OIL CONS. DIV DIST. 3

FEB 23 2017

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: **Jicarilla E #15E**	Facility Type: **Gas Well**

Surface Owner **Jicarilla**	Mineral Owner **Jicarilla (Contract 104)**	API No. **3003925736**

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C	16	26N	04W	1190	North	1845	West	Rio Arriba

Latitude 36.49063 Longitude -107. 25976

NATURE OF RELEASE

Type of Release **Hydrocarbon (Historic)**	Volume of Release **Unknown**	Volume Recovered **140 c/yds**
Source of Release **Unknown (between separator and meter house)**	Date and Hour of Occurrence	Date and Hour of Discovery **10/03/16 @ 11:00 a.m.**
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? **N/A**	
By Whom? **N/A**	Date and Hour **N/A**	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. **N/A**	

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

Describe Cause of Problem and Remedial Action Taken.*
During a natural gas line replacement between the separator and meter house, contamination was discovered. There was a hydrocarbon odor in the soil.

Describe Area Affected and Cleanup Action Taken.*
Excavation was approximately 21' x 21' x 15-17' Deep. 140 c/yds of contaminated soil was transported to TNT Land Farm and 140 c/yds of clean soil was transported from a Jicarilla approved location, and placed in the excavation site. Analytical results were below the regulatory standards – no further action required. The soil sampling 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.

Signature:	OIL CONSERVATION DIVISION Approved by Environmental Specialist:	
Printed Name: **Lisa Hunter**		
Title: **Field Environmental Specialist**	Approval Date: 7/21/2017	Expiration Date:
E-mail Address: **Lisa.Hunter@cop.com**	Conditions of Approval:	Attached ☐
Date: **February 16, 2017** Phone: **(505) 258-1607**	—	

* Attach Additional Sheets If Necessary

NCS1634035847

Jicarilla E #15E Release Report

Unit Letter C, Section 16, Township 26 North, Range 4 West
Rio Arriba County, New Mexico

February 15, 2017

Prepared for:
ConocoPhillips
5525 Highway 64
Farmington, New Mexico 87401

Prepared by:
Rule Engineering, LLC
501 Airport Drive, Suite 205
Farmington, New Mexico 87401

Rule Engineering, LLC
Solutions to Regulations for Industry

ConocoPhillips
Jicarilla E #15E Release Report

Prepared for:

ConocoPhillips
5525 Highway 64
Farmington, New Mexico 87401

Prepared by:

Rule Engineering, LLC
501 Airport Drive, Suite 205
Farmington, New Mexico 87401

Heather M. Woods

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

Reviewed by:

Russell Knight, PG, Principal Hydrogeologist

February 15, 2017

Table of Contents

Tables

Figures

Appendices

1.0 Introduction

The ConocoPhillips Jicarilla E #15E release site is located in Unit Letter C, Section 16, Township 26 North, Range 4 West, in Rio Arriba County, New Mexico, on the Jicarilla Apache Nation. A natural gas release was discovered along the buried pipeline between the separator and meter house at the site during equipment maintenance operations.

A topographic map of the location reproduced from the United States Geological Society quadrangle map of the area is included as Figure 1 and an aerial site map is included as Figure 2.

2.0 Release Summary

Site Name	Jicarilla E #15E		
Site Location Description	Unit Letter C, Section 16, Township 26 North, Range 4 West		
Wellhead GPS Location	N36.49091 and W107.25949	***Release GPS Location***	N36.49063 and W107.25976
Land Jurisdiction	Jicarilla Apache Nation		
Release Source	Pipeline between separator and meter house		
Estimated Volume Released	Undetermined		
JANEPO/NMOCD Site Rank	30		
Distance to Nearest Surface Water	An unnamed, ephemeral tributary to Tapicito Creek is located approximately 190 east of the release location		
Estimated Depth to Groundwater	Between 50 and 100 feet below ground surface (bgs)	***Distance to Nearest Water Well or Spring***	Greater than 1,000 feet

3.0 JANEPO/NMOCD Site Ranking

The release site is located on the Jicarilla Apache Nation which utilizes the recommendations from the New Mexico Oil Conservation Division (NMOCD) for release response guidelines with oversight provided by the Jicarilla Apache Nation Environmental Protection Office (JANEPO). In accordance with the NMOCD Guidelines for Remediation of Leaks, Spills, and Releases (August 1993), this site was assigned a ranking score of 30 (Table 1).

Depth to groundwater at the site is estimated to be between 50 and 100 feet bgs based on the estimated depth of the colluvium/rock interface which may support a shallow aquifer dependent on hydrological conditions.

A review was completed of the New Mexico Office of the State Engineer (NMOSE) online New Mexico Water Rights Reporting System (NMWRRS) and no water wells were identified within a 1,000 foot radius of the location. No water wells were observed within a 1,000 foot radius of the location during a visual inspection.

An unnamed, ephemeral tributary to Tapicito Creek is located approximately 190 feet east of the release location.

Based on the ranking score of 30, action levels for remediated soils at the site are as follows: 10 milligrams per kilogram (mg/kg) benzene, 50 mg/kg total benzene, toluene, ethylbenzene, and total xylenes (BTEX), and 100 mg/kg total petroleum hydrocarbons (TPH).

4.0 Field Activities

Following the initial excavation of hydrocarbon impacted material, Rule personnel collected confirmation samples from the north, south and east sidewalls of the excavation on October 10, 2016. Laboratory analysis indicated TPH concentrations in excess of JANEPO/NMOCD action levels in the east sidewall. Additional excavation, including removal of additional material from the east sidewall, was performed and Rule personnel returned to the location to collect the remaining excavation confirmation samples on December 6, 2016. The maximum extent of the final excavation measured approximately 21 feet by 21 feet by 15 to 17 feet in depth. Excavated hydrocarbon impacted soils and rock were transported to a local NMOCD approved landfarm for disposal/remediation and the excavation was backfilled with clean, imported material from a nearby stockpond selected by JANEPO. A depiction of the final excavation with sample locations is included on Figure 2.

5.0 Soil Sampling

Rule collected three composite confirmation soil samples (SC-1 through SC-3) on October 10, 2016 and three additional composite confirmation soil samples (SC-4 through SC-6) on December, 6, 2016. Each confirmation soil sample is a representative composite comprised of five equivalent portions of soil collected from the sampled area.

A portion of each sample was field screened for volatile organic compounds (VOCs) and field analyzed for TPH. Field screening for VOC vapors was conducted with a photoionization detector (PID). Prior to field screening, the PID was calibrated with 100 ppm isobutylene gas. Field analysis for TPH was conducted for selected samples per United States Environmental Protection Agency (USEPA) Method 418.1, utilizing 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. Rule's practical quantitation limit for USEPA Method 418.1 is 20 mg/kg.

Soil 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. All samples were analyzed for BTEX per USEPA Method 8021B, and TPH (GRO/DRO) per USEPA Method 8015M/D.

Laboratory analytical results are summarized in Table 2. The analytical laboratory reports are included in Appendix A.

6.0 Laboratory Analytical Results

Sample Removed by Excavation: Sample SC-3 was removed by excavation due to exceedance of the JANEPO/NMOCD action level for TPH. Laboratory analytical results for sample SC-3 reported benzene and total BTEX concentrations below the laboratory reporting limits and a TPH concentration of 101 mg/kg.

Final Excavation Confirmation Samples: Samples collected for final excavation confirmation include SC-1, SC-2, SC-4, SC-5, and SC-6. Laboratory analytical results for final excavation confirmation samples reported benzene, total BTEX, and TPH concentrations below the laboratory reporting limits, which are below the applicable JANEPO/NMOCD action levels for a site rank of 30

Laboratory analytical results are summarized in Table 2. The analytical laboratory reports are included in Appendix A.

7.0 Conclusions

Hydrocarbon impacted soils associated with a natural gas release discovered during equipment maintenance operations at the ConocoPhillips Jicarilla E #15E have been excavated and transported to a JANEPO/NMOCD approved landfarm for disposal/remediation. Laboratory analytical results for samples collected from the final excavation sidewalls and base indicated that concentrations of benzene, total BTEX, and TPH are below JANEPO/NMOCD action levels for a site rank of 30. Therefore, no further work is recommended at this time.

8.0 Closure and Limitations

This report has been prepared for the exclusive use of ConocoPhillips and is subject to the terms, conditions, and limitations stated in Rule's report and Service Agreement with ConocoPhillips. All work has been performed in accordance with generally accepted professional environmental consulting practices. No other warranty is expressed or implied.

Tables

Table 1. JANEPO/NMOCD Site Ranking Determination
ConocoPhillips
Jicarilla E #15E Release
Rio Arriba County, New Mexico

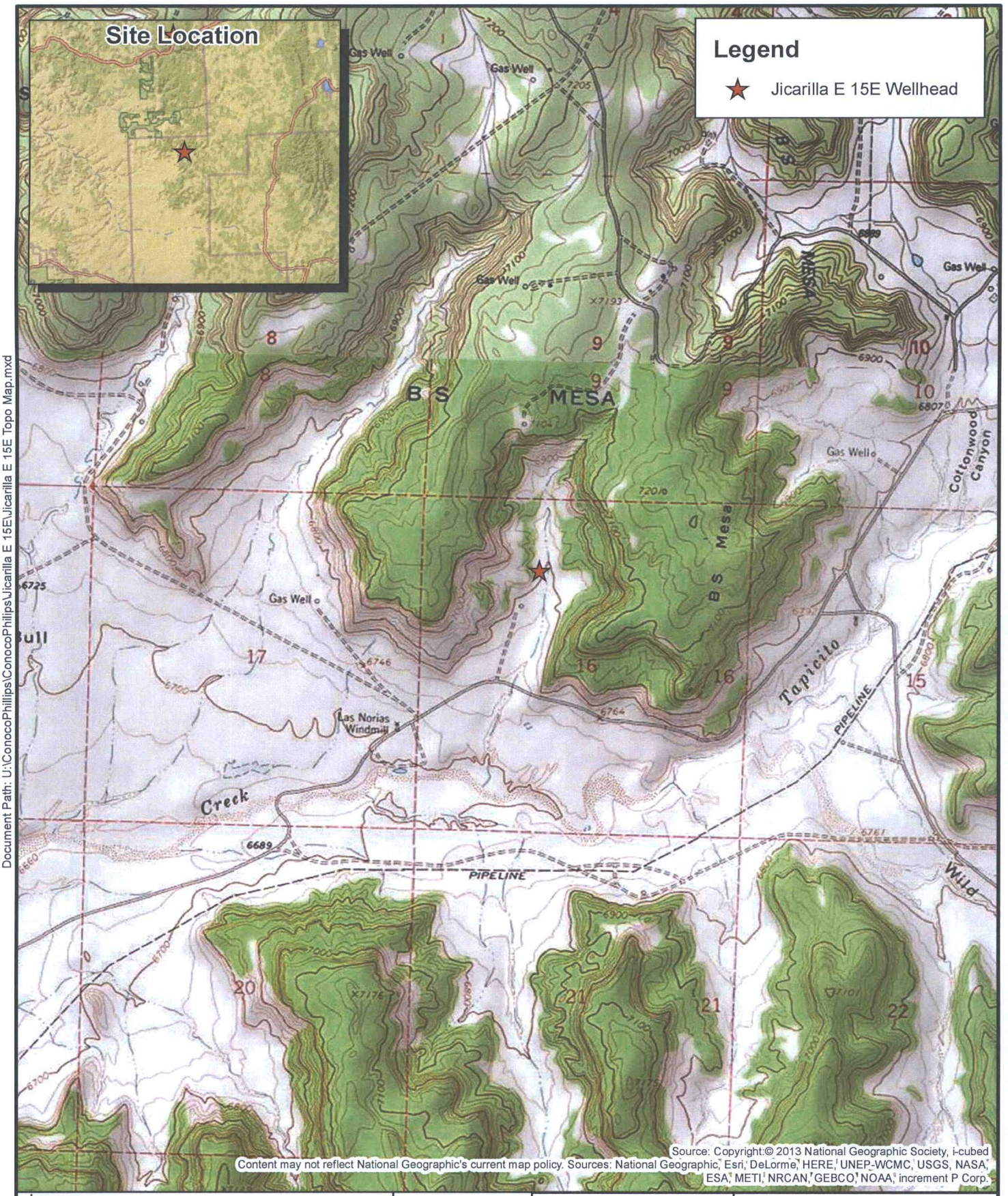
Ranking Criteria	Ranking Score	Site-Based Ranking Score	Basis for Determination	Data Sources
Depth to Groundwater				
<50 feet	20	10	A shallow perched aquifer may be present near the colluvium/rock interface estimated to be around 100 feet below ground surface. However, hydrological conditions may not supply enough water to support a shallow aquifer at this location.	NMOCD Online database, Lapis Point Quadrangle, Google Earth, and Visual Inspection
50-99 feet	10			
>100 feet	0			
Wellhead Protection Area				
<1,000 feet from a water source, or <200 feet from private domestic water source	20 (Yes)	0	No water source or recorded water wells within 1,000 foot radius of location.	NMOSE NMWRRS, Lapis Point Quadrangle, Google Earth, and Visual Inspection
	0 (No)			
Distance to Surface Water Body				
<200 horizontal feet	20	20	An unnamed, ephemeral tributary to Tapicito Creek is located approximately 190 feet to the east of the release location.	Otero Store Quadrangle, Google Earth, and Visual Inspection
200 to 1,000 horizontal feet	10			
>1,000 horizontal feet	0			
Site Based Total Ranking Score		**30**		

Table 2. Excavation Confirmation Laboratory Analytical Results
ConocoPhillips
Jicarilla E #15E
Rio Arriba County, New Mexico

Sample Name	Date	Sample Location	Approximate Sample Depth (ft bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylben-zene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	TPH as GRO (mg/kg)	TPH as DRO (mg/kg)	TPH as MRO (mg/kg)
JANEPO/NMOCD Action Level*				**10**	**NE**	**NE**	**NE**	**50**	**100****		
Final Excavation Confirmation Samples											
SC-1	10/10/2016	North Wall	0 to 9.5	<0.024	<0.049	<0.049	<0.097	ND	<4.9	<10	<50
SC-2	10/10/2016	South Wall	0 to 7	<0.024	<0.047	<0.047	<0.095	ND	<4.7	<9.9	<49
SC-4	12/6/2016	Base	15 to 17	<0.025	<0.050	<0.050	<0.10	ND	<5.0	<9.9	<50
SC-5	12/6/2016	East Wall	0 to 17	<0.024	<0.048	<0.048	<0.096	ND	<4.8	<9.4	<47
SC-6	12/6/2016	West Wall	0 to 17	<0.024	<0.048	<0.048	<0.096	ND	<4.8	<9.8	<49
Sample Removed by Excavation											
SC-3	10/10/2016	East Wall	0 to 9.5	<0.024	<0.047	<0.047	<0.095	ND	**<4.7**	**28**	**73**

Notes:
ft bgs - feet below grade surface
mg/kg - milligrams per kilogram
JANEPO - Jicarillo Apache Nation Environmental Protection Office
NMOCD - New Mexico Oil Conservation Division
NE - not-established
ND - not detected above laboratory reporting limits
BTEX - benzene, toluene, ethylbenzene, and xylenes
TPH - total petroleum hydrocarbons
GRO - gasoline range organics
DRO - diesel range organics
MRO - mineral oil range organics
*Based on the NMOCD *Guidelines for Remediation of Leaks, Spills and Releases (August 1993)*
**Based on a site ranking of 30.

Figures



Document Path: U:\ConocoPhillips\ConocoPhillips\Jicarilla E 15E\Jicarilla E 15E Topo Map.mxd

Rule Engineering, LLC
Solutions to Regulations for Industry

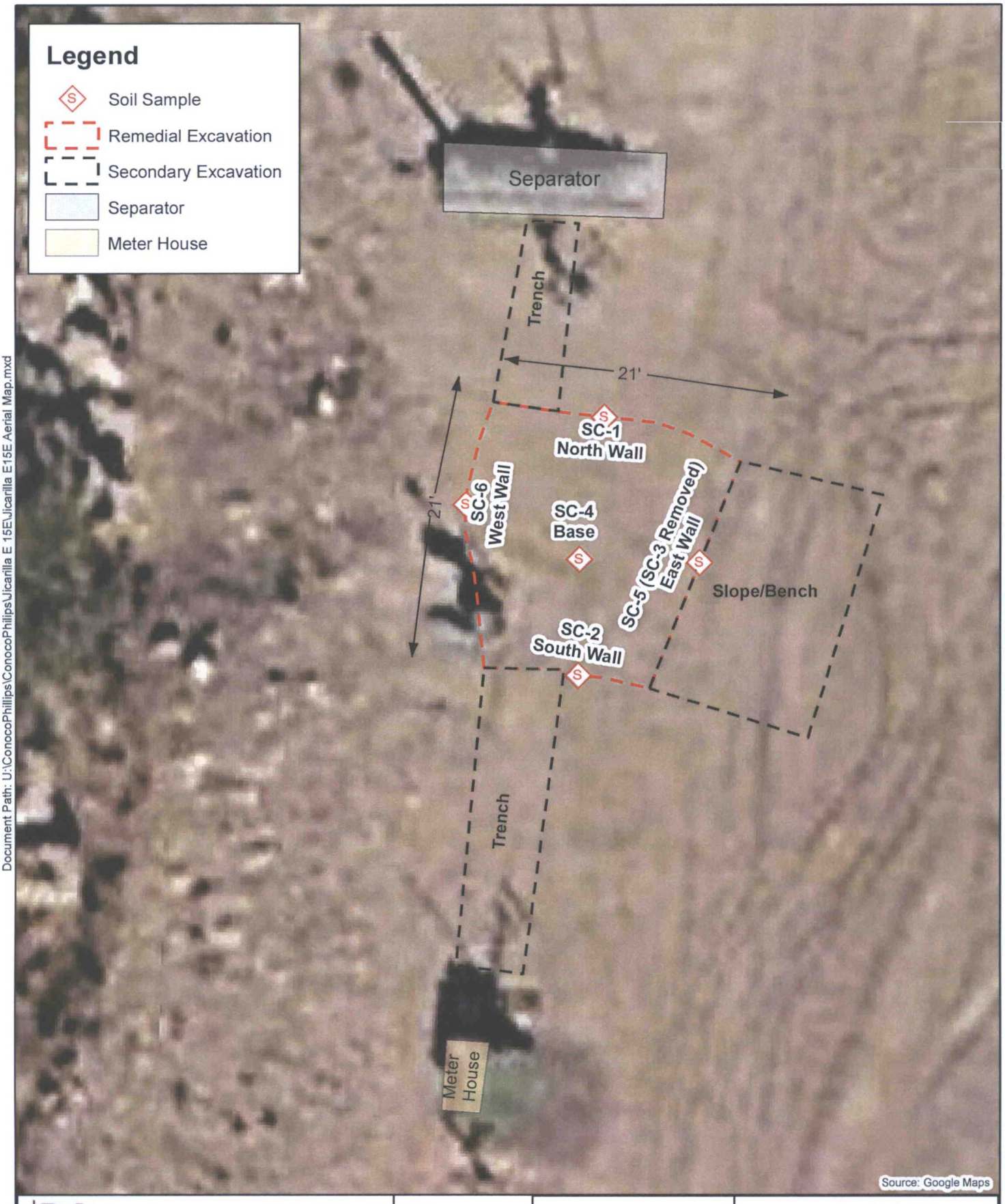
0 0.2 0.4 0.8 Miles

Lapis Point Quadrangle
1:24,000

ConocoPhillips

C-S16-T26N-R04W
N36.49063, W107.25976
Rio Arriba County, NM
API: 30-039-25736

Figure 1
Topographic Site Map
Jicarilla E #15E



Document Path: U:\ConocoPhillips\ConocoPhillipsJicarilla E 15E\Jicarilla E15E Aerial Map.mxd

Rule Engineering, LLC
Solutions to Regulations for Industry

0 2.5 5 10 15 20 Feet

1 inch = 10 feet

ConocoPhillips

C-S16-T26N-R04W
N36.49063, W107.25976
Rio Arriba County, NM
API: 30-039-25736

Figure 2
Aerial Site Map
Jicarilla E #15E

Appendix A

Analytical 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

October 13, 2016

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

RE: Jicarilla E 15 E OrderNo.: 1610427

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 3 sample(s) on 10/11/2016 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

Analytical Report
Lab Order **1610427**
Date Reported: **10/13/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Client Sample ID: SC-1
Project: Jicarilla E 15 E
Collection Date: 10/10/2016 12:45:00 PM
Lab ID: 1610427-001
Matrix: SOIL
Received Date: 10/11/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	10/12/2016 2:56:38 PM	27994
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	10/12/2016 2:56:38 PM	27994
Surr: DNOP	94.9	70-130		%Rec	1	10/12/2016 2:56:38 PM	27994
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/12/2016 2:57:44 PM	27999
Surr: BFB	97.1	68.3-144		%Rec	1	10/12/2016 2:57:44 PM	27999
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	10/12/2016 2:57:44 PM	27999
Toluene	ND	0.049		mg/Kg	1	10/12/2016 2:57:44 PM	27999
Ethylbenzene	ND	0.049		mg/Kg	1	10/12/2016 2:57:44 PM	27999
Xylenes, Total	ND	0.097		mg/Kg	1	10/12/2016 2:57:44 PM	27999
Surr: 4-Bromofluorobenzene	114	80-120		%Rec	1	10/12/2016 2:57:44 PM	27999

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.

CLIENT: Rule Engineering LLC
Client Sample ID: SC-2
Project: Jicarilla E 15 E
Collection Date: 10/10/2016 1:15:00 PM
Lab ID: 1610427-002
Matrix: SOIL
Received Date: 10/11/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	10/12/2016 3:19:44 PM	27994
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	10/12/2016 3:19:44 PM	27994
Surr: DNOP	93.3	70-130		%Rec	1	10/12/2016 3:19:44 PM	27994
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/12/2016 4:07:54 PM	27999
Surr: BFB	92.8	68.3-144		%Rec	1	10/12/2016 4:07:54 PM	27999
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	10/12/2016 4:07:54 PM	27999
Toluene	ND	0.047		mg/Kg	1	10/12/2016 4:07:54 PM	27999
Ethylbenzene	ND	0.047		mg/Kg	1	10/12/2016 4:07:54 PM	27999
Xylenes, Total	ND	0.095		mg/Kg	1	10/12/2016 4:07:54 PM	27999
Surr: 4-Bromofluorobenzene	111	80-120		%Rec	1	10/12/2016 4:07:54 PM	27999

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.

CLIENT: Rule Engineering LLC
Client Sample ID: SC-3
Project: Jicarilla E 15 E
Collection Date: 10/10/2016 10:00:00 AM
Lab ID: 1610427-003 **Matrix:** SOIL **Received Date:** 10/11/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	28	9.9		mg/Kg	1	10/12/2016 3:42:56 PM	27994
Motor Oil Range Organics (MRO)	73	50		mg/Kg	1	10/12/2016 3:42:56 PM	27994
Surr: DNOP	87.9	70-130		%Rec	1	10/12/2016 3:42:56 PM	27994
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/12/2016 5:17:52 PM	27999
Surr: BFB	93.8	68.3-144		%Rec	1	10/12/2016 5:17:52 PM	27999
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	10/12/2016 5:17:52 PM	27999
Toluene	ND	0.047		mg/Kg	1	10/12/2016 5:17:52 PM	27999
Ethylbenzene	ND	0.047		mg/Kg	1	10/12/2016 5:17:52 PM	27999
Xylenes, Total	ND	0.095		mg/Kg	1	10/12/2016 5:17:52 PM	27999
Surr: 4-Bromofluorobenzene	111	80-120		%Rec	1	10/12/2016 5:17:52 PM	27999

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#: **1610427**

13-Oct-16

Client: Rule Engineering LLC

Project: Jicarilla E 15 E

Sample ID **LCS-27994**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **27994**	RunNo: **37869**
Prep Date: **10/11/2016**	Analysis Date: **10/12/2016**	SeqNo: **1179829** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52	10	50.00	0	104	62.6	124			
Surr: DNOP	4.8		5.000		95.2	70	130			

Sample ID **MB-27994**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **27994**	RunNo: **37869**
Prep Date: **10/11/2016**	Analysis Date: **10/12/2016**	SeqNo: **1179830** 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	9.8		10.00		98.4	70	130			

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#: **1610427**

13-Oct-16

Client: Rule Engineering LLC
Project: Jicarilla E 15 E

Sample ID	**MB-27999**	SampType: **MBLK**			TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID: **27999**			RunNo: **37885**					
Prep Date:	**10/11/2016**	Analysis Date: **10/12/2016**			SeqNo: **1180069**		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	920		1000		92.3	68.3	144			

Sample ID	**LCS-27999**	SampType: **LCS**			TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID: **27999**			RunNo: **37885**					
Prep Date:	**10/11/2016**	Analysis Date: **10/12/2016**			SeqNo: **1180070**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	30	5.0	25.00	0	120	74.6	123			
Surr: BFB	1000		1000		104	68.3	144			

Sample ID	**1610427-002AMS**	SampType: **MS**			TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID:	**SC-2**	Batch ID: **27999**			RunNo: **37885**					
Prep Date:	**10/11/2016**	Analysis Date: **10/12/2016**			SeqNo: **1180527**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	32	4.7	23.70	0	133	59.3	143			
Surr: BFB	990		947.9		104	68.3	144			

Sample ID	**1610427-002AMSD**	SampType: **MSD**			TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID:	**SC-2**	Batch ID: **27999**			RunNo: **37885**					
Prep Date:	**10/11/2016**	Analysis Date: **10/12/2016**			SeqNo: **1180528**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	34	4.7	23.36	0	145	59.3	143	7.03	20	S
Surr: BFB	960		934.6		103	68.3	144	0	0	

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#: **1610427**

13-Oct-16

Client: Rule Engineering LLC
Project: Jicarilla E 15 E

Sample ID **MB-27999** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **27999** RunNo: **37885**
Prep Date: **10/11/2016** Analysis Date: **10/12/2016** SeqNo: **1180084** 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	1.1		1.000		108	80	120			

Sample ID **LCS-27999** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **27999** RunNo: **37885**
Prep Date: **10/11/2016** Analysis Date: **10/12/2016** SeqNo: **1180085** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	102	75.2	115			
Toluene	1.0	0.050	1.000	0	100	80.7	112			
Ethylbenzene	1.0	0.050	1.000	0	100	78.9	117			
Xylenes, Total	3.0	0.10	3.000	0	99.3	79.2	115			
Surr: 4-Bromofluorobenzene	1.1		1.000		115	80	120			

Sample ID **1610427-001AMS** SampType: **MS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **SC-1** Batch ID: **27999** RunNo: **37885**
Prep Date: **10/11/2016** Analysis Date: **10/12/2016** SeqNo: **1180535** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.2	0.025	0.9911	0	124	71.5	122			S
Toluene	1.3	0.050	0.9911	0	128	71.2	123			S
Ethylbenzene	1.3	0.050	0.9911	0	133	75.2	130			S
Xylenes, Total	3.8	0.099	2.973	0.01695	129	72.4	131			
Surr: 4-Bromofluorobenzene	1.2		0.9911		121	80	120			S

Sample ID **1610427-001AMSD** SampType: **MSD** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **SC-1** Batch ID: **27999** RunNo: **37885**
Prep Date: **10/11/2016** Analysis Date: **10/12/2016** SeqNo: **1180536** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.2	0.025	0.9960	0	119	71.5	122	3.94	20	
Toluene	1.2	0.050	0.9960	0	122	71.2	123	4.64	20	
Ethylbenzene	1.3	0.050	0.9960	0	126	75.2	130	4.58	20	
Xylenes, Total	3.7	0.10	2.988	0.01695	123	72.4	131	4.12	20	
Surr: 4-Bromofluorobenzene	1.2		0.9960		117	80	120	0	0	

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

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: 1610427 RcptNo: 1

Received by/date: LM 10/11/16

Logged By: Anne Thorne 10/11/2016 7:30:00 AM Anne Thorne

Completed By: Anne Thorne 10/11/2016 Anne Thorne

Reviewed By: AJS 10/11/16

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
2	3.9	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

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

Phone #: 505 793 9486

Email or Fax#: jvalder@ruleengineering.com

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☐ Standard ☑ Rush 3-Day

Project Name: Jicarilla 29 E 15E

Project #:

Project Manager: Heather Woods

Sampler: Justin Valder

On Ice: ☑ Yes ☐ No

Sample Temperature: 3.9

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1610427	BTEX + ~~MTBE~~ + ~~TMB's~~ (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
10/6	12:45	Soil	SC-1	4oz Glass	Cold	001	X		X													
10/6	1315	"	SC-2	"	"	002	X		X													
10/6	10:00	"	SC-3	"	"	003	X		X													

Date:	Time:	Relinquished by:	Received by:	Date	Time
10/6	1932	Justin Valder	Heather Woods	10/6/16	1932
10/6	1941	Heather Woods		10/11/16	0730

Remarks:

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

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

December 12, 2016

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

RE: Jicarilla E 15 E

OrderNo.: 1612293

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 3 sample(s) on 12/7/2016 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

Analytical Report
Lab Order **1612293**
Date Reported: **12/12/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Client Sample ID: SC-6
Project: Jicarilla E 15 E
Collection Date: 12/6/2016 9:00:00 AM
Lab ID: 1612293-001
Matrix: SOIL
Received Date: 12/7/2016 8:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/9/2016 6:00:13 PM	29058
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/9/2016 6:00:13 PM	29058
Surr: DNOP	98.3	70-130		%Rec	1	12/9/2016 6:00:13 PM	29058
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/9/2016 12:49:39 AM	29049
Surr: BFB	86.8	68.3-144		%Rec	1	12/9/2016 12:49:39 AM	29049
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	12/9/2016 12:49:39 AM	29049
Toluene	ND	0.048		mg/Kg	1	12/9/2016 12:49:39 AM	29049
Ethylbenzene	ND	0.048		mg/Kg	1	12/9/2016 12:49:39 AM	29049
Xylenes, Total	ND	0.096		mg/Kg	1	12/9/2016 12:49:39 AM	29049
Surr: 4-Bromofluorobenzene	94.9	80-120		%Rec	1	12/9/2016 12:49:39 AM	29049

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.

CLIENT: Rule Engineering LLC
Client Sample ID: SC-4
Project: Jicarilla E 15 E
Collection Date: 12/6/2016 10:45:00 AM
Lab ID: 1612293-002
Matrix: SOIL
Received Date: 12/7/2016 8:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	12/8/2016 8:58:22 PM	29058
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	12/8/2016 8:58:22 PM	29058
Surr: DNOP	92.9	70-130		%Rec	1	12/8/2016 8:58:22 PM	29058
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/9/2016 1:13:12 AM	29049
Surr: BFB	85.2	68.3-144		%Rec	1	12/9/2016 1:13:12 AM	29049
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	12/9/2016 1:13:12 AM	29049
Toluene	ND	0.050		mg/Kg	1	12/9/2016 1:13:12 AM	29049
Ethylbenzene	ND	0.050		mg/Kg	1	12/9/2016 1:13:12 AM	29049
Xylenes, Total	ND	0.10		mg/Kg	1	12/9/2016 1:13:12 AM	29049
Surr: 4-Bromofluorobenzene	92.3	80-120		%Rec	1	12/9/2016 1:13:12 AM	29049

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.

CLIENT: Rule Engineering LLC
Client Sample ID: SC-5
Project: Jicarilla E 15 E
Collection Date: 12/6/2016 10:55:00 AM
Lab ID: 1612293-003
Matrix: SOIL
Received Date: 12/7/2016 8:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	12/8/2016 9:19:35 PM	29058
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/8/2016 9:19:35 PM	29058
Surr: DNOP	96.3	70-130		%Rec	1	12/8/2016 9:19:35 PM	29058
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/8/2016 9:06:39 PM	29049
Surr: BFB	84.8	68.3-144		%Rec	1	12/8/2016 9:06:39 PM	29049
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	12/8/2016 9:06:39 PM	29049
Toluene	ND	0.048		mg/Kg	1	12/8/2016 9:06:39 PM	29049
Ethylbenzene	ND	0.048		mg/Kg	1	12/8/2016 9:06:39 PM	29049
Xylenes, Total	ND	0.096		mg/Kg	1	12/8/2016 9:06:39 PM	29049
Surr: 4-Bromofluorobenzene	93.3	80-120		%Rec	1	12/8/2016 9:06:39 PM	29049

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#: **1612293**

12-Dec-16

Client: Rule Engineering LLC

Project: Jicarilla E 15 E

Sample ID **LCS-29058** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **LCSS** Batch ID: **29058** RunNo: **39238**

Prep Date: **12/7/2016** Analysis Date: **12/8/2016** SeqNo: **1228615** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	93.1	62.6	124			
Surr: DNOP	4.3		5.000		86.2	70	130			

Sample ID **MB-29058** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **PBS** Batch ID: **29058** RunNo: **39238**

Prep Date: **12/7/2016** Analysis Date: **12/8/2016** SeqNo: **1228616** 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	9.6		10.00		96.0	70	130			

Sample ID **1612293-001AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **SC-6** Batch ID: **29058** RunNo: **39271**

Prep Date: **12/7/2016** Analysis Date: **12/9/2016** SeqNo: **1230085** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	9.7	48.36	0	99.9	51.6	130			
Surr: DNOP	4.3		4.836		88.4	70	130			

Sample ID **1612293-001AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **SC-6** Batch ID: **29058** RunNo: **39271**

Prep Date: **12/7/2016** Analysis Date: **12/9/2016** SeqNo: **1230086** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51	9.7	48.64	0	105	51.6	130	5.34	20	
Surr: DNOP	4.4		4.864		90.3	70	130	0	0	

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#: **1612293**

12-Dec-16

Client: Rule Engineering LLC

Project: Jicarilla E 15 E

Sample ID **MB-29049**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **29049**	RunNo: **39251**
Prep Date: **12/7/2016**	Analysis Date: **12/8/2016**	SeqNo: **1228752** 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-29049**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **29049**	RunNo: **39251**
Prep Date: **12/7/2016**	Analysis Date: **12/8/2016**	SeqNo: **1228753** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	99.0	74.6	123			
Surr: BFB	920		1000		92.0	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#: **1612293**

12-Dec-16

Client: Rule Engineering LLC
Project: Jicarilla E 15 E

Sample ID **MB-29049**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **29049**	RunNo: **39251**
Prep Date: **12/7/2016**	Analysis Date: **12/8/2016**	SeqNo: **1228780** 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	0.95		1.000		94.6	80	120			

Sample ID **LCS-29049**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **29049**	RunNo: **39251**
Prep Date: **12/7/2016**	Analysis Date: **12/8/2016**	SeqNo: **1228782** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.2	0.025	1.000	0	115	75.2	115			S
Toluene	1.0	0.050	1.000	0	105	80.7	112			
Ethylbenzene	1.0	0.050	1.000	0	101	78.9	117			
Xylenes, Total	3.0	0.10	3.000	0	99.8	79.2	115			
Surr: 4-Bromofluorobenzene	0.99		1.000		99.0	80	120			

Sample ID **1612293-001AMS**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **SC-6**	Batch ID: **29049**	RunNo: **39251**
Prep Date: **12/7/2016**	Analysis Date: **12/8/2016**	SeqNo: **1228790** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.2	0.024	0.9560	0	129	61.5	138			
Toluene	1.2	0.048	0.9560	0.01570	120	71.4	127			
Ethylbenzene	1.1	0.048	0.9560	0.01633	116	70.9	132			
Xylenes, Total	3.4	0.096	2.868	0.05825	117	76.2	123			
Surr: 4-Bromofluorobenzene	0.97		0.9560		101	80	120			

Sample ID **1612293-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **SC-6**	Batch ID: **29049**	RunNo: **39251**
Prep Date: **12/7/2016**	Analysis Date: **12/8/2016**	SeqNo: **1228791** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.2	0.023	0.9285	0	127	61.5	138	4.66	20	
Toluene	1.1	0.046	0.9285	0.01570	118	71.4	127	4.82	20	
Ethylbenzene	1.1	0.046	0.9285	0.01633	116	70.9	132	2.33	20	
Xylenes, Total	3.3	0.093	2.786	0.05825	118	76.2	123	2.16	20	
Surr: 4-Bromofluorobenzene	0.95		0.9285		102	80	120	0	0	

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

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: **1612293** RcptNo: **1**

Received by/date: LM 12/07/16

Logged By: **Andy Jansson** 12/7/2016 8:25:00 AM

Completed By: Andy Jansson 12/07/16

Reviewed By: 12/07/16

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	3.3	Good	Yes			

Chain-of-Custody Record

Client: Rule Engineering, LLC

Mailing Address: 501 Airport Dr. Suite
LOS Farmington, NM 87401

Phone #: 505 793 9486

Email or Fax#: justa justa@ruleengineering

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

Accreditation
NELAP ☐ Other _____

EDD (Type) _____

Turn-Around Time:
☐ Standard ☒ Rush 3 day

Project Name:
Jicarilla E 15E

Project #:

Project Manager:
Heather Woods

Sampler: Justin Valdez

On Ice: ☒ Yes ☐ No

Sample Temperature: 3.3

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

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1612293	BTEX + ~~MTBE~~ + ~~TMB's~~ (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
12/6/16	900	Soil	SC-6	4oz Glass	Cold	-001	X		X													
12/6/16	1045	Soil	SC-4	4oz Glass	Cold	-002	X		X													
12/6/16	1055	Soil	SC-5	4oz Glass	Cold	-003	X		X													

Date	Time	Relinquished by:	Received by:	Date	Time
12/6/16	1515	Justin Valdez	Christine Walls	12/6/16	1515
12/6/16	1830	Christine Walls		12/07/16	0825

Remarks:
WO: 21741969 Area Supervisor: Terry Nelson
Approver: KAITLW Ordered by: Lisa Hunter
Area: 9

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.