.com](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a white background.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109



**Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Rule Engineering LLC

Client Sample ID: BGTN-2

Project: COP Lucerne D #1

Collection Date: 1/31/2017 12:15:00 PM

Lab ID: 1702003-002

Matrix: MEOH (SOIL)

Received Date: 2/1/2017 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 418.1: TPH</b>							Analyst: <b>MAB</b>
Petroleum Hydrocarbons, TR	220	19		mg/Kg	1	2/1/2017 11:00:00 AM	29989
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	ND	30		mg/Kg	20	2/1/2017 11:35:19 AM	29997
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	100	10		mg/Kg	1	2/1/2017 1:43:54 PM	29988
Motor Oil Range Organics (MRO)	170	50		mg/Kg	1	2/1/2017 1:43:54 PM	29988
Surr: DNOP	120	70-130		%Rec	1	2/1/2017 1:43:54 PM	29988
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.1		mg/Kg	1	2/1/2017 1:33:51 PM	29940
Surr: BFB	87.9	68.3-144		%Rec	1	2/1/2017 1:33:51 PM	29940
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.020		mg/Kg	1	2/1/2017 1:33:51 PM	29940
Toluene	ND	0.041		mg/Kg	1	2/1/2017 1:33:51 PM	29940
Ethylbenzene	ND	0.041		mg/Kg	1	2/1/2017 1:33:51 PM	29940
Xylenes, Total	ND	0.081		mg/Kg	1	2/1/2017 1:33:51 PM	29940
Surr: 4-Bromofluorobenzene	87.9	80-120		%Rec	1	2/1/2017 1:33:51 PM	29940

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1702003

02-Feb-17

Client: Rule Engineering LLC

Project: COP Lucerne D #1

Sample ID	<b>MB-29997</b>	SampType:	<b>mbk</b>	TestCode:	<b>EPA Method 300.0: Anions</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>29997</b>	RunNo:	<b>40456</b>					
Prep Date:	<b>2/1/2017</b>	Analysis Date:	<b>2/1/2017</b>	SeqNo:	<b>1267780</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	<b>LCS-29997</b>	SampType:	<b>lcs</b>	TestCode:	<b>EPA Method 300.0: Anions</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>29997</b>	RunNo:	<b>40456</b>					
Prep Date:	<b>2/1/2017</b>	Analysis Date:	<b>2/1/2017</b>	SeqNo:	<b>1267781</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.5	90	110			

## Qualifiers:

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.              | B Analyte detected in the associated Method Blank           |
| D Sample Diluted Due to Matrix                          | E Value above quantitation range                            |
| H Holding times for preparation or analysis exceeded    | J Analyte detected below quantitation limits                |
| ND Not Detected at the Reporting Limit                  | P Sample pH Not In Range                                    |
| R RPD outside accepted recovery limits                  | RL Reporting Detection Limit                                |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1702003

02-Feb-17

**Client:** Rule Engineering LLC

**Project:** COP Lucerne D #1

Sample ID	<b>MB-29989</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 418.1: TPH</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>29989</b>	RunNo:	<b>40419</b>					
Prep Date:	<b>2/1/2017</b>	Analysis Date:	<b>2/1/2017</b>	SeqNo:	<b>1266880</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	ND	20								

Sample ID	<b>LCS-29989</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 418.1: TPH</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>29989</b>	RunNo:	<b>40419</b>					
Prep Date:	<b>2/1/2017</b>	Analysis Date:	<b>2/1/2017</b>	SeqNo:	<b>1266881</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	110	20	100.0	0	107	61.7	138			

Sample ID	<b>LCSD-29989</b>	SampType:	<b>LCSD</b>	TestCode:	<b>EPA Method 418.1: TPH</b>					
Client ID:	<b>LCSS02</b>	Batch ID:	<b>29989</b>	RunNo:	<b>40419</b>					
Prep Date:	<b>2/1/2017</b>	Analysis Date:	<b>2/1/2017</b>	SeqNo:	<b>1266882</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	110	20	100.0	0	106	61.7	138	1.24	20	

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1702003

02-Feb-17

**Client:** Rule Engineering LLC

**Project:** COP Lucerne D #1

Sample ID <b>MB-29988</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>PBS</b>	Batch ID: <b>29988</b>		RunNo: <b>40413</b>							
Prep Date: <b>2/1/2017</b>	Analysis Date: <b>2/1/2017</b>		SeqNo: <b>1266782</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		107	70	130			

Sample ID <b>LCS-29988</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>29988</b>		RunNo: <b>40413</b>							
Prep Date: <b>2/1/2017</b>	Analysis Date: <b>2/1/2017</b>		SeqNo: <b>1266804</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.00	0	96.8	63.8	116			
Surr: DNOP	5.0		5.000		100	70	130			

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

**QC SUMMARY REPORT**  
**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1702003  
 02-Feb-17

**Client:** Rule Engineering LLC  
**Project:** COP Lucerne D #1

Sample ID <b>MB-29940</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>29940</b>		RunNo: <b>40433</b>							
Prep Date: <b>1/30/2017</b>	Analysis Date: <b>2/1/2017</b>		SeqNo: <b>1267563</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	860		1000		85.8	68.3	144			

Sample ID <b>LCS-29940</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>29940</b>		RunNo: <b>40433</b>							
Prep Date: <b>1/30/2017</b>	Analysis Date: <b>2/1/2017</b>		SeqNo: <b>1267564</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	104	74.6	123			
Surr: BFB	930		1000		93.1	68.3	144			

Sample ID <b>MB-29966</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>29966</b>		RunNo: <b>40433</b>							
Prep Date: <b>1/31/2017</b>	Analysis Date: <b>2/1/2017</b>		SeqNo: <b>1267573</b>		Units: <b>%Rec</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	870		1000		87.1	68.3	144			

Sample ID <b>LCS-29966</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>29966</b>		RunNo: <b>40433</b>							
Prep Date: <b>1/31/2017</b>	Analysis Date: <b>2/1/2017</b>		SeqNo: <b>1267575</b>		Units: <b>%Rec</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	970		1000		96.9	68.3	144			

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.              | B Analyte detected in the associated Method Blank           |
| D Sample Diluted Due to Matrix                          | E Value above quantitation range                            |
| H Holding times for preparation or analysis exceeded    | J Analyte detected below quantitation limits                |
| ND Not Detected at the Reporting Limit                  | P Sample pH Not In Range                                    |
| R RPD outside accepted recovery limits                  | RL Reporting Detection Limit                                |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1702003  
02-Feb-17

**Client:** Rule Engineering LLC  
**Project:** COP Lucerne D #1

Sample ID <b>MB-29940</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>PBS</b>	Batch ID: <b>29940</b>		RunNo: <b>40433</b>							
Prep Date: <b>1/30/2017</b>	Analysis Date: <b>2/1/2017</b>		SeqNo: <b>1267607</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.86		1.000		86.4	80	120			

Sample ID <b>LCS-29940</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>29940</b>		RunNo: <b>40433</b>							
Prep Date: <b>1/30/2017</b>	Analysis Date: <b>2/1/2017</b>		SeqNo: <b>1267608</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.025	1.000	0	94.8	75.2	115			
Toluene	0.84	0.050	1.000	0	83.7	80.7	112			
Ethylbenzene	0.82	0.050	1.000	0	81.8	78.9	117			
Xylenes, Total	2.5	0.10	3.000	0	82.7	79.2	115			
Surr: 4-Bromofluorobenzene	0.91		1.000		90.6	80	120			

Sample ID <b>MB-29966</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>PBS</b>	Batch ID: <b>29966</b>		RunNo: <b>40433</b>							
Prep Date: <b>1/31/2017</b>	Analysis Date: <b>2/1/2017</b>		SeqNo: <b>1267615</b>		Units: <b>%Rec</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.90		1.000		89.6	80	120			

Sample ID <b>LCS-29966</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>29966</b>		RunNo: <b>40433</b>							
Prep Date: <b>1/31/2017</b>	Analysis Date: <b>2/1/2017</b>		SeqNo: <b>1267616</b>		Units: <b>%Rec</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.93		1.000		93.5	80	120			

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
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- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
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- W Sample container temperature is out of limit as specified



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: RULE ENGINEERING LL

Work Order Number: 1702003

RcptNo: 1

Received by/date: aj 2/1/17

Logged By: Andy Jansson 2/1/2017 8:00:00 AM

Completed By: Andy Jansson 2/1/17

Reviewed By: [Signature] 02/01/17

### Chain of Custody

1. Custody seals intact on sample bottles? Yes  No  Not Present
2. Is Chain of Custody complete? Yes  No  Not Present
3. How was the sample delivered? Courier

### Log In

4. Was an attempt made to cool the samples? Yes  No  NA
5. Were all samples received at a temperature of >0° C to 6.0°C Yes  No  NA
6. Sample(s) in proper container(s)? Yes  No
7. Sufficient sample volume for indicated test(s)? Yes  No
8. Are samples (except VOA and ONG) properly preserved? Yes  No
9. Was preservative added to bottles? Yes  No  NA
10. VOA vials have zero headspace? Yes  No  No VOA Vials
11. Were any sample containers received broken? Yes  No
12. Does paperwork match bottle labels?  
(Note discrepancies on chain of custody) Yes  No
13. Are matrices correctly identified on Chain of Custody? Yes  No
14. Is it clear what analyses were requested? Yes  No
15. Were all holding times able to be met?  
(If no, notify customer for authorization.) Yes  No

# of preserved bottles checked for pH: \_\_\_\_\_  
 (<2 or >12 unless noted)  
 Adjusted? \_\_\_\_\_  
 Checked by: \_\_\_\_\_

### Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes  No  NA

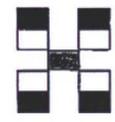
Person Notified: \_\_\_\_\_ Date: \_\_\_\_\_  
 By Whom: \_\_\_\_\_ Via:  eMail  Phone  Fax  In Person  
 Regarding: \_\_\_\_\_  
 Client Instructions: \_\_\_\_\_

17. Additional remarks:

### 18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

# 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: Rule Engineering LLC

Turn-Around Time:  
 Standard  Rush Same Day

Mailing Address: 501 Airport Dr, Suite 205  
Farmington, NM 87401

Project Name: COP Lucerne D #1  
 Project #:

Phone #: (505) 716-2707  
 email or Fax#: hwoods@ruleengineering.com

Project Manager: H. Woods

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

Accreditation  
 NELAP  Other \_\_\_\_\_

EDD (Type) \_\_\_\_\_

Sampler: H. Woods  
 Office:  Yes  No  
 Sample Temperature: 1.0°C

### Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + PCEs + TCEs (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 <sub>2</sub> , NO <sub>3</sub> , PO <sub>4</sub> , SO <sub>4</sub> )	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Air Bubbles (Y or N)	
1/31/17	1042	Soil	BGTN-1	(1) 4oz Glass	cold	-001	X		X	X				X					
1/31/17	1215	Soil	BGTN-2	(1) 4oz Glass	cold	-002	X		X	X				X					
<del>MS #1</del>																			

Date: 1/31/17 Time: 1821 Relinquished by: Heather M. Woods

Received by: Christina White Date: 1/31/17 Time: 1821

Remarks: Direct Bill to ConocoPhillips  
 WO: 10390323  
 Approver: MKSPENC Ordered by: Lisa Hunter  
 Area: 2  
 Run: 200

Date: 1/31/17 Time: 1847 Relinquished by: Christina White

Received by: Christina White Date: 2/1/17 Time: 0800

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.