

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

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

Form C-141
Revised August 8, 2011

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

LOCATION OF RELEASE

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

NATURE OF RELEASE

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

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

APR 03 2017

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

* Attach Additional Sheets If Necessary

#NCS1715851705

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 which 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)
BGT Closure Standards*				--	100	250	0.2	50	100	--			250
NMOCD Action Level†				100	1,000	--	10	50	1,000	1,000			--
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

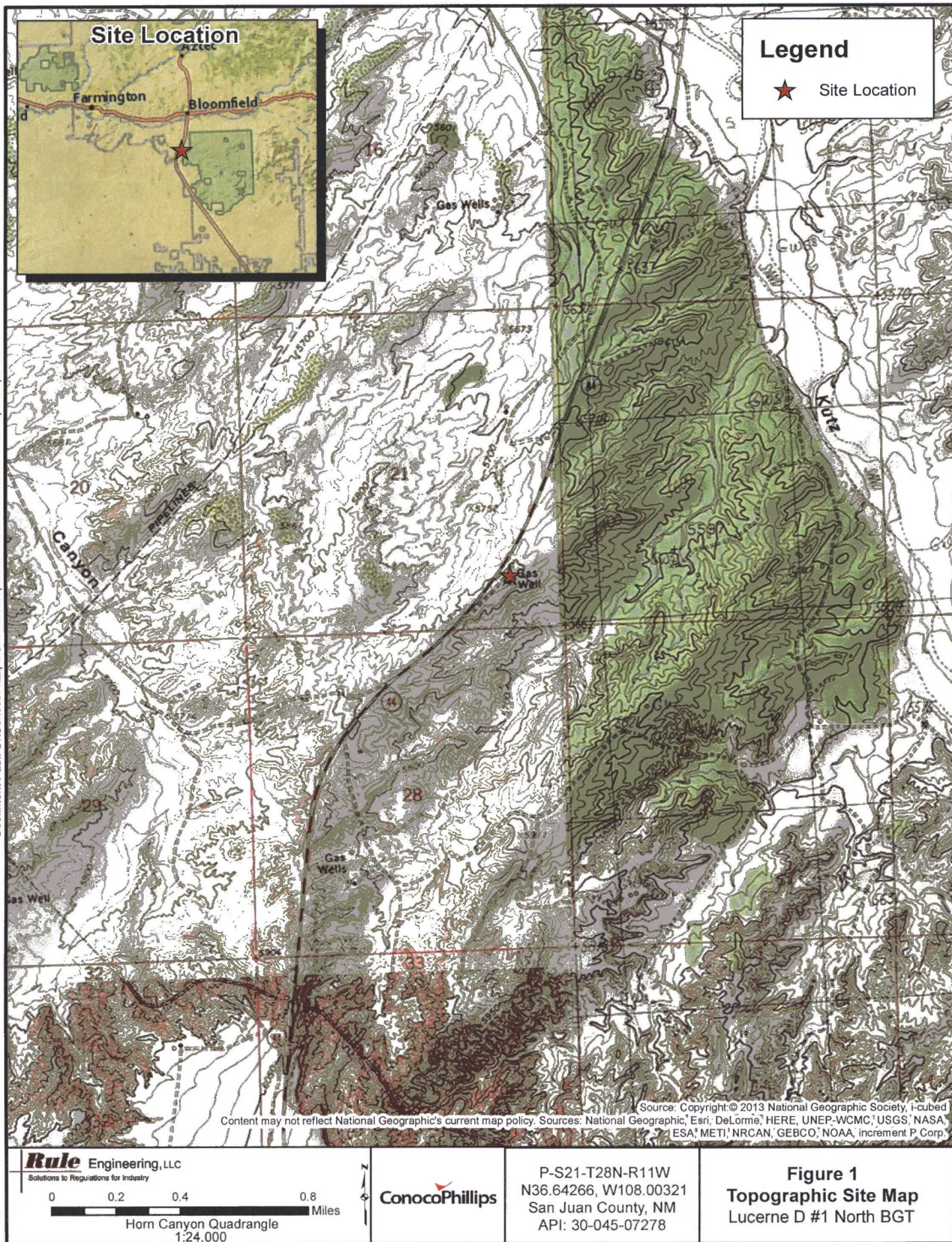
BTEX - benzene, toluene, ethylbenzene, and total xylenes

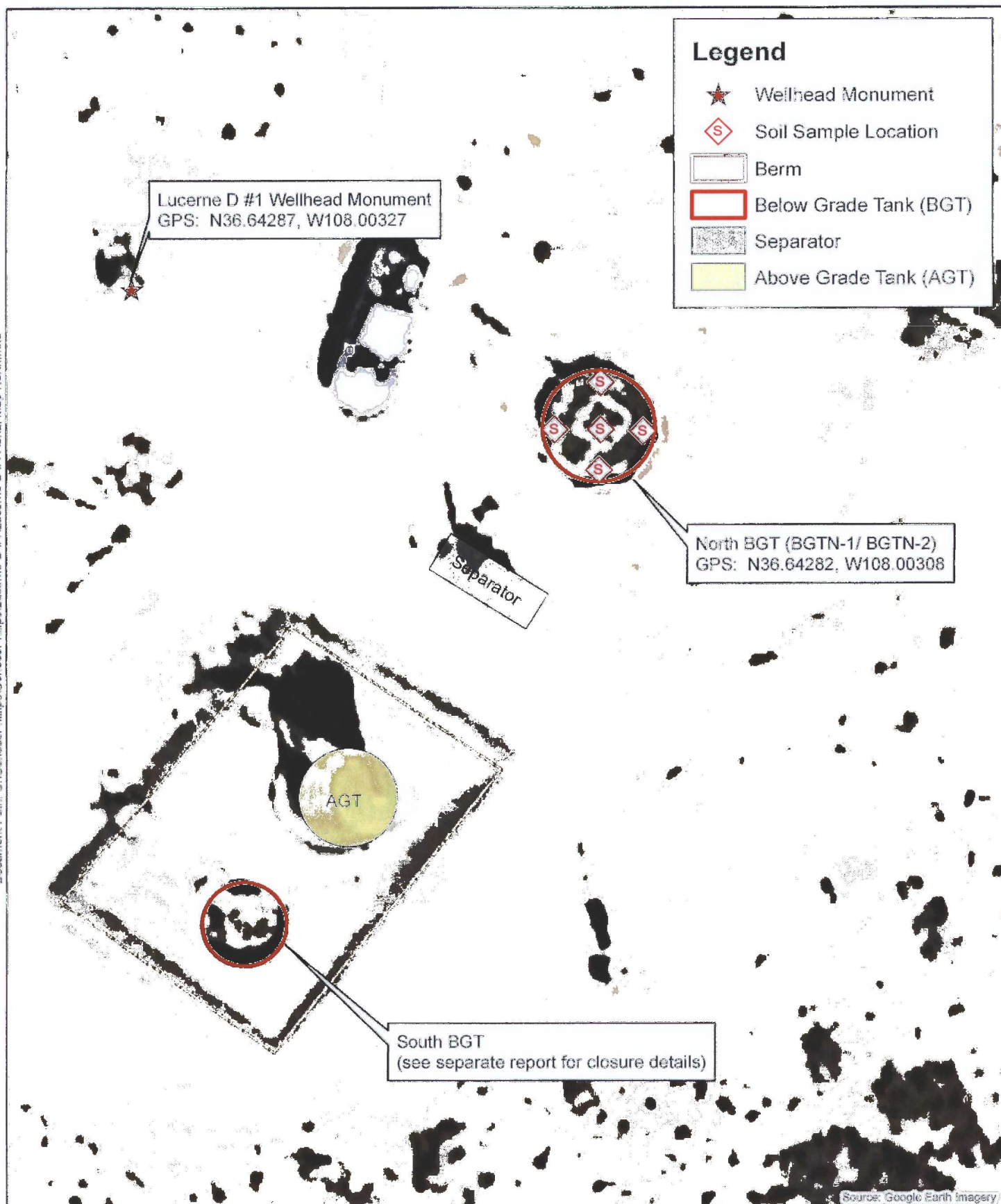
TPH - total petroleum hydrocarbons

GRO - gasoline range organics

DRO - diesel range organics

MRO - mineral oil range organics





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

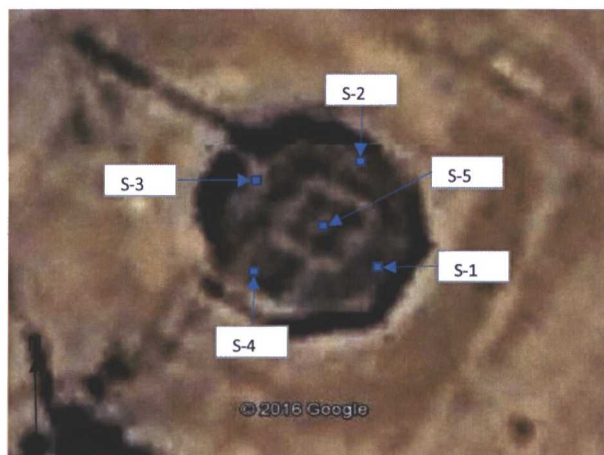
Observations: No excess moisture, but some discoloration, was observed below the tank.

Notes: No NMOCD or BLM representatives were on location during closure activities.

Field Sampling Information

Name	Type of Sample	Collection Time	Collection Location	VOCs ¹ (ppm)	VOCs time	TPH ² mg/kg	TPH Time	Chloride ³ 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:

¹ 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.

² 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.

³ 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

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 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 horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Client Sample ID: BGTN-1

Project: COP Lucerne D #1

Collection Date: 1/31/2017 10:42:00 AM

Lab ID: 1702003-001

Matrix: MEOH (SOIL)

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

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: MAB
Petroleum Hydrocarbons, TR	140	19		mg/Kg	1	2/1/2017 11:00:00 AM	29989
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	ND	30		mg/Kg	20	2/1/2017 11:22:54 AM	29997
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	89	9.8		mg/Kg	1	2/1/2017 1:00:32 PM	29988
Motor Oil Range Organics (MRO)	140	49		mg/Kg	1	2/1/2017 1:00:32 PM	29988
Surr: DNOP	124	70-130		%Rec	1	2/1/2017 1:00:32 PM	29988
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	3.6		mg/Kg	1	2/1/2017 1:10:06 PM	29940
Surr: BFB	87.8	68.3-144		%Rec	1	2/1/2017 1:10:06 PM	29940
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.018		mg/Kg	1	2/1/2017 1:10:06 PM	29940
Toluene	ND	0.036		mg/Kg	1	2/1/2017 1:10:06 PM	29940
Ethylbenzene	ND	0.036		mg/Kg	1	2/1/2017 1:10:06 PM	29940
Xylenes, Total	ND	0.071		mg/Kg	1	2/1/2017 1:10:06 PM	29940
Surr: 4-Bromofluorobenzene	88.2	80-120		%Rec	1	2/1/2017 1:10:06 PM	29940

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1702003

Date Reported: 2/2/2017

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
EPA METHOD 418.1: TPH							Analyst: MAB
Petroleum Hydrocarbons, TR	220	19		mg/Kg	1	2/1/2017 11:00:00 AM	29989
EPA METHOD 300.0: ANIONS							Analyst: MRA
Chloride	ND	30		mg/Kg	20	2/1/2017 11:35:19 AM	29997
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
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
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
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
EPA METHOD 8021B: VOLATILES							Analyst: NSB
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.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times 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	MB-29997	SampType: mblk			TestCode: EPA Method 300.0: Anions					
Client ID:	PBS	Batch ID: 29997			RunNo: 40456					
Prep Date:	2/1/2017	Analysis Date: 2/1/2017			SeqNo: 1267780		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	LCS-29997	SampType: lcs			TestCode: EPA Method 300.0: Anions					
Client ID:	LCSS	Batch ID: 29997			RunNo: 40456					
Prep Date:	2/1/2017	Analysis Date: 2/1/2017			SeqNo: 1267781		Units: mg/Kg			
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.
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	MB-29989	SampType:	MBLK	TestCode:	EPA Method 418.1: TPH					
Client ID:	PBS	Batch ID:	29989	RunNo:	40419					
Prep Date:	2/1/2017	Analysis Date:	2/1/2017	SeqNo:	1266880	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	ND	20								

Sample ID	LCS-29989	SampType:	LCS	TestCode:	EPA Method 418.1: TPH					
Client ID:	LCSS	Batch ID:	29989	RunNo:	40419					
Prep Date:	2/1/2017	Analysis Date:	2/1/2017	SeqNo:	1266881	Units:	mg/Kg			
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	LCSD-29989	SampType:	LCSD	TestCode:	EPA Method 418.1: TPH					
Client ID:	LCSS02	Batch ID:	29989	RunNo:	40419					
Prep Date:	2/1/2017	Analysis Date:	2/1/2017	SeqNo:	1266882	Units:	mg/Kg			
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	MB-29988	SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID: 29988			RunNo: 40413					
Prep Date:	2/1/2017	Analysis Date: 2/1/2017			SeqNo: 1266782		Units: mg/Kg			
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	LCS-29988		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS		Batch ID: 29988		RunNo: 40413					
Prep Date:	2/1/2017		Analysis Date: 2/1/2017		SeqNo: 1266804		Units: mg/Kg			
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	MB-29940		SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	PBS		Batch ID: 29940		RunNo: 40433					
Prep Date:	1/30/2017		Analysis Date: 2/1/2017		SeqNo: 1267563		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	860		1000		85.8	68.3	144			

Sample ID	LCS-29940		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSS		Batch ID: 29940		RunNo: 40433					
Prep Date:	1/30/2017		Analysis Date: 2/1/2017		SeqNo: 1267564		Units: mg/Kg			
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	MB-29966		SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	PBS		Batch ID: 29966		RunNo: 40433					
Prep Date:	1/31/2017		Analysis Date: 2/1/2017		SeqNo: 1267573		Units: %Rec			
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	LCS-29966	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSS	Batch ID: 29966			RunNo: 40433					
Prep Date:	1/31/2017	Analysis Date: 2/1/2017			SeqNo: 1267575		Units: %Rec			
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.
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	MB-29940		SampType: MBLK		TestCode: EPA Method 8021B: Volatiles					
Client ID:	PBS		Batch ID: 29940		RunNo: 40433					
Prep Date:	1/30/2017		Analysis Date: 2/1/2017		SeqNo: 1267607		Units: mg/Kg			
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	LCS-29940		SampType: LCS		TestCode: EPA Method 8021B: Volatiles					
Client ID:	LCSS		Batch ID: 29940		RunNo: 40433					
Prep Date:	1/30/2017		Analysis Date: 2/1/2017		SeqNo: 1267608		Units: mg/Kg			
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	MB-29966		SampType: MBLK		TestCode: EPA Method 8021B: Volatiles					
Client ID:	PBS		Batch ID: 29966		RunNo: 40433					
Prep Date:	1/31/2017		Analysis Date: 2/1/2017		SeqNo: 1267615		Units: %Rec			
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	LCS-29966		SampType: LCS		TestCode: EPA Method 8021B: Volatiles					
Client ID:	LCSS		Batch ID: 29966		RunNo: 40433					
Prep Date:	1/31/2017		Analysis Date: 2/1/2017		SeqNo: 1267616		Units: %Rec			
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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory
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 $>0^{\circ}\text{C}$ 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 $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

Client: Rule Engineering LLC

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

Phone #: (505) 746-2707

email or Fax#: hwoods@ruleengineering.com

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other _____

☐ EDD (Type) _____

☐ Standard ☒ Rush Same Day

Project Name:	CoP Lucerne D #1
Project #:	

Project Manager:

H. Woods

Sampler: W. Woods

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.00°C

[illegible]

Date:	Time:	Relinquished by:
1/31/17	1821	Heather M. Woods
Date:	Time:	Relinquished by:
1/31/17	1847	Heather M. Woods

Received by:	Date	Time
Christine Webb	3/17	1821
Received by:	Date	Time
[Signature]	2/1/17	00

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

	X	BTEX + MTBE + PCE's (8021)
		BTEX + MTBE + TPH (Gas only)
	X	TPH 8015B (GRO / DRO / MRO)
	X	TPH (Method 418.1)
		EDB (Method 504.1)
		PAH's (8310 or 8270 SIMS)
		RCRA 8 Metals Agg. Organic Solvents
	X	Anions (F^{-} , Cl^{-} , NO_3^{-} , NO_2^{-} , PO_4^{3-} , SO_4^{2-})
		8081 Pesticides / 8082 PCB's
		8260B (VOA)
		8270 (Semi-VOA)
		Air Bubbles (Y or N)

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

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.