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 Burlington Resources Oil &Gas Co.	Contact Bobby **Spearman**
Address 3401 East 30th St, Farmington, NM	Telephone No. (505)-320-3045
Facility Name: East 9	Facility Type: Gas well

Surface Owner: Fed	Mineral Owner: Fed	API No. 3004510253

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
N	**25**	**31N**	**12W**	**880**	**South**	**1505**	**West**	**San Juan**

Latitude 36.86547 _Longitude -108.05389

NATURE OF RELEASE

Type of Release Hydrocarbon	Volume of Release **Unknown**	Volume Recovered **None**
Source of Release BGT	Date and Hour of Occurrence	Date and Hour of Discovery 12-12-16
Was Immediate Notice Given? ☐ Yes ☒ No ☐ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
Historic contamination was discovered during facility pit reset. Amount is unknown at this time.

Describe Area Affected and Cleanup Action Taken.*
Historical Hydrocarbon soil was found under the BGT Area for the subject well. The excavation was app 21'x30'x9'and 23'x10'x9' for a total of 268 yds that was transported to IEI landfarm. Analytical results were below regulatory standards-no further action is required. The final report is attached.

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: R.Spearman	OIL CONSERVATION DIVISION
Printed Name: **Bobby Spearman**	Approved by Environmental Specialist:
Title: **Field Environmental Specialist**	Approval Date: 7/24/2017 Expiration Date:
E-mail Address: **Robert.E.Spearman**@conocophillips.com	Conditions of Approval: Attached ☐
Date: 4-28-2017 Phone: (505) 320-3045	

* Attach Additional Sheets If Necessary

NCS1701038368

OIL CONS. DIV DIST. 3

MAY 04 2017

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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 21, 2016

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

RE: COP East 9 OrderNo.: 1612827

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 3 sample(s) on 12/15/2016 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 **1612827**
Date Reported: **12/21/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: COP East 9
Lab ID: 1612827-001 **Matrix:** SOIL

Client Sample ID: TH-3 @ 8'
Collection Date: 12/9/2016 4:30:00 PM
Received Date: 12/15/2016 8:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	400	10		mg/Kg	1	12/20/2016 10:09:41 PM	29273
Motor Oil Range Organics (MRO)	94	50		mg/Kg	1	12/20/2016 10:09:41 PM	29273
Surr: DNOP	107	70-130		%Rec	1	12/20/2016 10:09:41 PM	29273
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	160	24		mg/Kg	5	12/20/2016 11:07:31 AM	29267
Surr: BFB	327	68.3-144	S	%Rec	5	12/20/2016 11:07:31 AM	29267
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.12		mg/Kg	5	12/20/2016 11:07:31 AM	29267
Toluene	ND	0.24		mg/Kg	5	12/20/2016 11:07:31 AM	29267
Ethylbenzene	0.77	0.24		mg/Kg	5	12/20/2016 11:07:31 AM	29267
Xylenes, Total	7.6	0.48		mg/Kg	5	12/20/2016 11:07:31 AM	29267
Surr: 4-Bromofluorobenzene	122	80-120	S	%Rec	5	12/20/2016 11:07:31 AM	29267

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
Project: COP East 9
Lab ID: 1612827-002 **Matrix:** SOIL

Client Sample ID: SB-1 @ 9-10
Collection Date: 12/14/2016 10:00:00 AM
Received Date: 12/15/2016 8:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	110	9.7		mg/Kg	1	12/20/2016 11:13:09 PM	29273
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/20/2016 11:13:09 PM	29273
Surr: DNOP	107	70-130		%Rec	1	12/20/2016 11:13:09 PM	29273
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	150	23		mg/Kg	5	12/20/2016 11:31:04 AM	29267
Surr: BFB	218	68.3-144	S	%Rec	5	12/20/2016 11:31:04 AM	29267
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	0.24	0.12		mg/Kg	5	12/20/2016 11:31:04 AM	29267
Toluene	ND	0.23		mg/Kg	5	12/20/2016 11:31:04 AM	29267
Ethylbenzene	0.88	0.23		mg/Kg	5	12/20/2016 11:31:04 AM	29267
Xylenes, Total	3.5	0.47		mg/Kg	5	12/20/2016 11:31:04 AM	29267
Surr: 4-Bromofluorobenzene	116	80-120		%Rec	5	12/20/2016 11:31:04 AM	29267

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: SB-1 @ 11
Project: COP East 9
Collection Date: 12/14/2016 10:05:00 AM
Lab ID: 1612827-003 **Matrix:** SOIL **Received Date:** 12/15/2016 8:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	150	9.8		mg/Kg	1	12/20/2016 11:34:22 PM	29273
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/20/2016 11:34:22 PM	29273
Surr: DNOP	101	70-130		%Rec	1	12/20/2016 11:34:22 PM	29273
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	100	4.9		mg/Kg	1	12/20/2016 10:43:55 AM	29267
Surr: BFB	501	68.3-144	S	%Rec	1	12/20/2016 10:43:55 AM	29267
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	0.075	0.024		mg/Kg	1	12/20/2016 10:43:55 AM	29267
Toluene	ND	0.049		mg/Kg	1	12/20/2016 10:43:55 AM	29267
Ethylbenzene	0.43	0.049		mg/Kg	1	12/20/2016 10:43:55 AM	29267
Xylenes, Total	1.2	0.098		mg/Kg	1	12/20/2016 10:43:55 AM	29267
Surr: 4-Bromofluorobenzene	132	80-120	S	%Rec	1	12/20/2016 10:43:55 AM	29267

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#: **1612827**

21-Dec-16

Client: Rule Engineering LLC
Project: COP East 9

Sample ID **1612827-001AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **TH-3 @ 8'** Batch ID: **29273** RunNo: **39526**
Prep Date: **12/19/2016** Analysis Date: **12/20/2016** SeqNo: **1238440** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	380	9.5	47.66	399.7	-30.8	51.6	130			S
Surr: DNOP	5.3		4.766		110	70	130			

Sample ID **1612827-001AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **TH-3 @ 8'** Batch ID: **29273** RunNo: **39526**
Prep Date: **12/19/2016** Analysis Date: **12/20/2016** SeqNo: **1238442** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	320	9.2	46.13	399.7	-174	51.6	130	18.6	20	S
Surr: DNOP	4.9		4.613		107	70	130	0	0	

Sample ID **LCS-29273** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **29273** RunNo: **39526**
Prep Date: **12/19/2016** Analysis Date: **12/20/2016** SeqNo: **1238583** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	89.5	63.8	116			
Surr: DNOP	4.7		5.000		94.4	70	130			

Sample ID **MB-29273** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **29273** RunNo: **39526**
Prep Date: **12/19/2016** Analysis Date: **12/20/2016** SeqNo: **1238584** 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	10		10.00		99.6	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#: **1612827**

21-Dec-16

Client: Rule Engineering LLC
Project: COP East 9

Sample ID **MB-29267**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **29267**	RunNo: **39531**
Prep Date: **12/19/2016**	Analysis Date: **12/20/2016**	SeqNo: **1238284** 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		86.3	68.3	144			

Sample ID **LCS-29267**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **29267**	RunNo: **39531**
Prep Date: **12/19/2016**	Analysis Date: **12/20/2016**	SeqNo: **1238285** 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	103	74.6	123			
Surr: BFB	970		1000		97.0	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#: **1612827**

21-Dec-16

Client: Rule Engineering LLC
Project: COP East 9

Sample ID **MB-29267**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **29267**	RunNo: **39531**
Prep Date: **12/19/2016**	Analysis Date: **12/20/2016**	SeqNo: **1238317** 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	0.96		1.000		96.5	80	120			

Sample ID **LCS-29267**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **29267**	RunNo: **39531**
Prep Date: **12/19/2016**	Analysis Date: **12/20/2016**	SeqNo: **1238318** 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	117	75.2	115			S
Toluene	1.0	0.050	1.000	0	103	80.7	112			
Ethylbenzene	1.0	0.050	1.000	0	100	78.9	117			
Xylenes, Total	3.0	0.10	3.000	0	100	79.2	115			
Surr: 4-Bromofluorobenzene	1.0		1.000		99.8	80	120			

Sample ID **1612827-001AMS**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **TH-3 @ 8'**	Batch ID: **29267**	RunNo: **39531**
Prep Date: **12/19/2016**	Analysis Date: **12/20/2016**	SeqNo: **1238319** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.12	0.9251	0	120	61.5	138			
Toluene	1.0	0.23	0.9251	0	111	71.4	127			
Ethylbenzene	1.9	0.23	0.9251	0.7725	121	70.9	132			
Xylenes, Total	11	0.46	2.775	7.576	123	76.2	123			
Surr: 4-Bromofluorobenzene	5.7		4.625		123	80	120			S

Sample ID **1612827-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **TH-3 @ 8'**	Batch ID: **29267**	RunNo: **39531**
Prep Date: **12/19/2016**	Analysis Date: **12/20/2016**	SeqNo: **1238320** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.12	0.9690	0	109	61.5	138	5.15	20	
Toluene	1.1	0.24	0.9690	0	111	71.4	127	4.71	20	
Ethylbenzene	1.9	0.24	0.9690	0.7725	115	70.9	132	0.481	20	
Xylenes, Total	11	0.48	2.907	7.576	117	76.2	123	0.129	20	
Surr: 4-Bromofluorobenzene	6.1		4.845		127	80	120	0	0	S

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: 1612827 RcptNo: 1

Received by/date: AG 12/15/16

Logged By: Ashley Gallegos 12/15/2016 8:10:00 AM AG

Completed By: Ashley Gallegos 12/15/2016 8:45:00 AM AG

Reviewed By: 12/15/16

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	1.0	Good	Yes			

Chain-of-Custody Record

ent: Rule Engineering, LLC

iling Address: 501 Airport Dr, Ste 205

Farmington, NM 87401

one #: hwoods@ruleingineering.com

ail or Fax#: (505) 716-2787

/QC Package:

Standard ☐ Level 4 (Full Validation)

creditation

NELAP ☐ Other _____

EDD (Type) _____

Turn-Around Time:

☐ Standard ☒ Rush 3-Day

Project Name:

CoP Dawson #2E East #9

Project #:

Project Manager:

H. Woods

Sampler: H. Woods

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.4

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1612827	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)
12/14/16	1630	Soil	TH-3@8'	(1) 4oz Glass	Cold	-001	X		X													
12/14/16	1000	Soil	SB-1@9-10	"	"	-002	X		X													
12/14/16	1005	Soil	SB-1@11	"	"	-003	X		X													

Date:	Time:	Relinquished by:	Received by:	Date	Time
12/14/16	1717	Heather N. Woods	Chris Watt	12/14/16	1717
12/14/16	1811	Chris Watt	[illegible]	12/15/16	0810

Remarks: Direct bill to ConocoPhillips

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.

East #9 Release Report

Unit Letter N, Section 25, Township 31 North, Range 12 West
San Juan County, New Mexico

April 26, 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
East #9 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

April 26, 2017

Table of Contents

Tables

Figures

Appendices

1.0 Introduction

The ConocoPhillips East #9 release site is located in Unit Letter N, Section 25, Township 31 North, Range 12 West, in San Juan County, New Mexico. A historical release was discovered on December 12, 2016, during below grade tank (BGT) reset and upgrade activities.

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	East #9		
Site Location Description	Unit Letter N, Section 25, Township 31 North, Range 12 West		
Wellhead GPS Location	N36.86533 and W108.05381	***Release GPS Location***	N36.86547 and W108.05389
Land Jurisdiction	Bureau of Land Management	***Discovery Date***	December 12, 2016
Release Source	Historical		
NMOCD Site Rank	10		
Distance to Nearest Surface Water	Small, ephemeral tributaries to Kochis Arroyo are located approximately 260 feet east and southeast of the location.		
Estimated Depth to Groundwater	Greater than 100 feet below ground surface (bgs)	***Distance to Nearest Water Well or Spring***	Greater than 1,000 feet

3.0 NMOCD Site Ranking

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 (Table 1).

Depth to groundwater at the site is greater than 100 feet bgs based on the elevation differential between the location and local drainages and the depths to groundwater reported on local cathodic well reports.

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.

Small, ephemeral tributaries to Kochis Arroyo are located approximately 260 feet east and southeast of the location.

Based on the ranking score of 10, 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 1,000 mg/kg total petroleum hydrocarbons (TPH).

4.0 Site Assessment

4.1 Field Activities

A site assessment was conducted to determine the approximate horizontal and vertical extents of the release. On December 8, 2016, Rule personnel provided guidance and field analysis of soil samples collected from three backhoe test pits (TP-1 through TP-3). Test pits were advanced to depths ranging from approximately 8 to 9 feet bgs where refusal was encountered on sandstone.

Rule returned to the location on December 14, 2016, to continue the site assessment utilizing a direct push drill rig operated by Kyvek Energy Services. Rule personnel provided guidance and field analysis of soil sampling of two soil borings (SB-1 and SB-2). Soil borings were advanced to approximately 8 feet and 11 feet bgs where refusal was encountered.

Test pit and soil boring locations are illustrated on Figure 2.

4.2 Soil Sampling

Rule collected soil samples from the test pits and soil borings at selected intervals or at changes in lithology or contamination. The lithology encountered at the site included interbedded clayey sand and poorly graded sand with clay underlain by clayey sandstone to the maximum depths reached.

A portion of each sample was field screened for VOCs and selected samples were also field analyzed for TPH. Field screening for VOC vapors was conducted with a MiniRAE 3000 photoionization detector (PID). Prior to field screening, the PID was calibrated with 100 parts per million (ppm) isobutylene gas. Field analysis for TPH was conducted for selected samples per United States Environmental Protection Agency (USEPA) Method 418.1, utilizing a Buck Scientific HC-404 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 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 (HEAL) in Albuquerque, New Mexico. Samples were analyzed for BTEX per USEPA Method 8021B, and TPH per USEPA Method 8015M/D.

Site assessment field screening results and laboratory analytical results are summarized in Table 2. The analytical laboratory report is included in Appendix A.

4.3 Field Screening Results

Field screening results for samples collected from test pits TP-1 through TP-3 and soil borings SB-1 and SB-2 indicated VOC concentrations ranging from 13.4 ppm to 4,503 ppm. Field screening results for the site assessment samples in indicated TPH concentrations ranging from 375 mg/kg to 1,100 mg/kg.

4.4 Laboratory Analytical Results

Laboratory analytical results for the site assessment samples reported benzene concentrations ranging from below the laboratory reporting limit to 0.24 mg/kg. Total BTEX concentrations for the site assessment samples ranged from 1.2 mg/kg to 8.4 mg/kg. Laboratory analytical results for the site assessment samples reported TPH concentrations ranging from 250 mg/kg to 654 mg/kg. An area of excavation was recommended based on the field screening and analytical laboratory results from the site assessment.

5.0 Excavation Confirmation Sampling

5.1 Field Activities

Rule personnel collected confirmation samples from the resultant excavation which measured approximately 21 feet by 30 feet with an extension to the northwest approximately 23 feet by 10 feet. The southern half of the excavation measured approximately 8 to 10 feet in depth and the northern half of the excavation measured approximately 10 to 12 feet in depth. Excavated hydrocarbon impacted soils were transported to a local NMOCD approved landfarm for disposal/remediation and the excavation was backfilled with clean, imported material. A depiction of the final excavation with sample locations is included on Figure 3.

5.2 Soil Sampling

Rule collected six composite confirmation soil samples (SC-1 through SC-6) on December 8 and 9, 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 VOCs and field analyzed for TPH utilizing the same methods as described in Section 4.2.

Soil samples collected for laboratory analysis were placed into laboratory supplied glassware, labeled, and maintained on ice until delivery to HEAL. All excavation

confirmation samples were analyzed for BTEX per USEPA Method 8021B, and TPH per USEPA Method 8015M/D.

Field screening and laboratory analytical results are summarized in Table 3. The analytical laboratory reports are included in Appendix A.

5.3 Field Screening Results

Field screening results for soil confirmation samples SC-1 through SC-6 indicated VOC concentrations ranging from 2,650 ppm to 4,773 ppm. Field TPH concentration results for these samples ranged from 270 mg/kg to 780 mg/kg.

5.4 Laboratory Analytical Results

Laboratory analytical results for final excavation confirmation samples SC-1 through SC-6 reported benzene concentrations ranging from below the laboratory reporting limits to 0.42 mg/kg, which are below the NMOCD action level of 10 mg/kg. Total BTEX concentrations for the excavation confirmation samples ranged from 0.24 mg/kg to 15 mg/kg, which are below the NMOCD action level of 50 mg/kg. Laboratory analytical results for the final excavation samples reported TPH concentrations ranging from 134 mg/kg to 776 mg/kg, which are below the NMOCD action level of 1,000 mg/kg for a site rank of 10.

6.0 Conclusions

Hydrocarbon impacted soils associated with a historical release discovered during BGT reset and upgrade activities at the ConocoPhillips East #9 have been excavated and transported to an NMOCD approved landfarm for disposal/remediation. Field screening and laboratory analytical results for samples collected from the final excavation sidewalls and base indicate that concentrations of benzene, total BTEX, and TPH are below NMOCD action levels for a site rank of 10. Therefore, no further work is recommended at this time.

7.0 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. NMOCD Site Ranking Determination
ConocoPhillips
East #9
San Juan County, New Mexico

Ranking Criteria	Ranking Score	Site-Based Ranking Score	Basis for Determination	Data Sources
Depth to Groundwater				
<50 feet	20	0	Depth to groundwater is estimated to be greater than 100 feet below ground surface based on elevation differential between location and local drainages and the depths to groundwater reported on local cathodic well reports.	NMOCD Online database, Flora Vista 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, Flora Vista Quadrangle, Google Earth, and Visual Inspection
	0 (No)			
Distance to Surface Water Body				
<200 horizontal feet	20	10	Small, ephemeral tributaries to Kochis Arroyo are located approximatley 260 feet east and southeast of the location.	Flora Vista Quadrangle, Google Earth, and Visual Inspection
200 to 1,000 horizontal feet	10			
>1,000 horizontal feet	0			
Site Based Total Ranking Score		**10**		

Table 2. Site Assessment Field Screening and Laboratory Analytical Results
ConocoPhillips
East #9
San Juan County, New Mexico

Sample Name	Date	Approximate Sample Depth (ft bgs)	Field Results		Laboratory Results							
			Field VOCs by PID (ppm)	Field TPH by 418.1 (mg/kg)	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)
NMOCD Action Level*			**100**	**1,000****	**10**	**NE**	**NE**	**NE**	**50**		**1,000****	
TH-1	12/8/2016	6	**3,511**	931	--	--	--	--	--	--	--	--
		8	13.4	--	--	--	--	--	--	--	--	--
TH-2	12/8/2016	5	**2,505**	--	--	--	--	--	--	--	--	--
		7	**3,742**	--	--	--	--	--	--	--	--	--
		9	**3,738**	--	--	--	--	--	--	--	--	--
TH-3	12/8/2016	6	**1,982**	--	--	--	--	--	--	--	--	--
		8	**4,503**	**1,100**	<0.12	<0.24	0.77	7.6	8.4	160	400	94
SB-1	12/14/2016	8 to 9	**2,361**	--	--	--	--	--	--	--	--	--
		9 to 10	**2,391**	523	0.24	<0.23	0.88	3.5	4.6	150	110	<49
		10 to 11	**1,293**	375	0.075	<0.049	0.43	1.2	1.7	100	150	<49
SB-2	12/14/2016	5 to 5.5	**140**	--	--	--	--	--	--	--	--	--
		7 to 8	**360**	--	--	--	--	--	--	--	--	--

Notes: All test holes and soil borings were terminated at refusal or limits of the equipment.

VOCs - volatile organic compounds
PID - photoionization detector
ft bgs - feet below grade surface
ppm - parts per million
mg/kg - milligrams per kilogram
NE - not-established
TPH - total petroleum hydrocarbons
GRO - gasoline range organics
DRO - diesel range organics
MRO - mineral oil range organics
NMOCD - New Mexico Oil Conservation Division

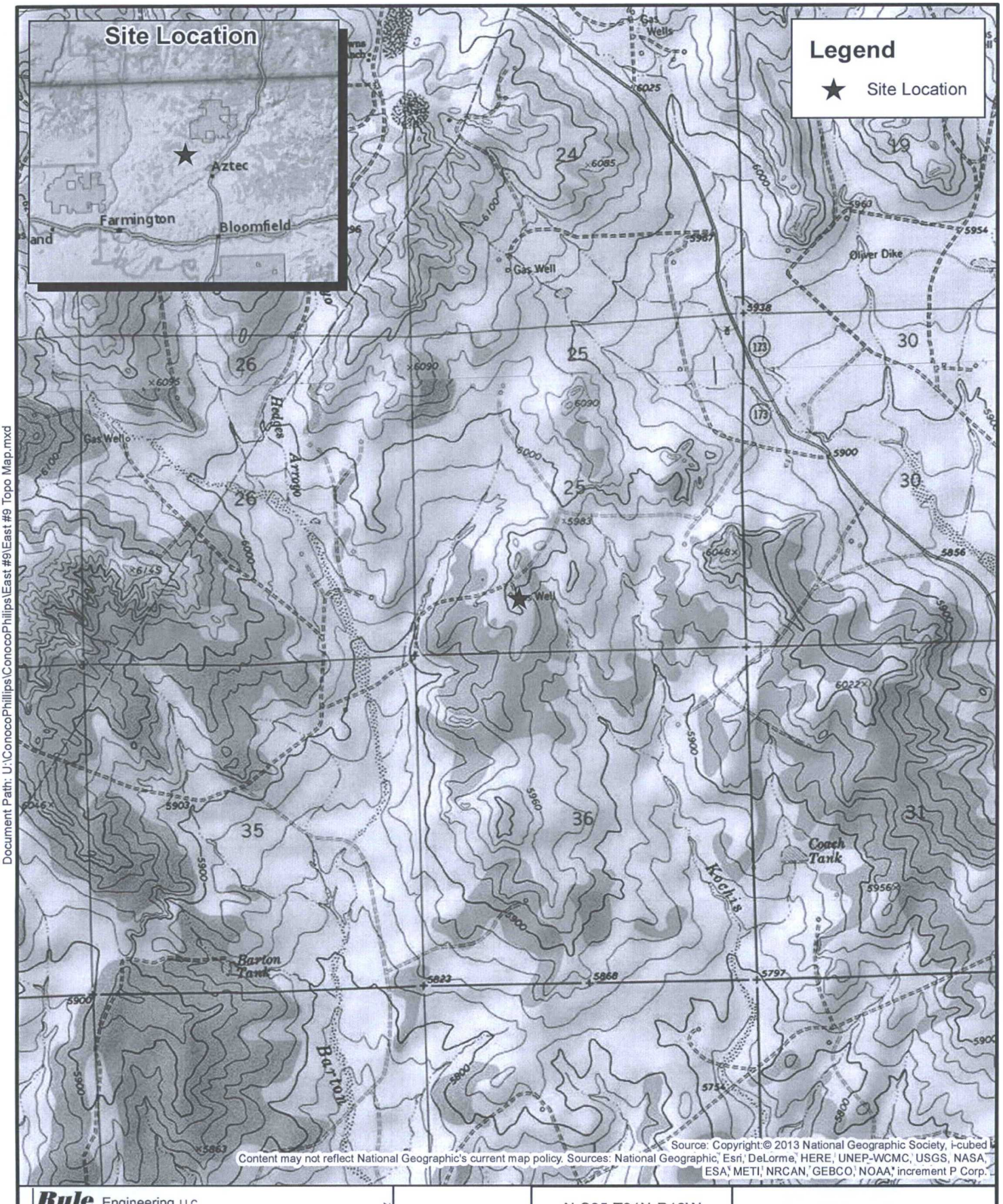
*Based on the NMOCD *Guidelines for Remediation of Leaks, Spills and Releases (August 1993)*
**Based on a site ranking of 10.

Table 3. Excavation Confirmation Field Screening and Laboratory Analytical Results
ConocoPhillips
East #9
San Juan County, New Mexico

Sample Name	Date	Approximate Sample Depth (ft bgs)	Sample Location	Field VOCs by PID (ppm)	Field TPH by 418.1 (mg/kg)	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)
NMOCD Action Level*				100	1,000**	10	NE	NE	NE	50		1,000**	
SC-1	3/9/2017	0 to 12	North Wall	**4,773**	720	<0.19	<0.37	1.2	8.8	10.0	270	280	100
SC-2	3/8/2017	0 to 12	East Wall	**4,430**	270	<0.024	<0.048	0.16	0.38	0.54	39	95	<49
SC-3	3/8/2017	0 to 10	South Wall	**2,650**	580	<0.048	<0.096	0.19	0.60	0.79	74	130	<49
SC-4	3/8/2017	0 to 12	West Wall	**3,925**	410	<0.024	<0.048	0.085	0.15	0.24	28	120	<48
SC-5	3/8/2017	8 to 10	Southern Base	**2,750**	320	<0.024	<0.048	0.083	0.18	0.26	22	120	<49
SC-6	3/9/2017	10 to 12	Northern Base	**4,258**	780	0.42	<0.38	3.4	11	15	530	170	76

Notes:
VOCs - volatile organic compounds
PID - photoionization detector
ft bgs - feet below grade surface
ppm - parts per million
mg/kg - milligrams per kilogram
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
NMOCD - New Mexico Oil Conservation Division
*Based on the NMOCD *Guidelines for Remediation of Leaks, Spills and Releases (August 1993)*
**Based on a site ranking of 10.

Figures



Rule Engineering, LLC
Solutions to Regulations for Industry

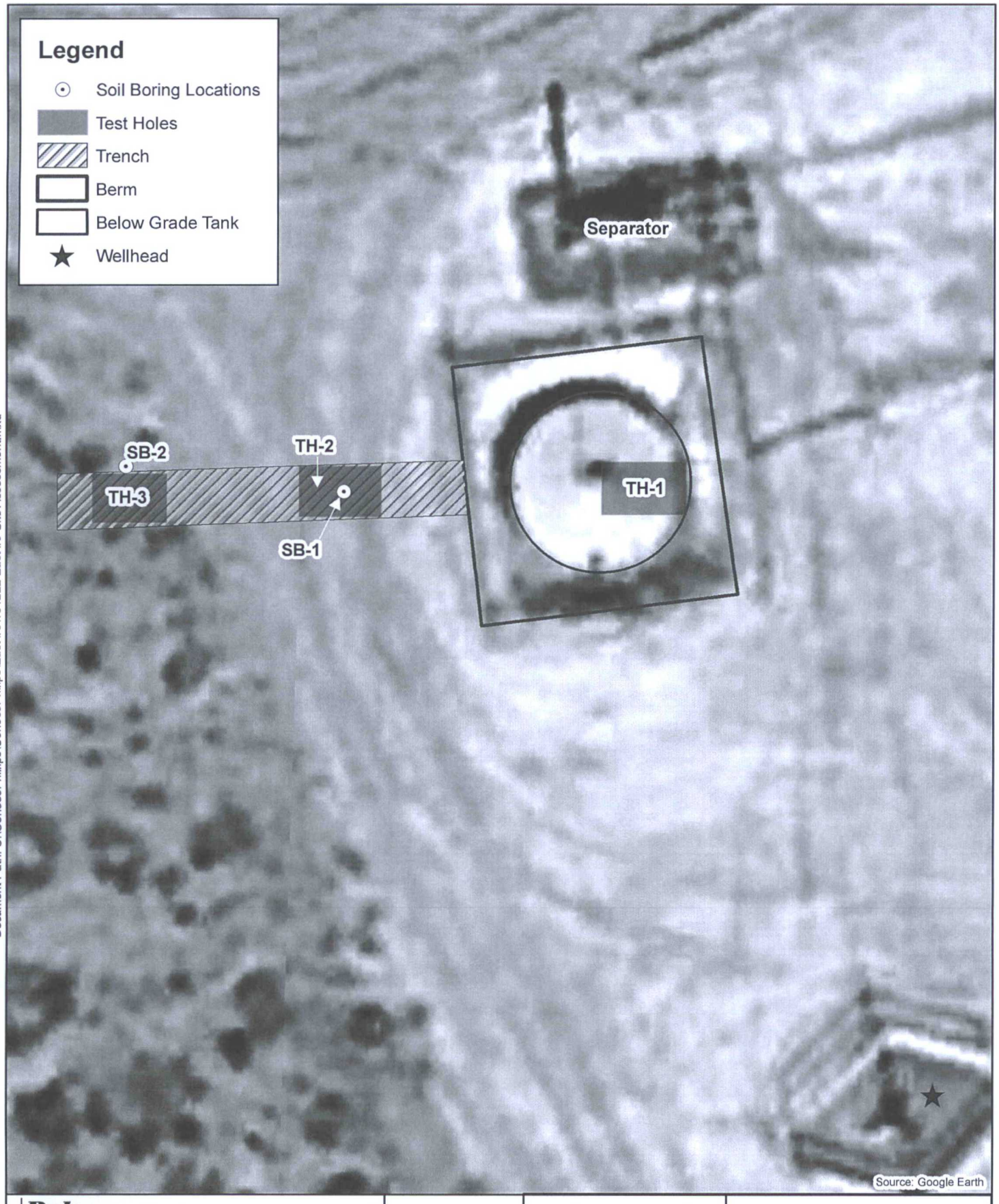
0 0.2 0.4 0.8 Miles

Flora Vista Quadrangle
1:24,000

ConocoPhillips

N-S25-T31N-R12W
N36.86547, W108.05389
San Juan County, NM
API: 30-045-10253

Figure 1
Topographic Site Map
East #9



Document Path: U:\ConocoPhillips\ConocoPhillips\East #91161222 East #9 Site Assessment.mxd

Rule Engineering, LLC
Solutions to Regulations for Industry

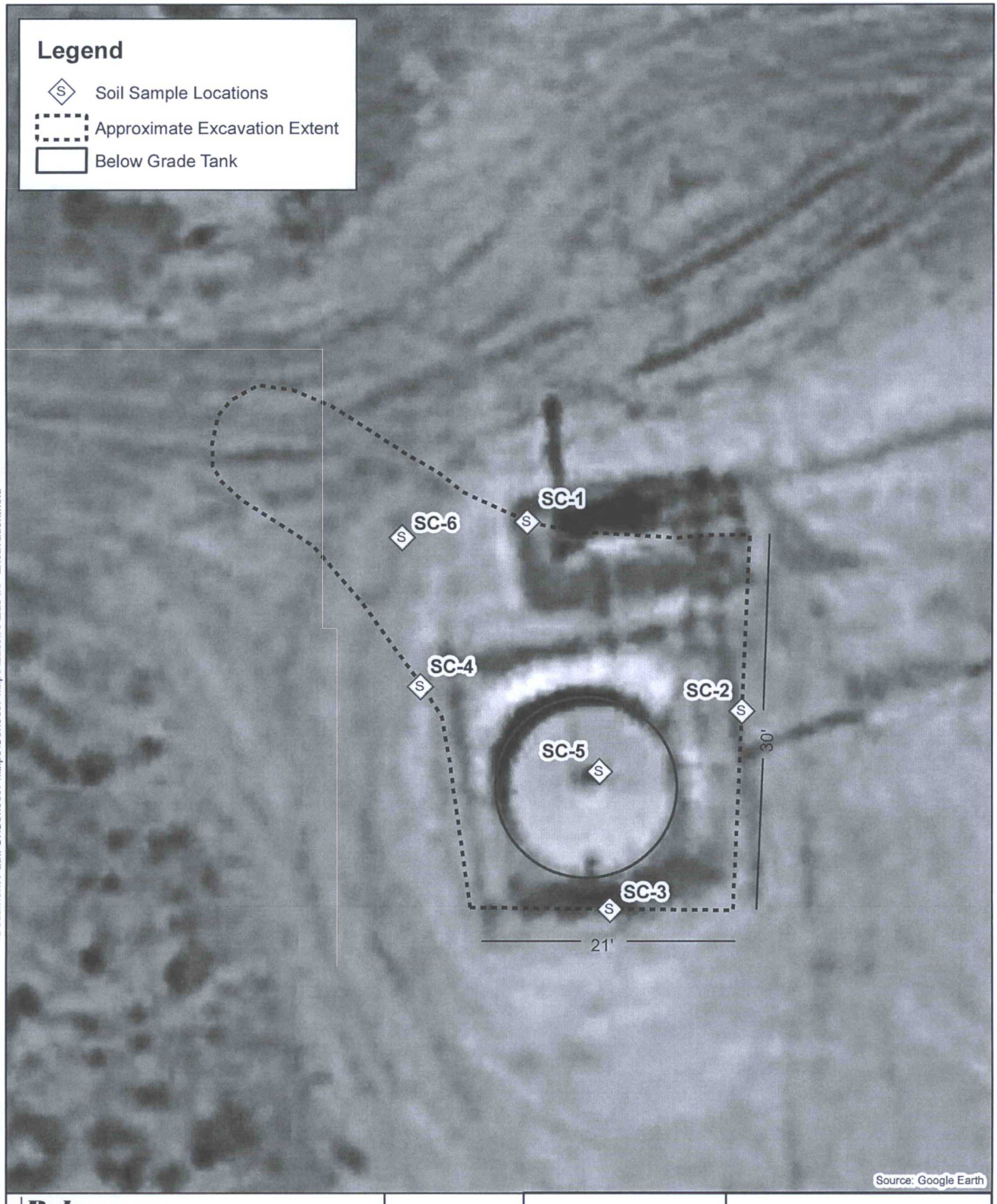
0 5 10 20 Feet

1 inch = 10 feet

ConocoPhillips

N-S25-T31N-R12W
N36.86547, W108.05389
San Juan County, NM
API: 30-045-10253

Figure 2
Site Assesment Map
East #9



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Rule Engineering, LLC
Solutions to Regulations for Industry

0 5 10 20 Feet
1 inch = 10 feet

ConocoPhillips

N-S25-T31N-R12W
N36.86547, W108.05389
San Juan County, NM
API: 30-045-10253

Figure 3
Excavation Confirmation Sample Location Map
East #9

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

December 21, 2016

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

RE: COP East 9 OrderNo.: 1612827

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 3 sample(s) on 12/15/2016 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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: COP East 9
Lab ID: 1612827-001 **Matrix:** SOIL

Client Sample ID: TH-3 @ 8'
Collection Date: 12/9/2016 4:30:00 PM
Received Date: 12/15/2016 8:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	400	10		mg/Kg	1	12/20/2016 10:09:41 PM	29273
Motor Oil Range Organics (MRO)	94	50		mg/Kg	1	12/20/2016 10:09:41 PM	29273
Surr: DNOP	107	70-130		%Rec	1	12/20/2016 10:09:41 PM	29273
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	160	24		mg/Kg	5	12/20/2016 11:07:31 AM	29267
Surr: BFB	327	68.3-144	S	%Rec	5	12/20/2016 11:07:31 AM	29267
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.12		mg/Kg	5	12/20/2016 11:07:31 AM	29267
Toluene	ND	0.24		mg/Kg	5	12/20/2016 11:07:31 AM	29267
Ethylbenzene	0.77	0.24		mg/Kg	5	12/20/2016 11:07:31 AM	29267
Xylenes, Total	7.6	0.48		mg/Kg	5	12/20/2016 11:07:31 AM	29267
Surr: 4-Bromofluorobenzene	122	80-120	S	%Rec	5	12/20/2016 11:07:31 AM	29267

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: SB-1 @ 9-10
Project: COP East 9
Collection Date: 12/14/2016 10:00:00 AM
Lab ID: 1612827-002 **Matrix:** SOIL **Received Date:** 12/15/2016 8:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	110	9.7		mg/Kg	1	12/20/2016 11:13:09 PM	29273
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/20/2016 11:13:09 PM	29273
Surr: DNOP	107	70-130		%Rec	1	12/20/2016 11:13:09 PM	29273
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	150	23		mg/Kg	5	12/20/2016 11:31:04 AM	29267
Surr: BFB	218	68.3-144	S	%Rec	5	12/20/2016 11:31:04 AM	29267
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	0.24	0.12		mg/Kg	5	12/20/2016 11:31:04 AM	29267
Toluene	ND	0.23		mg/Kg	5	12/20/2016 11:31:04 AM	29267
Ethylbenzene	0.88	0.23		mg/Kg	5	12/20/2016 11:31:04 AM	29267
Xylenes, Total	3.5	0.47		mg/Kg	5	12/20/2016 11:31:04 AM	29267
Surr: 4-Bromofluorobenzene	116	80-120		%Rec	5	12/20/2016 11:31:04 AM	29267

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
Project: COP East 9
Lab ID: 1612827-003 **Matrix:** SOIL

Client Sample ID: SB-1 @ 11
Collection Date: 12/14/2016 10:05:00 AM
Received Date: 12/15/2016 8:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	150	9.8		mg/Kg	1	12/20/2016 11:34:22 PM	29273
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/20/2016 11:34:22 PM	29273
Surr: DNOP	101	70-130		%Rec	1	12/20/2016 11:34:22 PM	29273
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	100	4.9		mg/Kg	1	12/20/2016 10:43:55 AM	29267
Surr: BFB	501	68.3-144	S	%Rec	1	12/20/2016 10:43:55 AM	29267
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	0.075	0.024		mg/Kg	1	12/20/2016 10:43:55 AM	29267
Toluene	ND	0.049		mg/Kg	1	12/20/2016 10:43:55 AM	29267
Ethylbenzene	0.43	0.049		mg/Kg	1	12/20/2016 10:43:55 AM	29267
Xylenes, Total	1.2	0.098		mg/Kg	1	12/20/2016 10:43:55 AM	29267
Surr: 4-Bromofluorobenzene	132	80-120	S	%Rec	1	12/20/2016 10:43:55 AM	29267

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#: **1612827**

21-Dec-16

Client: Rule Engineering LLC
Project: COP East 9

Sample ID **1612827-001AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **TH-3 @ 8'** Batch ID: **29273** RunNo: **39526**
Prep Date: **12/19/2016** Analysis Date: **12/20/2016** SeqNo: **1238440** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	380	9.5	47.66	399.7	-30.8	51.6	130			S
Surr: DNOP	5.3		4.766		110	70	130			

Sample ID **1612827-001AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **TH-3 @ 8'** Batch ID: **29273** RunNo: **39526**
Prep Date: **12/19/2016** Analysis Date: **12/20/2016** SeqNo: **1238442** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	320	9.2	46.13	399.7	-174	51.6	130	18.6	20	S
Surr: DNOP	4.9		4.613		107	70	130	0	0	

Sample ID **LCS-29273** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **29273** RunNo: **39526**
Prep Date: **12/19/2016** Analysis Date: **12/20/2016** SeqNo: **1238583** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	89.5	63.8	116			
Surr: DNOP	4.7		5.000		94.4	70	130			

Sample ID **MB-29273** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **29273** RunNo: **39526**
Prep Date: **12/19/2016** Analysis Date: **12/20/2016** SeqNo: **1238584** 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	10		10.00		99.6	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#: **1612827**

21-Dec-16

Client: Rule Engineering LLC
Project: COP East 9

Sample ID **MB-29267**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **29267**	RunNo: **39531**
Prep Date: **12/19/2016**	Analysis Date: **12/20/2016**	SeqNo: **1238284** 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		86.3	68.3	144			

Sample ID **LCS-29267**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **29267**	RunNo: **39531**
Prep Date: **12/19/2016**	Analysis Date: **12/20/2016**	SeqNo: **1238285** 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	103	74.6	123			
Surr: BFB	970		1000		97.0	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#: **1612827**

21-Dec-16

Client: Rule Engineering LLC
Project: COP East 9

Sample ID **MB-29267** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **29267** RunNo: **39531**
Prep Date: **12/19/2016** Analysis Date: **12/20/2016** SeqNo: **1238317** 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	0.96		1.000		96.5	80	120			

Sample ID **LCS-29267** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **29267** RunNo: **39531**
Prep Date: **12/19/2016** Analysis Date: **12/20/2016** SeqNo: **1238318** 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	117	75.2	115			S
Toluene	1.0	0.050	1.000	0	103	80.7	112			
Ethylbenzene	1.0	0.050	1.000	0	100	78.9	117			
Xylenes, Total	3.0	0.10	3.000	0	100	79.2	115			
Surr: 4-Bromofluorobenzene	1.0		1.000		99.8	80	120			

Sample ID **1612827-001AMS** SampType: **MS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **TH-3 @ 8'** Batch ID: **29267** RunNo: **39531**
Prep Date: **12/19/2016** Analysis Date: **12/20/2016** SeqNo: **1238319** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.12	0.9251	0	120	61.5	138			
Toluene	1.0	0.23	0.9251	0	111	71.4	127			
Ethylbenzene	1.9	0.23	0.9251	0.7725	121	70.9	132			
Xylenes, Total	11	0.46	2.775	7.576	123	76.2	123			
Surr: 4-Bromofluorobenzene	5.7		4.625		123	80	120			S

Sample ID **1612827-001AMSD** SampType: **MSD** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **TH-3 @ 8'** Batch ID: **29267** RunNo: **39531**
Prep Date: **12/19/2016** Analysis Date: **12/20/2016** SeqNo: **1238320** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.12	0.9690	0	109	61.5	138	5.15	20	
Toluene	1.1	0.24	0.9690	0	111	71.4	127	4.71	20	
Ethylbenzene	1.9	0.24	0.9690	0.7725	115	70.9	132	0.481	20	
Xylenes, Total	11	0.48	2.907	7.576	117	76.2	123	0.129	20	
Surr: 4-Bromofluorobenzene	6.1		4.845		127	80	120	0	0	S

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: **1612827** RcptNo: 1

Received by/date: AG 12/15/16

Logged By: **Ashley Gallegos** **12/15/2016 8:10:00 AM** AG

Completed By: **Ashley Gallegos** **12/15/2016 8:45:00 AM** AG

Reviewed By: 12/15/16

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	1.0	Good	Yes			

Chain-of-Custody Record

ent: Rule Engineering, LLC

iling Address: 501 Airport Dr, Ste 205

Farmington, NM 87401

one #: hwoods@ruleengineering.com

ail or Fax#: (505) 716-2787

/QC Package:

Standard ☐ Level 4 (Full Validation)

creditation

NELAP ☐ Other _____

EDD (Type) _____

Turn-Around Time:

☐ Standard ☒ Rush 3-Day

Project Name:

CoP Operation East #9

Project #:

Project Manager:

H. Woods

Sampler: H. Woods

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.4

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1612827	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)
12/14/16	1630	Soil	TH-3@8'	(1) 4oz Glass	Cold	-001	X		X													
12/14/16	1000	Soil	SB-1@9-10	1	1	-002	X		X													
12/14/16	1005	Soil	SB-1@11	1	1	-003	X		X													

Date	Time	Relinquished by:	Received by:	Date	Time
12/14/16	1717	Heather N. Woods	Christine Walters	12/14/16	1717
12/14/16	1810	Christine Walters	[illegible]	12/15/16	0810

Remarks: Direct bill to ConocoPhillips

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

March 13, 2017

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

RE: CoP East 9 OrderNo.: 1703446

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 4 sample(s) on 3/9/2017 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 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 **1703446**
Date Reported: **3/13/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: CoP East 9
Lab ID: 1703446-001 **Matrix:** SOIL

Client Sample ID: SC-2
Collection Date: 3/8/2017 2:00:00 PM
Received Date: 3/9/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	95	9.8		mg/Kg	1	3/10/2017 1:20:23 PM	30608
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	3/10/2017 1:20:23 PM	30608
Surr: DNOP	107	70-130		%Rec	1	3/10/2017 1:20:23 PM	30608
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	39	4.8		mg/Kg	1	3/10/2017 1:57:58 PM	30613
Surr: BFB	490	54-150	S	%Rec	1	3/10/2017 1:57:58 PM	30613
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	3/10/2017 1:57:58 PM	30613
Toluene	ND	0.048		mg/Kg	1	3/10/2017 1:57:58 PM	30613
Ethylbenzene	0.16	0.048		mg/Kg	1	3/10/2017 1:57:58 PM	30613
Xylenes, Total	0.38	0.096		mg/Kg	1	3/10/2017 1:57:58 PM	30613
Surr: 4-Bromofluorobenzene	94.8	66.6-132		%Rec	1	3/10/2017 1:57:58 PM	30613

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

Analytical Report
Lab Order **1703446**
Date Reported: **3/13/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: CoP East 9
Lab ID: 1703446-002 **Matrix:** SOIL

Client Sample ID: SC-3
Collection Date: 3/8/2017 1:30:00 PM
Received Date: 3/9/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	130	9.8		mg/Kg	1	3/10/2017 1:42:20 PM	30608
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	3/10/2017 1:42:20 PM	30608
Surr: DNOP	107	70-130		%Rec	1	3/10/2017 1:42:20 PM	30608
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	74	9.6		mg/Kg	2	3/10/2017 7:12:12 PM	30613
Surr: BFB	489	54-150	S	%Rec	2	3/10/2017 7:12:12 PM	30613
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.048		mg/Kg	2	3/10/2017 7:12:12 PM	30613
Toluene	ND	0.096		mg/Kg	2	3/10/2017 7:12:12 PM	30613
Ethylbenzene	0.19	0.096		mg/Kg	2	3/10/2017 7:12:12 PM	30613
Xylenes, Total	0.60	0.19		mg/Kg	2	3/10/2017 7:12:12 PM	30613
Surr: 4-Bromofluorobenzene	108	66.6-132		%Rec	2	3/10/2017 7:12:12 PM	30613

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
Project: CoP East 9
Lab ID: 1703446-003 **Matrix:** SOIL

Client Sample ID: SC-4
Collection Date: 3/8/2017 1:37:00 PM
Received Date: 3/9/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	120	9.6		mg/Kg	1	3/10/2017 2:04:22 PM	30608
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/10/2017 2:04:22 PM	30608
Surr: DNOP	107	70-130		%Rec	1	3/10/2017 2:04:22 PM	30608
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	28	4.8		mg/Kg	1	3/10/2017 7:38:33 PM	30613
Surr: BFB	413	54-150	S	%Rec	1	3/10/2017 7:38:33 PM	30613
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	3/10/2017 7:38:33 PM	30613
Toluene	ND	0.048		mg/Kg	1	3/10/2017 7:38:33 PM	30613
Ethylbenzene	0.085	0.048		mg/Kg	1	3/10/2017 7:38:33 PM	30613
Xylenes, Total	0.15	0.096		mg/Kg	1	3/10/2017 7:38:33 PM	30613
Surr: 4-Bromofluorobenzene	85.4	66.6-132		%Rec	1	3/10/2017 7:38:33 PM	30613

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
Project: CoP East 9
Lab ID: 1703446-004 **Matrix:** SOIL

Client Sample ID: SC-5
Collection Date: 3/8/2017 2:08:00 PM
Received Date: 3/9/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	120	9.9		mg/Kg	1	3/10/2017 2:26:16 PM	30608
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	3/10/2017 2:26:16 PM	30608
Surr: DNOP	107	70-130		%Rec	1	3/10/2017 2:26:16 PM	30608
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	22	4.8		mg/Kg	1	3/10/2017 8:04:57 PM	30613
Surr: BFB	361	54-150	S	%Rec	1	3/10/2017 8:04:57 PM	30613
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	3/10/2017 8:04:57 PM	30613
Toluene	ND	0.048		mg/Kg	1	3/10/2017 8:04:57 PM	30613
Ethylbenzene	0.083	0.048		mg/Kg	1	3/10/2017 8:04:57 PM	30613
Xylenes, Total	0.18	0.096		mg/Kg	1	3/10/2017 8:04:57 PM	30613
Surr: 4-Bromofluorobenzene	86.0	66.6-132		%Rec	1	3/10/2017 8:04:57 PM	30613

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#: **1703446**

13-Mar-17

Client: Rule Engineering LLC

Project: CoP East 9

Sample ID **LCS-30608**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **30608**	RunNo: **41288**
Prep Date: **3/9/2017**	Analysis Date: **3/10/2017**	SeqNo: **1293867** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	10	50.00	0	99.5	63.8	116			
Surr: DNOP	4.8		5.000		96.8	70	130			

Sample ID **MB-30608**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **30608**	RunNo: **41288**
Prep Date: **3/9/2017**	Analysis Date: **3/10/2017**	SeqNo: **1293868** 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	10		10.00		99.7	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#: **1703446**

13-Mar-17

Client: Rule Engineering LLC
Project: CoP East 9

Sample ID **MB-30613**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **30613**	RunNo: **41306**
Prep Date: **3/9/2017**	Analysis Date: **3/10/2017**	SeqNo: **1294532** 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	820		1000		81.9	54	150			

Sample ID **LCS-30613**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **30613**	RunNo: **41306**
Prep Date: **3/9/2017**	Analysis Date: **3/10/2017**	SeqNo: **1294534** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	96.2	76.4	125			
Surr: BFB	990		1000		99.4	54	150			

Sample ID **1703446-002AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SC-3**	Batch ID: **30613**	RunNo: **41306**
Prep Date: **3/9/2017**	Analysis Date: **3/10/2017**	SeqNo: **1294552** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	95	9.4	23.54	73.67	91.0	61.3	150			
Surr: BFB	8700		1883		461	54	150			S

Sample ID **1703446-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SC-3**	Batch ID: **30613**	RunNo: **41306**
Prep Date: **3/9/2017**	Analysis Date: **3/10/2017**	SeqNo: **1294553** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	90	9.7	24.25	73.67	66.7	61.3	150	5.66	20	
Surr: BFB	8500		1940		438	54	150	0	0	S

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#: **1703446**

13-Mar-17

Client: Rule Engineering LLC
Project: CoP East 9

Sample ID **MB-30613** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **30613** RunNo: **41306**
Prep Date: **3/9/2017** Analysis Date: **3/10/2017** SeqNo: **1294570** 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	0.90		1.000		89.9	66.6	132			

Sample ID **LCS-30613** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **30613** RunNo: **41306**
Prep Date: **3/9/2017** Analysis Date: **3/10/2017** SeqNo: **1294577** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.025	1.000	0	95.7	80	120			
Toluene	0.96	0.050	1.000	0	96.4	80	120			
Ethylbenzene	0.97	0.050	1.000	0	97.1	80	120			
Xylenes, Total	3.0	0.10	3.000	0	99.6	80	120			
Surr: 4-Bromofluorobenzene	0.86		1.000		86.1	66.6	132			

Sample ID **1703446-001AMS** SampType: **MS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **SC-2** Batch ID: **30613** RunNo: **41306**
Prep Date: **3/9/2017** Analysis Date: **3/10/2017** SeqNo: **1294589** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	0.9950	0.01126	112	61.5	138			
Toluene	1.2	0.050	0.9950	0	117	71.4	127			
Ethylbenzene	1.3	0.050	0.9950	0.1610	115	70.9	132			
Xylenes, Total	3.9	0.10	2.985	0.3814	118	76.2	123			
Surr: 4-Bromofluorobenzene	0.93		0.9950		93.8	66.6	132			

Sample ID **1703446-001AMSD** SampType: **MSD** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **SC-2** Batch ID: **30613** RunNo: **41306**
Prep Date: **3/9/2017** Analysis Date: **3/10/2017** SeqNo: **1294591** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.024	0.9588	0.01126	115	61.5	138	0.672	20	
Toluene	1.2	0.048	0.9588	0	120	71.4	127	0.644	20	
Ethylbenzene	1.3	0.048	0.9588	0.1610	115	70.9	132	3.49	20	
Xylenes, Total	3.8	0.096	2.876	0.3814	119	76.2	123	3.01	20	
Surr: 4-Bromofluorobenzene	0.90		0.9588		93.4	66.6	132	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: 1703446 RcptNo: 1

Received by/date: AT 03/09/17

Logged By: Lindsay Mangin 3/9/2017 7:10:00 AM

Completed By: Lindsay Mangin 3/9/2017 9:12:48 AM

Reviewed By: AT/aJ 03/09/17

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

Client: Rule Engineering, LLC

Mailing Address: 501 Airport Drive Ste 205
Farmington, NM 87401

Phone #: (505) 716-2787

email or Fax#: hwoods@ruleengineering.com

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
~~☒ Standard~~ ☒ Rush Due 03/13/17 ~~03/09/17~~

Project Name: CoP East #9

Project #:

Project Manager: Heather Woods

Sampler: Heather Woods

On Ice: ☒ Yes ☐ No

Sample Temperature: 0

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1703446	BTEX + ~~MBE~~ + ~~TMB's~~ (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
3/8/17	1400	Soil	SC-2	(1) 4 oz Glass	Cold	-001	X		X													
3/8/17	1330	Soil	SC-3	(1) 4 oz Glass	Cold	-002	X		X													
3/8/17	1337	Soil	SC-4	(1) 4 oz Glass	Cold	-003	X		X													
3/8/17	1408	Soil	SC-5	(1) 4 oz Glass	Cold	-004	X		X													

NES HW

Date:	Time:	Relinquished by:	Received by:	Date	Time
3/8/17	1750	Heather M. Woods	Christine Walls	3/8/17	1750
3/8/17	1952	Christine Walls		03/09/17	0716

Remarks:
Direct Bill to ConocoPhillips
per HW Need Results on 03/13/17
~~03/09/17~~

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

March 14, 2017

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

RE: CoP East 9 OrderNo.: 1703536

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 2 sample(s) on 3/10/2017 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 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 **1703536**
Date Reported: **3/14/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: CoP East 9
Lab ID: 1703536-001
Matrix: MEOH (SOIL)
Client Sample ID: SC-1
Collection Date: 3/9/2017 7:50:00 AM
Received Date: 3/10/2017 7:08:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **MAB**	
Diesel Range Organics (DRO)	280	9.5		mg/Kg	1	3/13/2017 10:41:28 AM	30627
Motor Oil Range Organics (MRO)	100	48		mg/Kg	1	3/13/2017 10:41:28 AM	30627
Surr: DNOP	88.9	70-130		%Rec	1	3/13/2017 10:41:28 AM	30627
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	270	37		mg/Kg	10	3/10/2017 6:19:43 PM	30613
Surr: BFB	380	54-150	S	%Rec	10	3/10/2017 6:19:43 PM	30613
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.19		mg/Kg	10	3/10/2017 6:19:43 PM	30613
Toluene	ND	0.37		mg/Kg	10	3/10/2017 6:19:43 PM	30613
Ethylbenzene	1.2	0.37		mg/Kg	10	3/10/2017 6:19:43 PM	30613
Xylenes, Total	8.8	0.74		mg/Kg	10	3/10/2017 6:19:43 PM	30613
Surr: 4-Bromofluorobenzene	111	66.6-132		%Rec	10	3/10/2017 6:19:43 PM	30613

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
Project: CoP East 9
Lab ID: 1703536-002

Client Sample ID: SC-6
Collection Date: 3/9/2017 7:45:00 AM
Matrix: MEOH (SOIL) **Received Date:** 3/10/2017 7:08:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **MAB**	
Diesel Range Organics (DRO)	170	10		mg/Kg	1	3/13/2017 11:09:12 AM	30627
Motor Oil Range Organics (MRO)	76	50		mg/Kg	1	3/13/2017 11:09:12 AM	30627
Surr: DNOP	89.8	70-130		%Rec	1	3/13/2017 11:09:12 AM	30627
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	530	38		mg/Kg	10	3/10/2017 6:45:52 PM	30613
Surr: BFB	375	54-150	S	%Rec	10	3/10/2017 6:45:52 PM	30613
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	0.42	0.19		mg/Kg	10	3/10/2017 6:45:52 PM	30613
Toluene	ND	0.38		mg/Kg	10	3/10/2017 6:45:52 PM	30613
Ethylbenzene	3.4	0.38		mg/Kg	10	3/10/2017 6:45:52 PM	30613
Xylenes, Total	11	0.75		mg/Kg	10	3/10/2017 6:45:52 PM	30613
Surr: 4-Bromofluorobenzene	106	66.6-132		%Rec	10	3/10/2017 6:45:52 PM	30613

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#: **1703536**

14-Mar-17

Client: Rule Engineering LLC
Project: CoP East 9

Sample ID **MB-30627**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **30627**	RunNo: **41321**
Prep Date: **3/10/2017**	Analysis Date: **3/13/2017**	SeqNo: **1294825** 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	8.8		10.00		87.5	70	130			

Sample ID **LCS-30627**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **30627**	RunNo: **41321**
Prep Date: **3/10/2017**	Analysis Date: **3/13/2017**	SeqNo: **1294826** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	10	50.00	0	98.5	63.8	116			
Surr: DNOP	4.5		5.000		89.2	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#: **1703536**

14-Mar-17

Client: Rule Engineering LLC
Project: CoP East 9

Sample ID **MB-30613**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **30613**	RunNo: **41306**
Prep Date: **3/9/2017**	Analysis Date: **3/10/2017**	SeqNo: **1294532** 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	820		1000		81.9	54	150			

Sample ID **LCS-30613**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **30613**	RunNo: **41306**
Prep Date: **3/9/2017**	Analysis Date: **3/10/2017**	SeqNo: **1294534** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	96.2	76.4	125			
Surr: BFB	990		1000		99.4	54	150			

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#: **1703536**

14-Mar-17

Client: Rule Engineering LLC
Project: CoP East 9

Sample ID	**MB-30613**	SampType: **MBLK**		TestCode: **EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID: **30613**		RunNo: **41306**					
Prep Date:	**3/9/2017**	Analysis Date: **3/10/2017**		SeqNo: **1294570**		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	0.90		1.000		89.9	66.6	132			

Sample ID	**LCS-30613**	SampType: **LCS**		TestCode: **EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID: **30613**		RunNo: **41306**					
Prep Date:	**3/9/2017**	Analysis Date: **3/10/2017**		SeqNo: **1294577**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.025	1.000	0	95.7	80	120			
Toluene	0.96	0.050	1.000	0	96.4	80	120			
Ethylbenzene	0.97	0.050	1.000	0	97.1	80	120			
Xylenes, Total	3.0	0.10	3.000	0	99.6	80	120			
Surr: 4-Bromofluorobenzene	0.86		1.000		86.1	66.6	132			

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: 1703536 RcptNo: 1

Received by/date: [signature] 03/10/17

Logged By: Lindsay Mangin 3/10/2017 7:08:00 AM [signature]

Completed By: Lindsay Mangin 3/10/2017 7:50:24 AM [signature]

Reviewed By: AJ 03/10/17

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 ☐	# of preserved bottles checked for pH: ____ (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? ____
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 ☐	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	1.3	Good	Yes			

Chain-of-Custody Record

Client: Rule Engineering, LLC

Mailing Address: 501 Airport Drive, Ste 205
Farmington, NM 87401

Phone #: (505) 716-2787

email or Fax#: hwoods@ruleengineering.com

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time: Results Monday 3/13 afternoon
☐ Standard ☒ Rush _____

Project Name: CoP East #9

Project #:

Project Manager: Heather Woods

Sampler: Heather Woods

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.3

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1708536	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
3/9/17	750	Soil	SC-1	(1) 4 oz Glass	Cold	-001	X		X													
3/9/17	745	Soil	SC-6	(1) 4 oz Glass	Cold	-002	X		X													

NO3 HW

Date:	Time:	Relinquished by:	Received by:	Date	Time
3/9/17	1720	Heather M. Woods	Christine Walls	3/9/17	1720
3/9/17	1851	Christine Walls		3/10/17	0705

Remarks: Direct Bill to ConocoPhillips

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.