

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

SEP 28 2015

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 <b>ConocoPhillips Company</b>	Contact <b>Lisa Hunter</b>
Address <b>3401 East 30<sup>th</sup> St, Farmington, NM</b>	Telephone No. <b>(505) 326-9786</b>
Facility Name: <b>AXI Apache N #16</b>	Facility Type: <b>Gas Well</b>
Surface Owner <b>Jicarilla</b>	Mineral Owner <b>Jicarilla</b> API No. <b>3003921983</b>

## LOCATION OF RELEASE

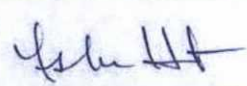
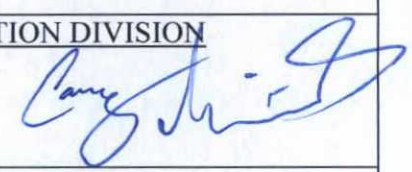
Unit Letter <b>L</b>	Section <b>12</b>	Township <b>25N</b>	Range <b>04W</b>	Feet from the <b>1500</b>	North/South Line <b>South</b>	Feet from the <b>850</b>	East/West Line <b>West</b>	County <b>Rio Arriba</b>
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Latitude **36.41088** Longitude **-107.21015**

## NATURE OF RELEASE

Type of Release <b>Historic Hydrocarbon</b>	Volume of Release <b>Unknown</b>	Volume Recovered <b>208 cubic yds soil</b>
Source of Release <b>BGT</b>	Date and Hour of Occurrence <b>Unknown</b>	Date and Hour of Discovery <b>07/02/15</b>
Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom? <b>N/A</b>	
By Whom? <b>N/A</b>	Date and Hour <b>N/A</b>	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. <b>N/A</b>	
If a Watercourse was Impacted, Describe Fully.* <b>N/A</b>		
Describe Cause of Problem and Remedial Action Taken.* <b>Historical hydrocarbon impacted soil was found during a facility reset for the subject well.</b>		
Describe Area Affected and Cleanup Action Taken.* <b>The excavation was 25' x 20' x 15' in depth and 208 yds of soil was transported to Envirotech land farm and 208 yds of clean soil was transported from Jicarilla approved source and placed in the excavation site. Analytical results were below the regulatory standards – no further action required. The soil sampling report is attached for review.</b>		
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.		

## OIL CONSERVATION DIVISION

Signature: 	Approved by Environmental Specialist: 	
Printed Name: <b>Lisa Hunter</b>		
Title: <b>Field Environmental Specialist</b>	Approval Date: <b>11/9/15</b>	Expiration Date:
E-mail Address: <b>Lisa.Hunter@cop.com</b>	Conditions of Approval:	Attached <input type="checkbox"/>
Date: <b>September 23, 2015</b> Phone: <b>(505) 326-9786</b>		

\* Attach Additional Sheets If Necessary

NCS 1531336960

**Axi Apache N #16  
Release Report**

**Unit Letter L, Section 12, Township 25N, Range 04W  
N36.46248, W107.20871  
Rio Arriba County, New Mexico  
September 21, 2015**

Prepared for:

ConocoPhillips  
San Juan Business Unit  
5525 Highway 64  
Farmington, New Mexico 87401

Prepared by:

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

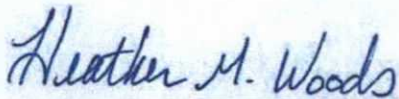
# **ConocoPhillips Axi Apache N #16 Release Report**

Prepared for:

ConocoPhillips  
San Juan Business Unit  
5525 Highway 64  
Farmington, New Mexico 87401

Prepared by:

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



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

Reviewed by:



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Russell Knight, PG, Principal Hydrogeologist

**September 21, 2015**



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### **1 Introduction**

A historic release was discovered at the ConocoPhillips Axi Apache N #16 well pad beneath the below grade tank (BGT) during facility reset activities on July 7, 2015. The ConocoPhillips Axi Apache N #16 well pad is located in Unit Letter L, Section 12, Township 25N, Range 4W in Rio Arriba County, New Mexico on the Jicarilla Apache Nation. Remedial activities included excavation of hydrocarbon impacted soils and confirmation soil sampling. A topographic map of the location is included as Figure 1 and an aerial site map is included as Figure 2.

### **2 Release Summary**

**Site Name** – Axi Apache N #16

**Location** – Unit Letter L, Section 12, Township 25N, Range 04W

**API Number** – 30-039-21983

**Location Latitude/Longitude** – N36.41085 and W107.20976, respectively

**Release Latitude/Longitude** – N36.41088 and W107.21015, respectively

**Land Jurisdiction** – Jicarilla Apache Nation

**Date Release Discovered** – July 2, 2015

**Agency Jurisdiction** – Jicarilla Apache Nation Environmental Protection Office (EPO) and New Mexico Oil Conservation Division (NMOCD)

**Source of Release** – historic

**Release Contents** – unknown

**Release Volume** – unknown

**NMOCD Ranking** – 10

**Date(s) of Rule Engineering, LLC (Rule) Field Work** – July 7 and 8, 2015

**Subcontractor(s)** – CF&M

**Disposal Facility** – Envirotech Land Farm (Permit #NM-01-011)

**Amount of Contaminated Soil Excavated/Disposed** – approximately 208 cubic yards

### **3 Site Ranking**

The Axi Apache N #16 is located on the Jicarilla Apache Nation and follows recommendations from Jicarilla Apache Nation Environmental Protection Office (EPO). In accordance with EPO and 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). 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).

Depth to groundwater at the site was estimated to be greater than 100 feet below ground surface (bgs) based on a cathodic report for the Axi Apache N #16 reporting depth to groundwater greater than 100 feet bgs and an elevation differential (140 feet) between the release location and the wash in Ojitos Canyon (approximately 1.7 miles).



## **Axi Apache N #16 Release Report**

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A review was completed of the New Mexico Office of the State Engineer online New Mexico Water Rights Reporting System and no water wells were identified within a 1,000 feet radius of the release location.

The nearest surface water, an unnamed wash which drains south to the wash in Ojitos Canyon is located approximately 350 feet east of the release location. A stock pond is located 504 feet southeast of the release location.

### **4 Field Activities**

On July 2, 2015, the onsite crew encountered historic contamination below the 45 barrel below grade tank. On July 7 and 8, 2015, CF&M removed the petroleum impacted materials from below the BGT. Rule personnel provided excavation oversight and conducted field screening activities during remediation activities. Based on visual observation and field screening results, the excavation was halted, and Rule personnel collected five confirmation samples (SC-1 through SC-5) from the sidewalls and base of the excavation. Approximately 208 cubic yards of impacted soils were removed from an area of excavation measuring approximately 25 feet x 20 feet x 15 feet in depth. Figure 3 provides the locations and results of the soil samples collected during the excavation clearance.

### **5 Soil Sampling**

Rule collected five confirmation soil samples from the sidewalls and base of the excavation. Soil samples SC-1 through SC-4 were collected on July 7, 2015, and soil sample SC-5 was collected on July 8, 2015. Each soil sample was collected as a composite of sub-samples from within the sample locations. A portion of each composite soil sample was field screened for volatile organic compounds (VOCs) and field analyzed for TPH per United States Environmental Protection Agency (USEPA) Method 418.1.

Field screening for 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.

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.

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 for gasoline range organics (GRO) and diesel range organics (DRO) per USEPA Method 8015D.

Field sampling results for soil confirmation samples SC-1 through SC-5 reported VOC concentrations ranging from 8.3 ppm to 1,020 ppm, and field TPH concentrations ranging



from 26.5 mg/kg to 824 mg/kg, which are below the NMOCD action level of 1,000 mg/kg for a site rank of 10. Laboratory analytical results for soil confirmation samples SC-1 through SC-5 reported benzene, total BTEX, and TPH (GRO+DRO) concentrations below the applicable NMOCD action levels. Field sampling and laboratory analytical results are summarized in Table 2 and presented on Figure 3. The analytical laboratory report is included in Appendix A.

## **6 Conclusions**

A historic release was discovered below the BGT at the ConocoPhillips Axi Apache N #16 on July 2, 2015. Remedial activities included excavation of approximately 208 cubic yards of hydrocarbon contaminated soils from within the impacted area. The final excavation measured approximately 25 feet x 20 feet x 15 feet in depth. Five confirmation soil samples were collected from the sidewalls and base of the final excavation on July 7 and 8, 2015.

Laboratory analytical results for soil confirmation samples (SC-1 through SC-5) reported benzene and total BTEX concentrations below the NMOCD action levels of 10 mg/kg and 50 mg/kg, respectively. All soil confirmation samples reported field and laboratory TPH concentrations below the NMOCD action level of 1,000 mg/kg.

Based on the field screening results, Hobson Sandoval, EPO representative, approved backfilling of the excavation on July 9, 2015. Based on laboratory analytical results, no further work is recommended.

## **7 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 proposal, the report, and Rule's 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**  
**Axi Apache N #16**  
**Rio Arriba County, New Mexico**  
**ConocoPhillips**

Ranking Criteria	Ranking Score	Site-Based Ranking Score	Basis for Determination	Data Sources
Depth to Groundwater				
<50 feet	20	0	Cathodic Report for the this well reports depth to water greater than 100 feet. Elevation differential between the location and wash in Ojitos Canyon south of the location is 140 feet.	NMOCD Online database, Schmitz 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 feet radius of location.	NMOSE NMWRRS, Schmitz Ranch Quadrangle, Google Earth, and Visual Inspection
	0 (No)			
Distance to Surface Water Body				
<200 horizontal feet	20	10	An unnamed wash is located approximatley 353 feet east of the location, which drains south to the wash in Ojitos Canyon. A stock pond is located 504 feet southeast of the location.	Schmitz 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. Soil Sampling Results-VOCs, Benzene, Total BTEX, and TPH**  
**Axi Apache N #16**  
**Rio Arriba County, New Mexico**  
**ConocoPhillips**

Sample ID	Date	Location	Sample Depth (ft bgs)	VOCs* (PID) (ppm)	TPH* (418.1) (mg/kg)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)
<b>EPO/NMOCD Action Levels**</b>				<b>100</b>	<b>1,000</b>	<b>10</b>	<b>50</b>	<b>1,000</b>	
SC-1	Jul 07, 15	North Wall	5 to 15	<b>135</b>	51.0	<0.050	<0.250	<5.0	18
SC-2	Jul 07, 15	South Wall	5 to 15	57	30.3	<0.047	<0.234	<4.7	<9.7
SC-3	Jul 07, 15	East Wall	5 to 15	8.3	26.5	<0.049	<0.244	<4.9	<9.9
SC-4	Jul 07, 15	West Wall	5 to 15	<b>140</b>	30.3	<0.047	<0.235	<4.7	<9.5
SC-5	Jul 08, 15	Base	15	<b>1,020</b>	824	<0.049	12.9	350	210

Notes:      \* field results  
                  ft bgs - feet below ground surface  
                  VOCs - volatile organic compounds  
                  PID - photo-ionization detector  
                  ppm - parts per million  
                  mg/kg - milligrams/kilograms  
                  TPH-total petroleum hydrocarbons  
                  BTEX - benzene, toluene, ethylbenzene, and xylenes  
                  TPH-GRO - total petroleum hydrocarbons-gasoline range organics  
                  TPH-DRO - total petroleum hydrocarbons-diesel range organics  
                  \*\*NMOCD Guidelines for Remediation of Leaks, Spills, and Releases (1993)



## Figures



### Legend

★ Axi Apache N 16 Well Head Location

Axi Apache N 16  
N36.41085, W107.20976

Copyright © 2013 National Geographic Society, i-cubed

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

0 1,000 2,000 3,000 4,000 Feet

**Location**  
L-12-25N-4W  
N36.41085, W107.20976  
Rio Arriba County, New Mexico

**Topographic Map**  
ConocoPhillips  
Axi Apache N 16  
API: 30-039-21983

Date: 7/27/2015 File: 150727 Axi Apache N 16 Topo Map

Figure: 1





**Legend**

- ★ Well Head
- Berm
- - - Fence
- Former BGT
- ▨ Separator
- ▩ Meter House
- AST

Source: Esri, DigitalGlobe, GeoEye, I-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community





# Legend

-  Soil Sample
-  Fence
-  Berm
-  Excavation
-  Former BGT
-  Separator

VOCs- Volatile Organic Compounds (ppm)  
 TPH- Total Petroleum Hydrocarbons; analyzed per 418.1  
 BTEX- Benzene, Toluene, Ethylbenzene, Xylenes  
 GRO- Gasoline Range Organics  
 DRO- Diesel Range Organics  
 Units in mg/kg.

SC-1	7/7/15
TPH (418.1)	51.0
Benzene	<0.050
BTEX	<0.250
GRO	<5.0
DRO	18

SC-4	7/7/15
TPH (418.1)	30.3
Benzene	<0.047
BTEX	<0.235
GRO	<4.7
DRO	<9.5

SC-5	7/8/15
TPH (418.1)	824
Benzene	<0.049
BTEX	12.9
GRO	350
DRO	210

SC-2	7/7/15
TPH (418.1)	30.3
Benzene	<0.047
BTEX	<0.234
GRO	<4.7
DRO	<9.7

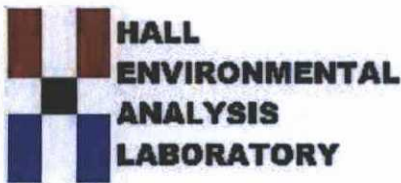
SC-3	7/7/15
TPH (418.1)	26.5
Benzene	<0.049
BTEX	<0.244
GRO	<4.9
DRO	<9.9

Area of Excavation: 25' x 20' x 15' in depth



# Appendix A

## Analytical Laboratory Report



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

July 15, 2015

Deborah Watson  
Rule Engineering LLC  
501 Airport Dr., Ste 205  
Farmington, NM 87401  
TEL: (505) 860-2712  
FAX

RE: Axi Apache N #16

OrderNo.: 1507410

Dear Deborah Watson:

Hall Environmental Analysis Laboratory received 5 sample(s) on 7/10/2015 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1507410

Date Reported: 7/15/2015

CLIENT: Rule Engineering LLC

Client Sample ID: SC-1

Project: Axi Apache N #16

Collection Date: 7/7/2015 12:42:00 PM

Lab ID: 1507410-001

Matrix: SOIL

Received Date: 7/10/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: KJH
Diesel Range Organics (DRO)	18	9.6		mg/Kg	1	7/13/2015 9:02:42 PM	20195
Surr: DNOP	94.0	57.9-140		%REC	1	7/13/2015 9:02:42 PM	20195
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/14/2015 4:14:01 PM	20202
Surr: BFB	102	75.4-113		%REC	1	7/14/2015 4:14:01 PM	20202
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: NSB
Benzene	ND	0.050		mg/Kg	1	7/14/2015 4:14:01 PM	20202
Toluene	ND	0.050		mg/Kg	1	7/14/2015 4:14:01 PM	20202
Ethylbenzene	ND	0.050		mg/Kg	1	7/14/2015 4:14:01 PM	20202
Xylenes, Total	ND	0.10		mg/Kg	1	7/14/2015 4:14:01 PM	20202
Surr: 4-Bromofluorobenzene	103	80-120		%REC	1	7/14/2015 4:14:01 PM	20202

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

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1507410

Date Reported: 7/15/2015

CLIENT: Rule Engineering LLC

Client Sample ID: SC-2

Project: Axi Apache N #16

Collection Date: 7/7/2015 1:55:00 PM

Lab ID: 1507410-002

Matrix: SOIL

Received Date: 7/10/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: KJH
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	7/13/2015 9:24:07 PM	20195
Surr: DNOP	99.6	57.9-140		%REC	1	7/13/2015 9:24:07 PM	20195
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/14/2015 4:42:49 PM	20202
Surr: BFB	92.3	75.4-113		%REC	1	7/14/2015 4:42:49 PM	20202
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: NSB
Benzene	ND	0.047		mg/Kg	1	7/14/2015 4:42:49 PM	20202
Toluene	ND	0.047		mg/Kg	1	7/14/2015 4:42:49 PM	20202
Ethylbenzene	ND	0.047		mg/Kg	1	7/14/2015 4:42:49 PM	20202
Xylenes, Total	ND	0.093		mg/Kg	1	7/14/2015 4:42:49 PM	20202
Surr: 4-Bromofluorobenzene	98.2	80-120		%REC	1	7/14/2015 4:42:49 PM	20202

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	Page 2 of 8
	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	
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1507410

Date Reported: 7/15/2015

CLIENT: Rule Engineering LLC

Client Sample ID: SC-3

Project: Axi Apache N #16

Collection Date: 7/7/2015 1:25:00 PM

Lab ID: 1507410-003

Matrix: SOIL

Received Date: 7/10/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: KJH
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	7/13/2015 9:45:28 PM	20195
Surr: DNOP	97.1	57.9-140		%REC	1	7/13/2015 9:45:28 PM	20195
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/14/2015 5:11:36 PM	20202
Surr: BFB	90.7	75.4-113		%REC	1	7/14/2015 5:11:36 PM	20202
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: NSB
Benzene	ND	0.049		mg/Kg	1	7/14/2015 5:11:36 PM	20202
Toluene	ND	0.049		mg/Kg	1	7/14/2015 5:11:36 PM	20202
Ethylbenzene	ND	0.049		mg/Kg	1	7/14/2015 5:11:36 PM	20202
Xylenes, Total	ND	0.097		mg/Kg	1	7/14/2015 5:11:36 PM	20202
Surr: 4-Bromofluorobenzene	96.5	80-120		%REC	1	7/14/2015 5:11:36 PM	20202

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	Page 3 of 8
	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	
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			

## Analytical Report

Lab Order 1507410

Date Reported: 7/15/2015

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Client Sample ID: SC-4

Project: Axi Apache N #16

Collection Date: 7/7/2015 10:45:00 AM

Lab ID: 1507410-004

Matrix: SOIL

Received Date: 7/10/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: KJH
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	7/13/2015 10:07:03 PM	20195
Surr: DNOP	97.5	57.9-140		%REC	1	7/13/2015 10:07:03 PM	20195
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/14/2015 5:40:20 PM	20202
Surr: BFB	96.9	75.4-113		%REC	1	7/14/2015 5:40:20 PM	20202
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: NSB
Benzene	ND	0.047		mg/Kg	1	7/14/2015 5:40:20 PM	20202
Toluene	ND	0.047		mg/Kg	1	7/14/2015 5:40:20 PM	20202
Ethylbenzene	ND	0.047		mg/Kg	1	7/14/2015 5:40:20 PM	20202
Xylenes, Total	ND	0.094		mg/Kg	1	7/14/2015 5:40:20 PM	20202
Surr: 4-Bromofluorobenzene	96.4	80-120		%REC	1	7/14/2015 5:40:20 PM	20202

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	Page 4 of 8
	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	
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1507410

Date Reported: 7/15/2015

CLIENT: Rule Engineering LLC

Client Sample ID: SC-5

Project: Axi Apache N #16

Collection Date: 7/8/2015 2:45:00 PM

Lab ID: 1507410-005

Matrix: SOIL

Received Date: 7/10/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: KJH
Diesel Range Organics (DRO)	210	9.6		mg/Kg	1	7/13/2015 10:28:19 PM	20195
Surr: DNOP	106	57.9-140		%REC	1	7/13/2015 10:28:19 PM	20195
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: NSB
Gasoline Range Organics (GRO)	350	4.9		mg/Kg	1	7/14/2015 9:01:25 PM	20202
Surr: BFB	1310	75.4-113	S	%REC	1	7/14/2015 9:01:25 PM	20202
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: NSB
Benzene	ND	0.049		mg/Kg	1	7/14/2015 9:01:25 PM	20202
Toluene	0.41	0.049		mg/Kg	1	7/14/2015 9:01:25 PM	20202
Ethylbenzene	1.5	0.049		mg/Kg	1	7/14/2015 9:01:25 PM	20202
Xylenes, Total	11	0.097		mg/Kg	1	7/14/2015 9:01:25 PM	20202
Surr: 4-Bromofluorobenzene	228	80-120	S	%REC	1	7/14/2015 9:01:25 PM	20202

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
	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
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1507410

15-Jul-15

Client: Rule Engineering LLC

Project: Axi Apache N #16

Sample ID	MB-20195		SampType:	MBLK		TestCode:	EPA Method 8015M/D: Diesel Range Organics				
Client ID:	PBS		Batch ID:	20195		RunNo:	27441				
Prep Date:	7/10/2015		Analysis Date:	7/13/2015		SeqNo:	823961		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	9.8		10.00		97.6	57.9	140				

Sample ID	LCS-20195		SampType:	LCS		TestCode:	EPA Method 8015M/D: Diesel Range Organics				
Client ID:	LCSS		Batch ID:	20195		RunNo:	27441				
Prep Date:	7/10/2015		Analysis Date:	7/13/2015		SeqNo:	823962		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	57.4	139				
Surr: DNOP	4.4		5.000		88.1	57.9	140				

Sample ID	MB-20214		SampType:	MBLK		TestCode:	EPA Method 8015M/D: Diesel Range Organics				
Client ID:	PBS		Batch ID:	20214		RunNo:	27479				
Prep Date:	7/13/2015		Analysis Date:	7/14/2015		SeqNo:	824917		Units: %REC		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Surr: DNOP	9.8		10.00		97.5	57.9	140				

## Qualifiers:

- |   |  |
|---|--|
| * Value exceeds Maximum Contaminant Level.        | B Analyte detected in the associated Method Blank    |
| 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               |
| O RSD is greater than RSDlimit                    | P Sample pH Not In Range                             |
| R RPD outside accepted recovery limits            | RL Reporting Detection Limit                         |
| S Spike Recovery outside accepted recovery limits |  |



# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1507410

15-Jul-15

Client: Rule Engineering LLC

Project: Axi Apache N #16

Sample ID	MB-20202	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBS	Batch ID:	20202	RunNo:	27497					
Prep Date:	7/10/2015	Analysis Date:	7/14/2015	SeqNo:	825060	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	920		1000		92.0	75.4	113			

Sample ID	LCS-20202	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSS	Batch ID:	20202	RunNo:	27497					
Prep Date:	7/10/2015	Analysis Date:	7/14/2015	SeqNo:	825061	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	64	130			
Surr: BFB	1000		1000		99.8	75.4	113			

Sample ID	MB-20225	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBS	Batch ID:	20225	RunNo:	27497					
Prep Date:	7/13/2015	Analysis Date:	7/14/2015	SeqNo:	825115	Units:	%REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	910		1000		90.8	75.4	113			

Sample ID	LCS-20225	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSS	Batch ID:	20225	RunNo:	27497					
Prep Date:	7/13/2015	Analysis Date:	7/14/2015	SeqNo:	825116	Units:	%REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1000		1000		99.8	75.4	113			

## Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1507410

15-Jul-15

Client: Rule Engineering LLC

Project: Axi Apache N #16

Sample ID	MB-20202		SampType:	MBLK		TestCode:	EPA Method 8021B: Volatiles			
Client ID:	PBS		Batch ID:	20202		RunNo:	27497			
Prep Date:	7/10/2015		Analysis Date:	7/14/2015		SeqNo:	825144		Units: mg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		99.5	80	120			

Sample ID	LCS-20202		SampType:	LCS		TestCode:	EPA Method 8021B: Volatiles			
Client ID:	LCSS		Batch ID:	20202		RunNo:	27497			
Prep Date:	7/10/2015		Analysis Date:	7/14/2015		SeqNo:	825145		Units: mg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.050	1.000	0	101	76.6	128			
Toluene	0.98	0.050	1.000	0	97.9	75	124			
Ethylbenzene	1.0	0.050	1.000	0	102	79.5	126			
Xylenes, Total	3.0	0.10	3.000	0	101	78.8	124			
Surr: 4-Bromofluorobenzene	1.0		1.000		103	80	120			

Sample ID	MB-20225		SampType:	MBLK		TestCode:	EPA Method 8021B: Volatiles			
Client ID:	PBS		Batch ID:	20225		RunNo:	27497			
Prep Date:	7/13/2015		Analysis Date:	7/14/2015		SeqNo:	825158		Units: %REC	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.98		1.000		97.9	80	120			

Sample ID	LCS-20225		SampType:	LCS		TestCode:	EPA Method 8021B: Volatiles			
Client ID:	LCSS		Batch ID:	20225		RunNo:	27497			
Prep Date:	7/13/2015		Analysis Date:	7/14/2015		SeqNo:	825159		Units: %REC	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.1		1.000		106	80	120			

## Qualifiers:

- |   |  |
|---|--|
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| J Analyte detected below quantitation limits      | ND Not Detected at the Reporting Limit               |
| O RSD is greater than RSDlimit                    | P Sample pH Not In Range                             |
| R RPD outside accepted recovery limits            | RL Reporting Detection Limit                         |
| S Spike Recovery outside accepted recovery limits |  |





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: 1507410

RcptNo: 1

Received by/date:

*AK* 07/10/15

Logged By: Lindsay Mangin

7/10/2015 7:00:00 AM

*Judy Hago*

Completed By: Lindsay Mangin

7/10/2015 7:54:46 AM

*Judy Hago*

Reviewed By:

*CS*

07/10/15

### Chain of Custody

1. Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

2. Is Chain of Custody complete?

Yes ☒

No ☐

Not Present ☐

3. How was the sample delivered?

Courier

### Log In

4. Was an attempt made to cool the samples?

Yes ☒

No ☐

NA ☐

5. Were all samples received at a temperature of  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$

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?

Yes ☒

No ☐

(Note discrepancies on chain of custody)

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?

Yes ☒

No ☐

(If no, notify customer for authorization.)

# of preserved  
bottles checked  
for pH:

(<2 or >12 unless noted)

Adjusted? \_\_\_\_\_

Checked by: \_\_\_\_\_

### Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?

Yes ☐

No ☐

NA ☒

Person Notified: \_\_\_\_\_

Date: \_\_\_\_\_

By Whom: \_\_\_\_\_

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: \_\_\_\_\_

Client Instructions: \_\_\_\_\_

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.7	Good	Yes			



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 noted on the analytical report.