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: San Juan 29-4 #21	Facility Type: Gas well

Surface Owner: FED	Mineral Owner: Fed	API No. 3003921453

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K	**05**	**29N**	**4W**	**1715**	**South**	**1785**	**West**	**Rio Arriba**

Latitude 36.75190__Longitude -107.27890

NATURE OF RELEASE

Type of Release Hydrocarbon	Volume of Release unknown	Volume Recovered 0/0
Source of Release Unknown	Date and Hour of Occurrence	Date and Hour of Discovery
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? **Vanessa Fields NMOCD, Katherina Diemer BLM on site**	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

OIL CONS. DIV DIST. 3

NOV 28 2016

Describe Cause of Problem and Remedial Action Taken.*
Contamination discovers when closing BGT during P&A activities

Describe Area Affected and Cleanup Action Taken.*

On 07/21/16 a 5 point composite confirmation sampling was collected throughout the excavation of 25' x 18x7' app 116 yds. of material was hauled to Envirotech and the same amount was imported for backfill
Analytical results for the BTEX and TPH were below the regulatory standards (ND) set forth in the NMOCD Guidelines for Remediation of Leaks, Spills and Releases. Chlorides testing was conducted for information purposes and do not exceeded the NMOCD action level. No further action is needed. The final lab report is attached for your 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: R Spearman	OIL CONSERVATION DIVISION
Printed Name: **Bobby Spearman**	Approved by Environmental Specialist:
Title: **Field Environmental Specialist**	Approval Date: 12/9/2016 Expiration Date:
E-mail Address: **Robert.E.Spearman**@conocophillips.com	Conditions of Approval: NVF1634343040 Attached ☐
Date: 11-21-16 Phone: (505) 320-3045	

* Attach Additional Sheets If Necessary

50

San Juan 29-4 #21 Release Report

Unit Letter K, Section 5, Township 29 North, Range 4 West
Rio Arriba County, New Mexico

November 11, 2016

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
San Juan 29-4 #21 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

November 11, 2016

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4.0 Below Grade Tank Closure Sampling 2
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Table 2 BGT Soil Sampling Results
Table 3 Site Assessment Field Screening and Laboratory Analytical Results
Table 4 Excavation Confirmation Field Screening and Laboratory Analytical Results

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Figure 2 Aerial Site Map
Figure 3
Figure 4 Excavation Confirmation Sample Location Map

Appendices

Appendix A BGT Field Work Summary Sheet
Appendix B Analytical Laboratory Reports

1.0 Introduction

The ConocoPhillips San Juan 29-4 #21 release site is located in Unit Letter K, Section 5, Township 29 North, Range 4 West, in Rio Arriba County, New Mexico. A historical release was discovered on July 21, 2016, during below grade tank (BGT) closure activities at the site. Closure activities for a second BGT present on the site were also conducted on the same day and detailed in separate report.

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	San Juan 29-4 #21		
Site Location Description	Unit Letter K, Section 5, Township 29 North, Range 4 West		
Wellhead GPS Location	N36.75199 and W107.27896	***Release GPS Location***	N36.75190 and W107.27890
Land Jurisdiction	U.S. Forest Service	***Discovery Date***	July 21, 2016
Release Description	Historical; discovered during BGT closure activities		
NNEPA/NMOCD Site Rank	10		
Distance to Nearest Surface Water	Unnamed, ephemeral wash located approximately 660 feet to the southwest of the release location		
Estimated Depth to Groundwater	Greater than 100 feet below grade 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), the site was assigned a ranking score of 10 (Table 1).

Depth to groundwater at the site is estimated to be greater than 100 feet bgs based on the information published on the New Mexico Office of the State Engineer (NMOSE) online New Mexico Water Rights Reporting System (NMWRRS) and elevation differential between the location and local drainages.

A review was completed of the 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 wash traverses the area approximately 680 feet east of the release location, which drains to Mesteñas Canyon.

As outlined in 19.15.17.13 New Mexico Administrative Code (NMAC), BGT closure standards for the San Juan 28-7 #21 are as follows: 0.2 milligrams per kilogram (mg/kg) benzene, 50 mg/kg total benzene, toluene, ethylbenzene, and total xylenes (BTEX), 100 mg/kg total petroleum hydrocarbons (TPH), and 250 mg/kg chlorides.

Based on the ranking score of 10, NMOCD 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 Below Grade Tank Closure Sampling

4.1 Field Activities

On July 21, 2016, following removal of the BGT tank and liner, Rule Engineering, LLC (Rule) personnel conducted a visual inspection for surface/subsurface indications of a release. Odor was observed in the northwest portion of the BGT excavation. Rule personnel then collected five soil samples (S-1 through S-5) from 0.5 feet beneath the floor of the BGT excavation. Figure 3 provides the location of the soil samples collected from below the BGT and the field work summary sheet is included in Appendix A.

4.2 Soil Sampling

The five soil samples (S-1 through S-5) collected from below the floor of the BGT excavation were combined to create soil confirmation sample (SC-1 East Tank). A portion of sample SC-1 East Tank was field screened for volatile organic compounds (VOCs) and chlorides, and field analyzed for TPH.

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

The portion of sample SC-1 East Tank collected for laboratory analysis was placed into laboratory supplied glassware, labeled, and maintained on ice until delivery to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico. The sample was

analyzed for BTEX per USEPA Method 8021B, TPH per USEPA Method 8015D and USEPA Method 418.1, and chlorides per USEPA Method 300.0.

4.3 Field Screening and Laboratory Analytical Results

Field screening results for soil composite sample SC-1 East Tank indicated a VOC concentration of 49.1 ppm and a TPH concentration of 1,380 mg/kg. Field chloride concentration was reported at 80 mg/kg.

Laboratory analytical results for sample SC-1 East Tank reported benzene and total BTEX concentrations below the laboratory reporting limits of 0.023 mg/kg and 0.211 mg/kg, respectively. Laboratory analytical results for sample SC-1 East Tank reported total TPH concentrations of 2,300 mg/kg by USEPA Method 418.1, and 1,560 mg/kg by USEPA Method 8015D. The laboratory analytical result for sample SC-1 East Tank for chloride concentration was below the laboratory reporting limit of 30 mg/kg.

Field and laboratory results for sample SC-1 East Tank are summarized in Table 2, and the analytical laboratory report included in Appendix B.

5.0 Site Assessment

Field screening of the BGT closure sample indicated the presence of petroleum hydrocarbons in excess of NMOCD BGT closure standards. The same day of BGT closure sampling, Rule initiated a site assessment to delineate the horizontal and vertical extents of the historical release.

5.1 Field Activities

On July 21, 2016, the site assessment included advancing seven backhoe test pits (TP-1 through TP-7). Test pits were advanced to depth ranging from approximately 7 to 11 feet bgs. Test pit locations are illustrated on Figure 3.

5.2 Soil Sampling

Rule collected soil samples from the test pits at selected intervals. A portion of each sample was field screened for VOCs. Field screening for VOC vapors was conducted with a PID. Prior to field screening, the PID was calibrated with 100 ppm isobutylene gas.

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 per USEPA 8015D.

5.3 Field Screening and Laboratory Analytical Results

Field screening results for site assessment samples collected from test pits TP-1 through TP-7 indicated VOC concentrations ranging from 0.1 ppm to 732 ppm. Site assessment field screening results are summarized in Table 3.

Laboratory analytical results for samples TP-1 at 8 feet and TP-5 at 5 feet reported benzene concentrations below the laboratory reporting limits. Total BTEX concentrations for samples TP-1 at 8 feet and TP-5 at 5 feet were reported below the laboratory reporting limits and 0.11 mg/kg, respectively. Concentrations of TPH for samples TP-1 at 8 feet and TP-5 at 5 feet were reported below the laboratory reporting limit and 229 mg/kg, respectively.

Site assessment laboratory analytical results are summarized in Table 3, and the analytical laboratory report is included in Appendix B.

6.0 Excavation Confirmation Sampling

6.1 Field Activities

On October 11, 2016, Rule personnel returned to the location to provide excavation guidance and collect confirmation samples from the resultant excavation. The maximum extent of the excavation measured approximately 25 feet by 18 feet by 7 feet in depth. Approximately 120 cubic yards of excavated soils were transported to the Envirotech Landfarm near Bloomfield, New Mexico 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 4.

6.2 Soil Sampling

Rule collected five composite confirmation soil samples (SC-1 through SC-5) from the final excavation for field screening and laboratory analysis. 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 TPH. Field screening for VOC vapors was conducted with a PID. Prior to field screening, the PID was calibrated with 100 ppm isobutylene gas. Field analysis for TPH was conducted for selected samples per 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.

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 per USEPA 8015D.

Excavation confirmation field screening and laboratory analytical results are summarized in Table 4. The analytical laboratory report is included in Appendix B.

6.3 Field Screening Results

Field screening results for soil confirmation samples SC-1 through SC-5 indicated VOC concentrations ranging from 0.2 ppm to 725 ppm. The field TPH concentration results for samples SC-1 through SC-5 ranged from below the reporting limit to 429 mg/kg. Excavation confirmation field screening results are summarized in Table 4.

6.4 Laboratory Analytical Results

Laboratory analytical results for excavation confirmation samples SC-1 through SC-5 reported benzene concentrations below the laboratory reporting limits, which are below the NMOCD action level of 10 mg/kg. Total BTEX concentrations for samples SC-1 though SC-5 ranged from below the laboratory reporting limits to 0.13 mg/kg, which are below the NMOCD action level of 50 mg/kg. Concentrations of total TPH for samples SC-1 through SC-5 ranged from below the laboratory reporting limits to 830 mg/kg, which are below the NMOCD action level of 1,000 mg/kg for a site rank of 10.

Excavation confirmation laboratory analytical results are summarized in Table 4. The analytical laboratory report is included in Appendix B.

7.0 Conclusions

The ConocoPhillips San Juan 29-4 #21 release site is located in Unit Letter K, Section 5, Township 29 North, Range 4 West, in Rio Arriba County, New Mexico. A historical release was discovered on July 21, 2016, during BGT closure activities at the site. A site assessment was conducted the same day utilizing backhoe test pits delineate the vertical and horizontal extents of the historical release. Following the excavation of hydrocarbon impacted soils, confirmation samples SC-1 through SC-5 were collected on October 11, 2016, from the resultant excavation which measured approximately 25 feet by 18 feet by 7 feet in depth. Laboratory analytical results for confirmation samples SC-1 through SC-5 reported benzene, total BTEX, and total TPH concentrations below the applicable NNEPA/NMOCD action levels for a site rank of 10. Approximately 120 cubic yards of impacted soil was transported to the Envirotech Landfarm for disposal/remediation and the excavation was backfilled with clean, imported material.

Based on laboratory analytical results of the confirmation soil samples, no further work is recommended.

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. NMOCD Site Ranking Determination
ConocoPhillips
San Juan 29-4 #21
Rio Arriba County, New Mexico

Ranking Criteria	Ranking Score	Site-Based Ranking Score	Basis for Determination	Data Sources
Depth to Groundwater				
<50 feet	20	0	Elevation differential information derived from the topographic map of the area between the site and local drainages.	NMOCD Online database, Espinosa Ranch 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, Espinosa Ranch Quadrangle, Google Earth, and Visual Inspection
	0 (No)			
Distance to Surface Water Body				
<200 horizontal feet	20	10	An unnamed, ephemeral wash located approximately 680 feet east of release location, which drains to Mesteñas Canyon.	Espinosa Ranch 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. BGT Soil Sampling Results
ConocoPhillips
San Juan 29-4 #21
Rio Arriba County, New Mexico

Sample ID	Date	Sample Type	Sample Depth (ft below BGT liner)	Field Sampling Results			Laboratory Analytical Results						
				VOCs (PID) (ppm)	TPH - 418.1 (mg/kg)	Chloride** (mg/kg)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH - GRO (mg/kg)	TPH - DRO (mg/kg)	TPH - MRO (mg/kg)	TPH - 418.1 (mg/kg)	Chloride*** (mg/kg)
BGT Closure Standards*				--	100	250	0.2	50	100			100	250
SC-1 East Tank	7/21/16	Composite	0.5	49	1,380	80	<0.023	<0.211	17	990	550	2,300	<30

Notes:
PID - photo-ionization detector
ppm - parts per million
mg/kg - milligrams/kilograms
VOCs - volatile organic compounds
BTEX - benzene, toluene, ethylbenzene, and total xylenes
*19.15.17.13 NMAC
**Per Hach chloride low-range test kit
***Per USEPA Method 300.0 chlorides
TPH - total petroleum hydrocarbons
GRO - gasoline range organics
DRO - diesel range organics
MRO - mineral oil range organics

Table 3. Site Assessment Field Screening and Laboratory Analytical Results
ConocoPhillips
San Juan 29-4 #21
Rio Arriba County, New Mexico

Sample Name	Date	Approximate Sample Depth (ft bgs)	Field Screening Results		Laboratory Analytical Results			
			Field VOCs by PID (ppm)	Field TPH by 418.1 (mg/kg)	Benzene (mg/kg	Total BTEX (mg/kg)	TPH as GRO (mg/kg)	TPH as DRO (mg/kg)
NMOCD Action Level*			100	1,000	10	50	1,000	
TP-1	7/21/2016	4	732	--	--	--	--	--
		8	0.7	--	<0.024	<0.213	<4.7	<9.4
TP-2	7/21/2016	7	1.0	--	--	--	--	--
TP-3	7/21/2016	9	4.0	--	--	--	--	--
		12	3.0	--	--	--	--	--
TP-4	7/21/2016	7	1.9	--	--	--	--	--
TP-5	7/21/2016	5.5	106	--	<0.023	0.11	19	210
		8	2.8	--	--	--	--	--
		10	3.4	--	--	--	--	--
TP-6	7/21/2016	8	0.7	--	--	--	--	--
TP-7	7/21/2016	5.5	1.6	--	--	--	--	--
		11	0.1	--	--	--	--	--

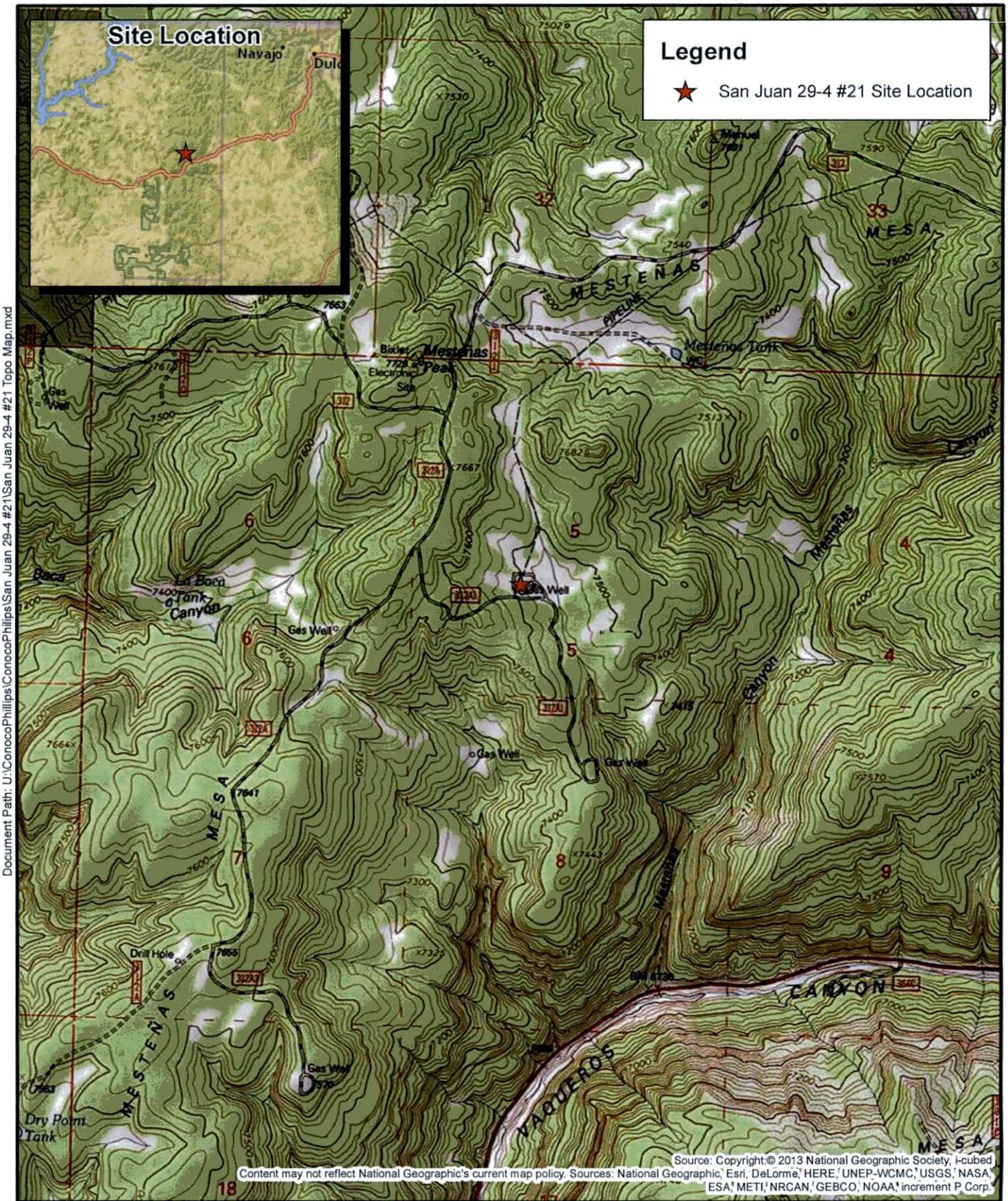
Notes:
VOCs - volatile organic compounds
PID - photoionization detector
ft bgs - feet below grade surface
ppm - parts per million
mg/kg - milligrams per kilogram
BTEX - benzene, toluene, ethylbenzene, and xylenes
TPH - total petroleum hydrocarbons
GRO - gasoline range organics
DRO - diesel range organics
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.

Table 4. Excavation Confirmation Field Screening and Laboratory Analytical Results
ConocoPhillips
San Juan 29-4 #21
Rio Arriba County, New Mexico

Sample Name	Date	Approximate Sample Depth (ft bgs)	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 MRO (mg/kg)	TPH as DRO (mg/kg)
NMOCD Action Level*			100	1,000**	10	NE	NE	NE	50	1,000**		
SC-1	10/11/2016	7	725	429	<0.024	<0.048	<0.048	0.13	0.13	14	200	75
SC-2	10/11/2016	0 to 7	0.3	<20	<0.024	<0.048	<0.048	<0.095	ND	<4.8	<9.5	<48
SC-3	10/11/2016	0 to 7	3.7	379	<0.024	<0.047	<0.047	<0.095	ND	<4.7	520	310
SC-4	10/11/2016	0 to 7	0.2	32.4	<0.025	<0.050	<0.050	<0.10	ND	<5.0	59	77
SC-5	10/11/2016	0 to 7	9.7	133	<0.023	<0.047	<0.047	<0.093	ND	<4.7	130	110

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

Figures



Document Path: U:\ConocoPhillips\ConocoPhillips\San Juan 29-4 #21\San Juan 29-4 #21 Topo Map.mxd

Rule Engineering, LLC
Solutions to Regulations for Industry

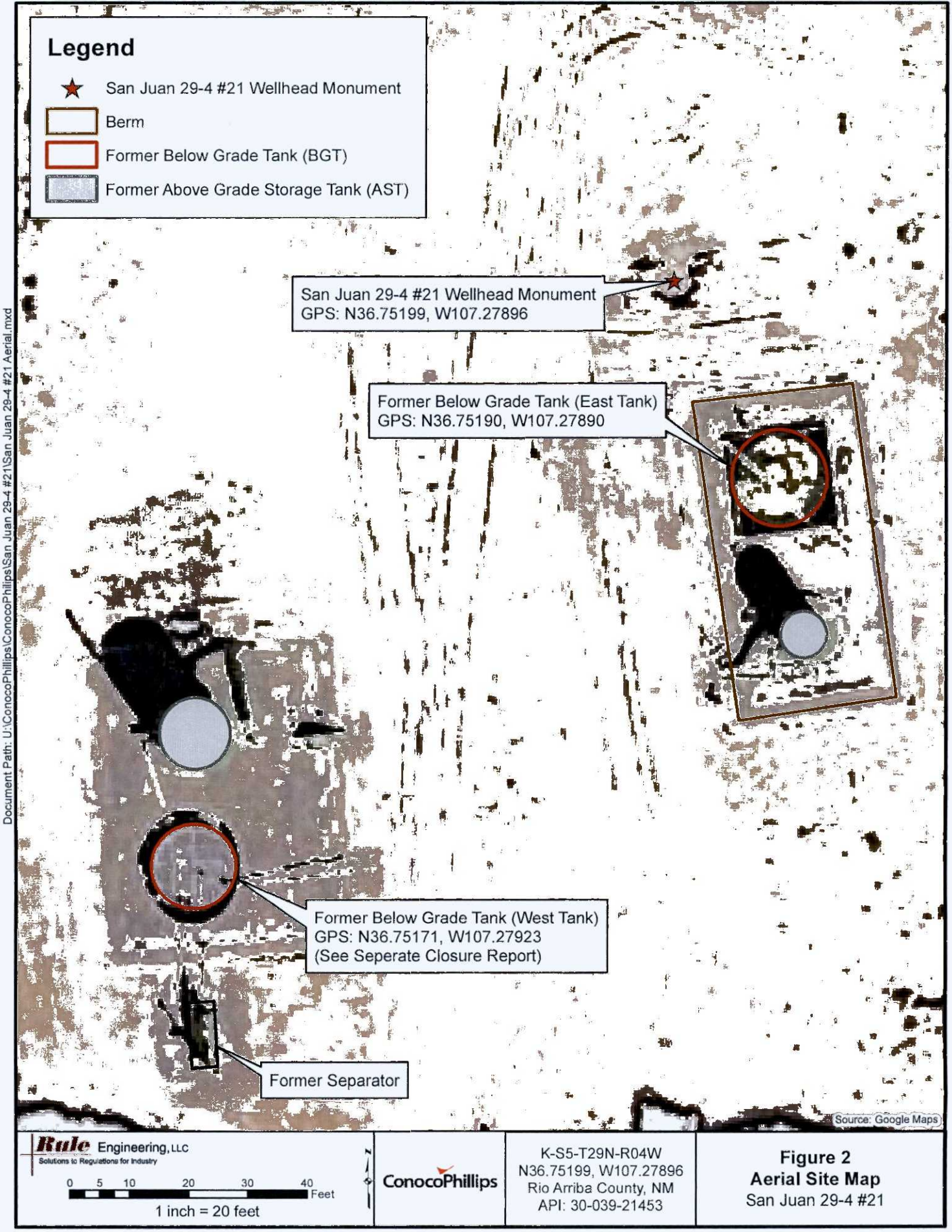
0 0.2 0.4 0.8 Miles

Espinosa Ranch Quadrangle
1:24,000

ConocoPhillips

K-S5-T29N-R04W
N36.75199, W107.27896
Rio Arriba County, NM
API: 30-039-21453

Figure 1
Topographic Site Map
San Juan 29-4 #21



Document Path: U:\ConocoPhillips\ConocoPhillips\San Juan 29-4 #21\San Juan 29-4 #21 Aerial.mxd

Rule Engineering, LLC
Solutions to Regulations for Industry

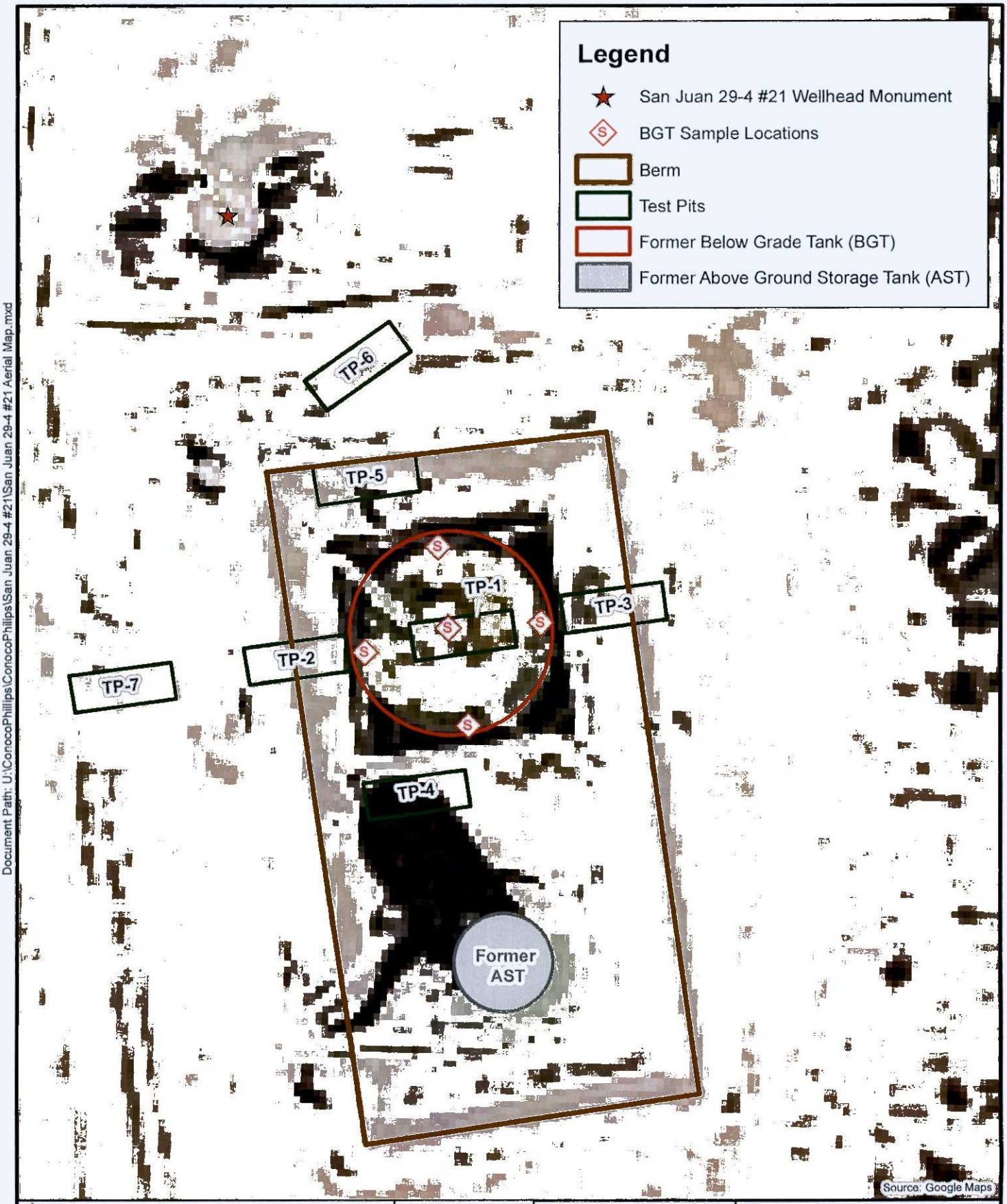
0 5 10 20 30 40 Feet

1 inch = 20 feet

ConocoPhillips

K-S5-T29N-R04W
N36.75199, W107.27896
Rio Arriba County, NM
API: 30-039-21453

Figure 2
Aerial Site Map
San Juan 29-4 #21



Document Path: U:\ConocoPhillips\ConocoPhillips\San Juan 29-4 #21\San Juan 29-4 #21 Aerial Map.mxd

Rule Engineering, LLC
Solutions to Regulations for Industry

0 2.5 5 10 15 20 Feet

1 inch = 10 feet

ConocoPhillips

K-S5-T29N-R04W
N36.75199, W107.27896
Rio Arriba County, NM
API: 30-039-21453

Figure 3
Release Assessment
Sample Location Map
San Juan 29-4 #21

Document Path: U:\ConocoPhillips\ConocoPhillips\San Juan 29-4 #21\San Juan 29-4 #21 Excavation.mxd

Rule Engineering, LLC
Solutions to Regulations for Industry

0 3 6 12 18 24 Feet

1 inch = 10 feet

ConocoPhillips

K-S5-T29N-R04W
N36.75199, W107.27896
Rio Arriba County, NM
API: 30-039-21453

Figure 4
Excavation Confirmation Sample Location Map
San Juan 29-4 #21

Appendix A

BGT Field Work Summary Sheet

Rule Engineering Field Work Summary Sheet

Date:	7/21/16
Staff:	Heather Woods

Company:	ConocoPhillips
Location:	San Juan 29-4 #21 (East Tank)
API:	30-039-21453
Legals:	K-S5-T27N-R4W
County:	Rio Arriba
Land Jurisdiction:	U.S. Forest Service

Wellhead GPS: 36.75199, -107.27896

BGT GPS: 36.75190, -107.27890

Siting Information based on BGT Location: Site Rank 10

Groundwater: Estimated to be greater than 100 feet below grade surface, based on elevation differential between the location and nearby drainages.

Surface Water: An unnamed, ephemeral wash traverses the area approximately 680 feet to the east of the location, which drains to Mesteñas Canyon.

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

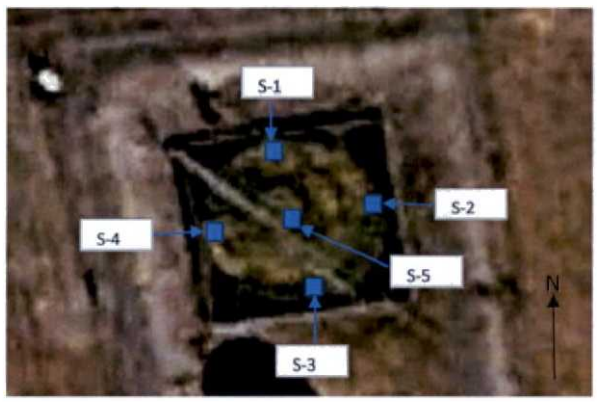
Objective:	Closure sampling for BGT
Tank Size:	120 barrels, removed during closure activities
Liner:	Liner present, removed during clsoure activities
Observations:	Moisture present below liner similar to surrounding area due to recent precipitation.
Notes:	Odor noted in soils from the northwest portion of the BGT excavation.

Field Sampling Information

Name	Type of Sample	Collection Time	Collection Location	VOCs[1] (ppm)	VOCs time	TPH[2] mg/kg	TPH Time	Chloride[3] mg/kg	Chloride Time
SC-1 East Tank	Composite	10:12	See below	49.1	10:16	1,380	11:05	80	11:00

SC-1 is a 5-point composite of S-1 through S-5, collected 0.5 ft below BGT.

Sample SC-1 was laboratory analyzed for TPH (8015 and 418.1), BTEX (8021) and chlorides (300.0).



Field Sampling Notes:

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

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

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

Appendix B

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

July 29, 2016

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

RE: CoP San Juan 29-4 #21 OrderNo.: 1607B47

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 1 sample(s) on 7/22/2016 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 **1607B47**
Date Reported: **7/29/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: CoP San Juan 29-4 #21
Lab ID: 1607B47-001 **Matrix:** SOIL

Client Sample ID: SC-1 East Tank
Collection Date: 7/21/2016 10:12:00 AM
Received Date: 7/22/2016 7:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst: **MAB**	
Petroleum Hydrocarbons, TR	2300	1900		mg/Kg	100	7/27/2016	26576
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	7/27/2016 5:35:39 PM	26662
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	990	100		mg/Kg	10	7/26/2016 7:13:56 PM	26595
Motor Oil Range Organics (MRO)	550	500		mg/Kg	10	7/26/2016 7:13:56 PM	26595
Surr: DNOP	0	70-130	S	%Rec	10	7/26/2016 7:13:56 PM	26595
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	17	4.7		mg/Kg	1	7/23/2016 7:48:46 PM	26549
Surr: BFB	214	80-120	S	%Rec	1	7/23/2016 7:48:46 PM	26549
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	7/23/2016 7:48:46 PM	26549
Toluene	ND	0.047		mg/Kg	1	7/23/2016 7:48:46 PM	26549
Ethylbenzene	ND	0.047		mg/Kg	1	7/23/2016 7:48:46 PM	26549
Xylenes, Total	ND	0.094		mg/Kg	1	7/23/2016 7:48:46 PM	26549
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	7/23/2016 7:48:46 PM	26549

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#: **1607B47**

29-Jul-16

Client: Rule Engineering LLC

Project: CoP San Juan 29-4 #21

Sample ID	**MB-26662**	SampType:	**mblk**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**PBS**	Batch ID:	**26662**		RunNo:	**36034**				
Prep Date:	**7/27/2016**	Analysis Date:	**7/27/2016**		SeqNo:	**1116047**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-26662**	SampType:	**lcs**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**LCSS**	Batch ID:	**26662**		RunNo:	**36034**				
Prep Date:	**7/27/2016**	Analysis Date:	**7/27/2016**		SeqNo:	**1116048**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.1	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1607B47**

29-Jul-16

Client: Rule Engineering LLC

Project: CoP San Juan 29-4 #21

Sample ID	**MB-26576**	SampType:	**MBLK**	TestCode:	**EPA Method 418.1: TPH**					
Client ID:	**PBS**	Batch ID:	**26576**	RunNo:	**36017**					
Prep Date:	**7/25/2016**	Analysis Date:	**7/27/2016**	SeqNo:	**1115494**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	ND	20								

Sample ID	**LCS-26576**	SampType:	**LCS**	TestCode:	**EPA Method 418.1: TPH**					
Client ID:	**LCSS**	Batch ID:	**26576**	RunNo:	**36017**					
Prep Date:	**7/25/2016**	Analysis Date:	**7/27/2016**	SeqNo:	**1115495**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	110	20	100.0	0	114	80.7	121			

Sample ID	**LCSD-26576**	SampType:	**LCSD**	TestCode:	**EPA Method 418.1: TPH**					
Client ID:	**LCSS02**	Batch ID:	**26576**	RunNo:	**36017**					
Prep Date:	**7/25/2016**	Analysis Date:	**7/27/2016**	SeqNo:	**1115496**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	120	20	100.0	0	120	80.7	121	4.94	20	

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#: **1607B47**

29-Jul-16

Client: Rule Engineering LLC

Project: CoP San Juan 29-4 #21

Sample ID **LCS-26595**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **26595**	RunNo: **35982**
Prep Date: **7/25/2016**	Analysis Date: **7/26/2016**	SeqNo: **1115124** 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	97.8	62.6	124			
Surr: DNOP	5.0		5.000		99.3	70	130			

Sample ID **MB-26595**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **26595**	RunNo: **35982**
Prep Date: **7/25/2016**	Analysis Date: **7/26/2016**	SeqNo: **1115125** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		106	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#: **1607B47**

29-Jul-16

Client: Rule Engineering LLC

Project: CoP San Juan 29-4 #21

Sample ID **MB-26549**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **26549**	RunNo: **35929**
Prep Date: **7/22/2016**	Analysis Date: **7/23/2016**	SeqNo: **1112316** 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	990		1000		99.4	80	120			

Sample ID **LCS-26549**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **26549**	RunNo: **35929**
Prep Date: **7/22/2016**	Analysis Date: **7/23/2016**	SeqNo: **1112317** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	107	80	120			
Surr: BFB	1100		1000		112	80	120			

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#: **1607B47**

29-Jul-16

Client: Rule Engineering LLC

Project: CoP San Juan 29-4 #21

Sample ID **MB-26549**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **26549**	RunNo: **35929**
Prep Date: **7/22/2016**	Analysis Date: **7/23/2016**	SeqNo: **1112335** 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	0.94		1.000		94.0	80	120			

Sample ID **LCS-26549**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **26549**	RunNo: **35929**
Prep Date: **7/22/2016**	Analysis Date: **7/23/2016**	SeqNo: **1112336** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.025	1.000	0	99.3	75.3	123			
Toluene	0.98	0.050	1.000	0	97.6	80	124			
Ethylbenzene	1.0	0.050	1.000	0	102	82.8	121			
Xylenes, Total	3.0	0.10	3.000	0	100	83.9	122			
Surr: 4-Bromofluorobenzene	1.0		1.000		103	80	120			

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: 1607B47 RcptNo: 1

Received by/date: 07/22/16

Logged By: Lindsay Mangin 7/22/2016 7:20:00 AM

Completed By: Lindsay Mangin 7/22/2016 9:21:13 AM

Reviewed By: 07/22/16

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 ☐	# 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	1.1	Good	Yes			

Chain-of-Custody Record

Client: Rule Engineering, LLC

Mailing Address: 501 Airport Dr, Suite 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 _____

Project Name:
CoP San Juan 29-4 #21

Project #:

Project Manager:
Heather Woods

Sampler: Heather Woods

On Ice: ☑ Yes ☐ No

Sample Temperature: 3.1 -2.0 Cf = 1.1

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. 1607347	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) 300.0 Cl	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
7/21/16	1012	Soil	SC-1 East Tank	(1) 4 oz Jar	Cold	-001	X		X	X				X								

Date:	Time:	Relinquished by:	Received by:	Date	Time
7/21/16	1752	Heather M. Woods	Christie Walters	7/21/16	1752
7/21/16	1840	Christie Walters		07/22/16	0720

Remarks: Direct Bill to ConocoPhillips
WO: 10383949
User: KGARCIA
Area Super: Kelly Davidson
Area: 5
Ordered by: Bobby Speerman

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

July 28, 2016

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

RE: COP San Juan 29-4 #21 OrderNo.: 1607B40

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 2 sample(s) on 7/22/2016 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
Client Sample ID: SB-1@8
Project: COP San Juan 29-4 #21
Collection Date: 7/21/2016 12:00:00 PM
Lab ID: 1607B40-001 **Matrix:** SOIL **Received Date:** 7/22/2016 7:20:00 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	7/26/2016 5:49:34 PM	26595
Surr: DNOP	87.2	70-130		%Rec	1	7/26/2016 5:49:34 PM	26595
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/23/2016 2:18:03 PM	26549
Surr: BFB	101	80-120		%Rec	1	7/23/2016 2:18:03 PM	26549
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	7/23/2016 2:18:03 PM	26549
Toluene	ND	0.047		mg/Kg	1	7/23/2016 2:18:03 PM	26549
Ethylbenzene	ND	0.047		mg/Kg	1	7/23/2016 2:18:03 PM	26549
Xylenes, Total	ND	0.095		mg/Kg	1	7/23/2016 2:18:03 PM	26549
Surr: 4-Bromofluorobenzene	94.3	80-120		%Rec	1	7/23/2016 2:18:03 PM	26549

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-5@5.5
Project: COP San Juan 29-4 #21
Collection Date: 7/21/2016 12:42:00 PM
Lab ID: 1607B40-002 **Matrix:** SOIL **Received Date:** 7/22/2016 7:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	210	9.7		mg/Kg	1	7/26/2016 6:17:50 PM	26595
Surr: DNOP	95.3	70-130		%Rec	1	7/26/2016 6:17:50 PM	26595
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	19	4.6		mg/Kg	1	7/23/2016 2:41:40 PM	26549
Surr: BFB	264	80-120	S	%Rec	1	7/23/2016 2:41:40 PM	26549
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	7/23/2016 2:41:40 PM	26549
Toluene	ND	0.046		mg/Kg	1	7/23/2016 2:41:40 PM	26549
Ethylbenzene	ND	0.046		mg/Kg	1	7/23/2016 2:41:40 PM	26549
Xylenes, Total	0.11	0.093		mg/Kg	1	7/23/2016 2:41:40 PM	26549
Surr: 4-Bromofluorobenzene	107	80-120		%Rec	1	7/23/2016 2:41:40 PM	26549

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#: **1607B40**

28-Jul-16

Client: Rule Engineering LLC

Project: COP San Juan 29-4 #21

Sample ID **1607B30-002AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BatchQC**	Batch ID: **26595**	RunNo: **35983**
Prep Date: **7/25/2016**	Analysis Date: **7/26/2016**	SeqNo: **1114575** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	54	9.2	46.17	0	116	33.9	141			
Surr: DNOP	4.2		4.617		90.0	70	130			

Sample ID **1607B30-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BatchQC**	Batch ID: **26595**	RunNo: **35983**
Prep Date: **7/25/2016**	Analysis Date: **7/26/2016**	SeqNo: **1114576** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	54	10	49.80	0	109	33.9	141	1.15	20	
Surr: DNOP	4.1		4.980		83.0	70	130	0	0	

Sample ID **LCS-26595**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **26595**	RunNo: **35982**
Prep Date: **7/25/2016**	Analysis Date: **7/26/2016**	SeqNo: **1115124** 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	97.8	62.6	124			
Surr: DNOP	5.0		5.000		99.3	70	130			

Sample ID **MB-26595**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **26595**	RunNo: **35982**
Prep Date: **7/25/2016**	Analysis Date: **7/26/2016**	SeqNo: **1115125** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Surr: DNOP	11		10.00		106	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#: **1607B40**

28-Jul-16

Client: Rule Engineering LLC

Project: COP San Juan 29-4 #21

Sample ID **MB-26549** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**

Client ID: **PBS** Batch ID: **26549** RunNo: **35929**

Prep Date: **7/22/2016** Analysis Date: **7/23/2016** SeqNo: **1112316** 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	990		1000		99.4	80	120			

Sample ID **LCS-26549** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**

Client ID: **LCSS** Batch ID: **26549** RunNo: **35929**

Prep Date: **7/22/2016** Analysis Date: **7/23/2016** SeqNo: **1112317** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	107	80	120			
Surr: BFB	1100		1000		112	80	120			

Sample ID **1607B36-001AMS** SampType: **MS** TestCode: **EPA Method 8015D: Gasoline Range**

Client ID: **BatchQC** Batch ID: **26549** RunNo: **35929**

Prep Date: **7/22/2016** Analysis Date: **7/23/2016** SeqNo: **1112319** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	4.8	23.76	0	110	59.3	143			
Surr: BFB	1100		950.6		115	80	120			

Sample ID **1607B36-001AMSD** SampType: **MSD** TestCode: **EPA Method 8015D: Gasoline Range**

Client ID: **BatchQC** Batch ID: **26549** RunNo: **35929**

Prep Date: **7/22/2016** Analysis Date: **7/23/2016** SeqNo: **1112320** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	4.9	24.68	0	110	59.3	143	4.03	20	
Surr: BFB	1100		987.2		116	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1607B40**

28-Jul-16

Client: Rule Engineering LLC

Project: COP San Juan 29-4 #21

Sample ID **MB-26549**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **26549**	RunNo: **35929**
Prep Date: **7/22/2016**	Analysis Date: **7/23/2016**	SeqNo: **1112335** 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	0.94		1.000		94.0	80	120			

Sample ID **LCS-26549**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **26549**	RunNo: **35929**
Prep Date: **7/22/2016**	Analysis Date: **7/23/2016**	SeqNo: **1112336** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.025	1.000	0	99.3	75.3	123			
Toluene	0.98	0.050	1.000	0	97.6	80	124			
Ethylbenzene	1.0	0.050	1.000	0	102	82.8	121			
Xylenes, Total	3.0	0.10	3.000	0	100	83.9	122			
Surr: 4-Bromofluorobenzene	1.0		1.000		103	80	120			

Sample ID **1607B30-001AMS**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BatchQC**	Batch ID: **26549**	RunNo: **35929**
Prep Date: **7/22/2016**	Analysis Date: **7/23/2016**	SeqNo: **1112338** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.023	0.9320	0	101	71.5	122			
Toluene	0.94	0.047	0.9320	0	101	71.2	123			
Ethylbenzene	0.96	0.047	0.9320	0	103	75.2	130			
Xylenes, Total	2.9	0.093	2.796	0	103	72.4	131			
Surr: 4-Bromofluorobenzene	0.95		0.9320		102	80	120			

Sample ID **1607B30-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BatchQC**	Batch ID: **26549**	RunNo: **35929**
Prep Date: **7/22/2016**	Analysis Date: **7/23/2016**	SeqNo: **1112339** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.023	0.9346	0	98.3	71.5	122	2.56	20	
Toluene	0.92	0.047	0.9346	0	98.5	71.2	123	2.10	20	
Ethylbenzene	0.97	0.047	0.9346	0	104	75.2	130	0.987	20	
Xylenes, Total	2.9	0.093	2.804	0	103	72.4	131	0.395	20	
Surr: 4-Bromofluorobenzene	0.96		0.9346		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

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: 1607B40 RcptNo: 1

Received by/date: 07/22/16

Logged By: Lindsay Mangin 7/22/2016 7:20:00 AM

Completed By: Lindsay Mangin 7/22/2016 8:47:09 AM

Reviewed By: 07/22/16

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	1.1	Good	Yes			

Chain-of-Custody Record

Client: Rule Engineering, LLC

Mailing Address: 501 Airport Dr. Suite 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 _____

Project Name: CoP San Juan 29-4 #21

Project #:

Project Manager: Heather Woods

Sampler: Heather Woods

On Ice: ☑ Yes ☐ No

Sample Temperature: 3.1-2.0cf=1.1

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. 1607B40	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)
7/21/16	1200	Soil	SB-1@8	(1) 4oz Glass	Cold	-001	X		X												
7/21/16	1242	Soil	SB-5@5.5	(1) 4oz Glass	Cold	-002	X		X												

Date:	Time:	Relinquished by:	Received by:	Date	Time
7/21/16	1752	Heather M. Woods	Christie Walls	7/21/16	1752
7/21/16	1840	Christie Walls		07/22/16	0720

Remarks: Direct Bill to ConocoPhillips
WO: 10383949 Ordered by: Bobby Spurrier
User: KGARCIA
Area Super: Kelly Davidson
Area: 5

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 17, 2016

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

RE: COP San Juan 29-4 21 OrderNo.: 1610517

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 5 sample(s) on 10/12/2016 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 **1610517**
Date Reported: **10/17/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: COP San Juan 29-4 21
Lab ID: 1610517-001 **Matrix:** SOIL

Client Sample ID: SC-1
Collection Date: 10/11/2016 9:40:00 AM
Received Date: 10/12/2016 7:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	200	9.9		mg/Kg	1	10/14/2016 3:51:52 PM	28043
Motor Oil Range Organics (MRO)	75	50		mg/Kg	1	10/14/2016 3:51:52 PM	28043
Surr: DNOP	120	70-130		%Rec	1	10/14/2016 3:51:52 PM	28043
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	14	4.8		mg/Kg	1	10/13/2016 1:47:57 PM	28033
Surr: BFB	158	68.3-144	S	%Rec	1	10/13/2016 1:47:57 PM	28033
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	10/13/2016 1:47:57 PM	28033
Toluene	ND	0.048		mg/Kg	1	10/13/2016 1:47:57 PM	28033
Ethylbenzene	ND	0.048		mg/Kg	1	10/13/2016 1:47:57 PM	28033
Xylenes, Total	0.13	0.097		mg/Kg	1	10/13/2016 1:47:57 PM	28033
Surr: 4-Bromofluorobenzene	123	80-120	S	%Rec	1	10/13/2016 1:47:57 PM	28033

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: COP San Juan 29-4 21
Collection Date: 10/11/2016 9:45:00 AM
Lab ID: 1610517-002
Matrix: SOIL
Received Date: 10/12/2016 7:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	10/14/2016 4:13:30 PM	28043
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/14/2016 4:13:30 PM	28043
Surr: DNOP	115	70-130		%Rec	1	10/14/2016 4:13:30 PM	28043
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/13/2016 2:58:26 PM	28033
Surr: BFB	99.8	68.3-144		%Rec	1	10/13/2016 2:58:26 PM	28033
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	10/13/2016 2:58:26 PM	28033
Toluene	ND	0.048		mg/Kg	1	10/13/2016 2:58:26 PM	28033
Ethylbenzene	ND	0.048		mg/Kg	1	10/13/2016 2:58:26 PM	28033
Xylenes, Total	ND	0.095		mg/Kg	1	10/13/2016 2:58:26 PM	28033
Surr: 4-Bromofluorobenzene	116	80-120		%Rec	1	10/13/2016 2:58:26 PM	28033

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 San Juan 29-4 21
Lab ID: 1610517-003 **Matrix:** SOIL

Client Sample ID: SC-3
Collection Date: 10/11/2016 9:50:00 AM
Received Date: 10/12/2016 7:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	520	10		mg/Kg	1	10/15/2016 12:52:15 PM	28043
Motor Oil Range Organics (MRO)	310	50		mg/Kg	1	10/15/2016 12:52:15 PM	28043
Surr: DNOP	127	70-130		%Rec	1	10/15/2016 12:52:15 PM	28043
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/13/2016 3:21:58 PM	28033
Surr: BFB	101	68.3-144		%Rec	1	10/13/2016 3:21:58 PM	28033
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	10/13/2016 3:21:58 PM	28033
Toluene	ND	0.047		mg/Kg	1	10/13/2016 3:21:58 PM	28033
Ethylbenzene	ND	0.047		mg/Kg	1	10/13/2016 3:21:58 PM	28033
Xylenes, Total	ND	0.095		mg/Kg	1	10/13/2016 3:21:58 PM	28033
Surr: 4-Bromofluorobenzene	112	80-120		%Rec	1	10/13/2016 3:21:58 PM	28033

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: COP San Juan 29-4 21
Collection Date: 10/11/2016 9:55:00 AM
Lab ID: 1610517-004
Matrix: SOIL
Received Date: 10/12/2016 7:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	59	10		mg/Kg	1	10/15/2016 1:35:24 PM	28043
Motor Oil Range Organics (MRO)	77	50		mg/Kg	1	10/15/2016 1:35:24 PM	28043
Surr: DNOP	107	70-130		%Rec	1	10/15/2016 1:35:24 PM	28043
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	10/13/2016 3:45:17 PM	28033
Surr: BFB	101	68.3-144		%Rec	1	10/13/2016 3:45:17 PM	28033
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	10/13/2016 3:45:17 PM	28033
Toluene	ND	0.050		mg/Kg	1	10/13/2016 3:45:17 PM	28033
Ethylbenzene	ND	0.050		mg/Kg	1	10/13/2016 3:45:17 PM	28033
Xylenes, Total	ND	0.10		mg/Kg	1	10/13/2016 3:45:17 PM	28033
Surr: 4-Bromofluorobenzene	117	80-120		%Rec	1	10/13/2016 3:45:17 PM	28033

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 San Juan 29-4 21
Lab ID: 1610517-005 **Matrix:** SOIL

Client Sample ID: SC-5
Collection Date: 10/11/2016 10:00:00 AM
Received Date: 10/12/2016 7:20:00 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	10/15/2016 2:18:33 PM	28043
Motor Oil Range Organics (MRO)	110	49		mg/Kg	1	10/15/2016 2:18:33 PM	28043
Surr: DNOP	119	70-130		%Rec	1	10/15/2016 2:18:33 PM	28043
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/14/2016 3:37:45 PM	28033
Surr: BFB	91.5	68.3-144		%Rec	1	10/14/2016 3:37:45 PM	28033
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	10/13/2016 5:42:26 PM	28033
Toluene	ND	0.047		mg/Kg	1	10/13/2016 5:42:26 PM	28033
Ethylbenzene	ND	0.047		mg/Kg	1	10/13/2016 5:42:26 PM	28033
Xylenes, Total	ND	0.093		mg/Kg	1	10/13/2016 5:42:26 PM	28033
Surr: 4-Bromofluorobenzene	114	80-120		%Rec	1	10/13/2016 5:42:26 PM	28033

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#: **1610517**

17-Oct-16

Client: Rule Engineering LLC
Project: COP San Juan 29-4 21

Sample ID **MB-28033**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **28033**	RunNo: **37913**
Prep Date: **10/12/2016**	Analysis Date: **10/13/2016**	SeqNo: **1182061** 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	940		1000		93.8	68.3	144			

Sample ID **LCS-28033**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **28033**	RunNo: **37913**
Prep Date: **10/12/2016**	Analysis Date: **10/13/2016**	SeqNo: **1182062** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	28	5.0	25.00	0	110	74.6	123			
Surr: BFB	1000		1000		104	68.3	144			

Sample ID **1610517-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SC-1**	Batch ID: **28033**	RunNo: **37913**
Prep Date: **10/12/2016**	Analysis Date: **10/13/2016**	SeqNo: **1182064** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	41	4.9	24.27	13.52	112	59.3	143			
Surr: BFB	1600		970.9		164	68.3	144			S

Sample ID **1610517-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SC-1**	Batch ID: **28033**	RunNo: **37913**
Prep Date: **10/12/2016**	Analysis Date: **10/13/2016**	SeqNo: **1182065** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	39	4.7	23.43	13.52	111	59.3	143	3.17	20	
Surr: BFB	1500		937.2		156	68.3	144	0	0	S

Sample ID **MB-28056**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **28056**	RunNo: **37953**
Prep Date: **10/13/2016**	Analysis Date: **10/14/2016**	SeqNo: **1183188** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	990		1000		98.6	68.3	144			

Sample ID **LCS-28056**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **28056**	RunNo: **37953**
Prep Date: **10/13/2016**	Analysis Date: **10/14/2016**	SeqNo: **1183189** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1100		1000		108	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#: **1610517**

17-Oct-16

Client: Rule Engineering LLC

Project: COP San Juan 29-4 21

Sample ID **MB-28033**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **28033**	RunNo: **37913**
Prep Date: **10/12/2016**	Analysis Date: **10/13/2016**	SeqNo: **1182081** 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		110	80	120			

Sample ID **LCS-28033**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **28033**	RunNo: **37913**
Prep Date: **10/12/2016**	Analysis Date: **10/13/2016**	SeqNo: **1182082** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.025	1.000	0	98.7	75.2	115			
Toluene	0.98	0.050	1.000	0	97.7	80.7	112			
Ethylbenzene	0.99	0.050	1.000	0	99.1	78.9	117			
Xylenes, Total	2.9	0.10	3.000	0	97.6	79.2	115			
Surr: 4-Bromofluorobenzene	1.2		1.000		116	80	120			

Sample ID **MB-28056**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **28056**	RunNo: **37953**
Prep Date: **10/13/2016**	Analysis Date: **10/14/2016**	SeqNo: **1183226** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.2		1.000		117	80	120			

Sample ID **LCS-28056**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **28056**	RunNo: **37953**
Prep Date: **10/13/2016**	Analysis Date: **10/14/2016**	SeqNo: **1183228** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.3		1.000		127	80	120			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: **1610517** RcptNo: **1**

Received by/date: 10/12/16

Logged By: **Lindsay Mangin** **10/12/2016 7:20:00 AM**

Completed By: **Lindsay Mangin** **10/12/2016 9:55:29 AM**

Reviewed By: aJ 10/12/16

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	2.2	Good	Yes			

Chain-of-Custody Record

Client: Rule Engineering, LLC

Mailing Address: 501 Airport Dr, Suite 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 _____

Project Name: CoP San Juan 29-4 #21

Project #:

Project Manager: Heather Woods

Sampler: Heather Woods

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.2

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. 1610517	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)
10/11/16	0940	Soil	SC-1	(1) 4oz Glass	cold	-001	X		X													
10/11/16	0945	Soil	SC-2	(1) 4oz Glass	cold	-002	X		X													
10/11/16	0950	Soil	SC-3	(1) 4oz Glass	cold	-003	X		X													
10/11/16	0955	Soil	SC-4	(1) 4oz Glass	cold	-004	X		X													
10/11/16	1000	Soil	SC-5	(1) 4oz Glass	cold	-005	X		X													

NFS HW

Date:	Time:	Relinquished by:	Received by:	Date	Time
10/11/16	1920	Heather M. Woods	Christine Walters	10/11/16	1920
10/11/16	2017	Christine Walters		10/12/16	0720

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.