

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., 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 Department  
Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-141  
Revised August 24, 2018  
Submit to appropriate OCD District office

Incident ID	
District RP	3RP-1012
Facility ID	
Application ID	

## Release Notification

NMOCD

### Responsible Party

APR 25 2019

Responsible Party: <b>Enterprise Field Services, LLC</b>	OGRID: <b>151618</b>	<b>DISTRICT III</b>
Contact Name: <b>Thomas Long</b>	Contact Telephone: <b>505-599-2286</b>	
Contact email: <b>tjlong@eprod.com</b>	Incident # (assigned by OCD) <b>N/A</b>	
Contact mailing address: <b>614 Reilly Ave, Farmington, NM 87401</b>	<b>NCS 1912334835</b>	

### Location of Release Source

Latitude **36.373895** Longitude **-107.117419** NAD 83 in decimal degrees to 5 decimal places)

Site Name <b>JR Anderson #2</b>	Site Type <b>Natural Compressor Gathering Pipeline</b>
Date Release Discovered: <b>3/26/2019</b>	Serial # (if applicable): <b>N/A</b>

Unit Letter	Section	Township	Range	County
<b>C</b>	<b>26</b>	<b>25N</b>	<b>3W</b>	<b>Rio Arriba</b>

Surface Owner:  State  Federal  Tribal  Private (Name: J.D. Weaver)

### Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

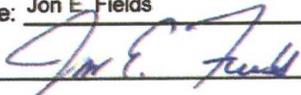
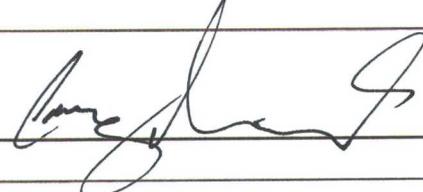
<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input checked="" type="checkbox"/> Condensate	Volume Released (bbls): <b>Unknown</b>	Volume Recovered (bbls): <b>None</b>
<input checked="" type="checkbox"/> Natural Gas	Volume Released (Mcf): <b>Unknown</b>	Volume Recovered (Mcf): <b>None</b>
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units):	Volume/Weight Recovered (provide units)

**Cause of Release:** On March 26, 2019, a third party notified Enterprise of a possible release of natural gas and natural gas liquids on the JR Anderson #2 pipeline. Enterprise dispatched a technician and confirmed the release. The pipeline was isolated, depressurized, locked out and tagged out. An area of approximately five feet in diameter was impacted by the released fluids. Enterprise began repairs and remediation on Thursday, April 11, 2019 and determined this release reportable per NMOCD regulation on Friday, April 12, 2019 due to the volume of impacted subsurface soil. A third party closure report will be submitted with the "Final C-141."


<p>Was this a major release as defined by 19.15.29.7(A) NMAC?</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>If YES, for what reason(s) does the responsible party consider this a major release?</p>
<p>If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?</p>	

### Initial Response

*The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury*

<p><input checked="" type="checkbox"/> The source of the release has been stopped.</p> <p><input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment.</p> <p><input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.</p> <p><input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.</p>
<p>If all the actions described above have <u>not</u> been undertaken, explain why: Berms and dikes were installed to prevent migration of the release potable water, but some standing water was left onsite, as that a road has to be built in order for equipment to access the release location and remove the water.</p>
<p>Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.</p>
<p>I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.</p>
<p>Printed Name: <u>Jon E. Fields</u> Title: <u>Director, Field Environmental</u></p> <p>Signature: <u></u> Date: <u>4-23-19</u></p> <p>email: <u>jefields@eprod.com</u> Telephone: <u>713-381-6684</u></p>
<p><b>OCD Only</b></p> <p>Received by: <u></u> Date: <u>5/3/19</u></p>

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., 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 Department  
Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-141  
Revised August 24, 2018  
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

## Release Notification

### Responsible Party

Responsible Party: <b>Enterprise Field Services, LLC</b>	OGRID: <b>151618</b>
Contact Name: <b>Thomas Long</b>	Contact Telephone: <b>505-599-2286</b>
Contact email: <b>tjlong@eprod.com</b>	Incident # (assigned by OCD): <b>NCS1903153382</b>
Contact mailing address: <b>614 Reilly Ave, Farmington, NM 87401</b>	

### Location of Release Source

Latitude 36.323769 Longitude -107.532816 (NAD 83 in decimal degrees to 5 decimal places)

Site Name <b>Lateral 2C-116</b>	Site Type <b>Natural Gas Gathering Pipeline</b>
Date Release Discovered: <b>1/9/2019</b>	Serial Number (if applicable): <b>NM 0128714</b>

Unit Letter	Section	Township	Range	County
<b>M</b>	<b>12</b>	<b>24N</b>	<b>7W</b>	<b>Rio Arriba</b>

Surface Owner:  State  Federal  Tribal  Private (Name: BLM)

**NMOCD**  
**JUN 20 2019**  
**DISTRICT III**

### Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input checked="" type="checkbox"/> Condensate	Volume Released (bbls): <b>3-5 Barrels</b>	Volume Recovered (bbls): <b>None</b>
<input checked="" type="checkbox"/> Natural Gas	Volume Released (Mcf): <b>9.443</b>	Volume Recovered (Mcf):
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units):	Volume/Weight Recovered (provide units)

**Cause of Release:** On January 9, 2019, an Enterprise technician discovered a release on the Lateral 2C-116 pipeline. The pipeline was isolated, depressurized, locked out and tagged out. An area on the ground surface of approximately three feet in diameter was affected by released fluids. On January 17, 2019, Enterprise determined the release reportable per NMOCD regulation due to the volume of impacted subsurface soil. Enterprise also determine that this release was required to be remediated to the third tier NMOCD remediation standard of 10 ppm Benzene, 50 ppm BTEX, GRO+DRO = 1, 000 ppm, 2,500 ppm TPH and 20,000 ppm Chloride. Remediation activities were completed on January 17, 2019. The final excavation dimensions measured approximately 22 feet long by 11 feet wide by approximately 6.5 feet deep. Approximately 74 cubic yards of hydrocarbon impacted soil were excavated and transported to a New Mexico Oil Conservation Division approved land farm facility. A third party closure report is included with this "Final." C-141.

45

Incident ID	
District RP	
Facility ID	
Application ID	

### Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

**Closure Report Attachment Checklist:** *Each of the following items must be included in the closure report.*

- A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- Description of remediation activities

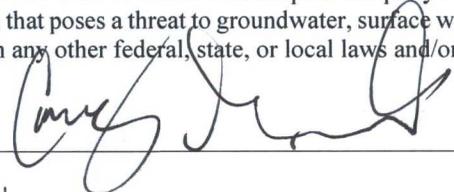
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Jon E. Fields Title: Director, Field Environmental  
Signature:  Date: 6-17-19  
email: jefields@eprod.com Telephone: 713-381-6684

**OCD Only**

Received by: OCD Date: 6/20/19

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by:  Date: 7/10/19  
Printed Name: Cory Title: Environmental Spec.

**Lateral 2C-116**  
**Release Closure Report**

Unit Letter L, Section 12, Township 24 North, Range 7 West  
Rio Arriba County, New Mexico

March 28, 2019

Prepared for:  
Enterprise Field Services, LLC  
614 Reilly Avenue  
Farmington, New Mexico 87401

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

# **Enterprise Field Services, LLC Lateral 2C-116 Pipeline Release Closure Report**

Prepared for:

Enterprise Field Services, LLC  
614 Reilly Avenue  
Farmington, New Mexico 87401

Prepared by:

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

A handwritten signature in blue ink that reads "Heather M. Woods". The signature is written in a cursive style and is positioned above a horizontal line.

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

March 28, 2019

## Table of Contents

1.0	Introduction.....	1
2.0	Release Summary .....	1
3.0	Remediation Standards Determination.....	1
4.0	Field Activities .....	2
5.0	Confirmation Soil Sampling .....	2
6.0	Laboratory Analytical Results .....	3
7.0	Conclusions.....	3
8.0	Closure and Limitations.....	3

## Tables

Table 1	Summary of Laboratory Analytical Results
---------	--

## Figures

Figure 1	Topographic Site Map
Figure 2	Aerial Site Map

## Appendices

Appendix A	Closure Criteria Determination Documents
Appendix B	NMOCD Correspondence
Appendix C	Executed C-138 Soil Waste Acceptance Form
Appendix D	Photograph Log
Appendix E	Analytical Laboratory Report

## 1.0 Introduction

The Enterprise Field Services, LLC (Enterprise) Lateral 2C-116 pipeline release site is located in Unit Letter L, Section 12, Township 24 North, Range 7 West, in Rio Arriba County, New Mexico. The release was discovered on January 9, 2019, and the line was immediately isolated and depressurized.

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

<b>Site Name</b>	Lateral 2C-116 Pipeline Release		
<b>Site Location Description</b>	Unit Letter L, Section 12, Township 24 North, Range 7 West (N36.32380, W107.53279)		
<b>Land Jurisdiction</b>	Bureau of Land Management (BLM)		
<b>Discovery Date</b>	January 9, 2019		
<b>Release Source</b>	Corrosion of pipeline		
<b>Substance(s) Released</b>	Natural gas and pipeline liquids		
<b>Contractor</b>	Oil Field Trash (OFT)	<b>Remedial Excavation Dimensions</b>	22 feet by 11 feet by 6.5 feet in depth, plus a shallow excavation
<b>Volume of Soil Transported for Disposal/Remediation</b>	Approximately 74 cubic yards	<b>Disposal Facility</b>	Envirotech Landfarm (Permit #NM-01-0011)

## 3.0 Remediation Standards Determination

The remediation standards for the release location are determined per 19.15.29 of the New Mexico Authority Code (NMAC) and are determined by depth to groundwater with a concentration of less than 10,000 milligrams per kilogram (mg/kg) total dissolved solids (TDS) and several factors outlined in 19.15.29.12(4)(e) NMAC.

Depth to groundwater at the site is anticipated to be greater than 100 feet below grade surface (bgs) based on the local well records and the area's geology and geomorphology. Supporting documents for this determination are included in Appendix A. These supporting documents were submitted to the New Mexico Energy, Minerals, and Natural Resources Department Oil Conservation Division (NMOCD) District 3 office for concurrence with the determination prior to confirmation sampling. Concurrence was granted by Mr. Cory Smith, Environmental Specialist, via email on January 17, 2019. A copy of this correspondence is included in Appendix B.

## 1.0 Introduction

The Enterprise Field Services, LLC (Enterprise) Lateral 2C-116 pipeline release site is located in Unit Letter L, Section 12, Township 24 North, Range 7 West, in Rio Arriba County, New Mexico. The release was discovered on January 9, 2019, and the line was immediately isolated and depressurized.

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

<b>Site Name</b>	Lateral 2C-116 Pipeline Release		
<b>Site Location Description</b>	Unit Letter L, Section 12, Township 24 North, Range 7 West (N36.32380, W107.53279)		
<b>Land Jurisdiction</b>	Bureau of Land Management (BLM)		
<b>Discovery Date</b>	January 9, 2019		
<b>Release Source</b>	Corrosion of pipeline		
<b>Substance(s) Released</b>	Natural gas and pipeline liquids		
<b>Contractor</b>	Oil Field Trash (OFT)	<b>Remedial Excavation Dimensions</b>	22 feet by 11 feet by 6.5 feet in depth, plus a shallow excavation
<b>Volume of Soil Transported for Disposal/Remediation</b>	Approximately 74 cubic yards	<b>Disposal Facility</b>	Envirotech Landfarm (Permit #NM-01-0011)

## 3.0 Remediation Standards Determination

The remediation standards for the release location are determined per 19.15.29 of the New Mexico Authority Code (NMAC) and are determined by depth to groundwater with a concentration of less than 10,000 milligrams per kilogram (mg/kg) total dissolved solids (TDS) and several factors outlined in 19.15.29.12(4)(e) NMAC.

Depth to groundwater at the site is anticipated to be greater than 100 feet below grade surface (bgs) based on the local well records and the area's geology and geomorphology. Supporting documents for this determination are included in Appendix A. These supporting documents were submitted to the New Mexico Energy, Minerals, and Natural Resources Department Oil Conservation Division (NMOCD) District 3 office for concurrence with the determination prior to confirmation sampling. Concurrence was granted by Mr. Cory Smith, Environmental Specialist, via email on January 17, 2019. A copy of this correspondence is included in Appendix B.

Closure criteria for the soils impacted at the release location are determined by the “*greater than 100 feet*” category of Table 1, 19.15.29.12 NMAC, which are as follows: 20,000 milligrams per kilogram (mg/kg) chloride per United States Environmental Protection Agency (USEPA) Method 300.0 or SM 4500-Cl B; 2,500 mg/kg total petroleum hydrocarbons (TPH) as gasoline range organics (GRO), diesel range organics (DRO), and mineral oil range organics (MRO) per USEPA Method 8015M; 1,000 mg/kg TPH as GRO and DRO per USEPA Method 8015M; 50 mg/kg total benzene, toluene, ethylbenzene, and xylenes (BTEX) per USEPA Method 8021B or 8260B; and 10 mg/kg benzene per USEPA Method 8021B or 8260B.

#### **4.0 Field Activities**

On January 17, 2019, Enterprise completed repair activities at the location. OFT provided heavy equipment operation and repair support. Rule Engineering, LLC (Rule) personnel provided excavation guidance and collected confirmation samples from the resultant excavation. Approximately 74 cubic yards of hydrocarbon impacted soils were removed from the remedial portion of the excavation measuring approximately 22 feet by 11 feet by 6.5 feet in depth. A shallow, irregularly shaped excavation immediately north of the repair excavation measured approximately 22 feet by 11 feet by 12 to 18 inches in depth.

A depiction of the excavation with sample locations is included as Figure 2. A copy of the executed C-138 Solid Waste Acceptance Form is included in Appendix C.

#### **5.0 Confirmation Soil Sampling**

Confirmation sampling was conducted the same day on January, 17, 2019. A shortened sampling notification time was approved by Mr. Smith due to pending inclement weather.

Rule collected confirmation soil samples (SC-1 through SC-6) from the sidewalls and bases of the remedial excavation on January 17, 2019. Each confirmation soil sample is a representative composite comprised of five equivalent aliquots of soil collected from the sampled area.

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 8260B, TPH (GRO/DRO/MRO) per USEPA 8015M/D, and chlorides per USEPA Method 300.0.

A portion of each sample was field screened for volatile organic compounds (VOCs). Field screening for VOC vapors was conducted with a photoionization detector (PID). Before beginning field screening, the PID was calibrated with 100 parts per million (ppm) isobutylene gas.

A depiction of the excavation extents with sample locations is included as Figure 2. A copy of the NMOCD correspondence containing the approval for shortened sampling

notification time is included in Appendix B. A photograph log of the confirmation sampling areas is included in Appendix D.

## 6.0 Laboratory Analytical Results

Laboratory analytical results for the confirmation samples are as follows:

- Benzene concentrations range from below the laboratory reporting limits to 0.17 mg/kg, which are below the closure criteria of 10 mg/kg.
- Total BTEX concentrations range from below laboratory reporting limits to 5.3 mg/kg, which are below the closure criteria of 50 mg/kg.
- TPH as GRO/DRO concentrations range from below laboratory reporting limits to 690 mg/kg, which are below the closure criteria of 1,000 mg/kg.
- TPH as GRO/DRO/MRO concentrations range from below the laboratory reporting limits to 900 mg/kg, which are below the closure criteria of 2,500 mg/kg.
- Chloride concentrations range from 120 mg/kg to 230 mg/kg, which are below the closure criteria of 20,000 mg/kg.

Laboratory analytical results are summarized in Table 1, confirmation sample locations are illustrated on Figure 2, and the analytical laboratory reports are included in Appendix E.

## 7.0 Conclusions

Hydrocarbon impacted soils associated with the Lateral 2C-116 release have been excavated and transported to an approved landfarm for disposal/remediation. Laboratory analytical results for the confirmation samples collected from the excavation report benzene, total BTEX, TPH, and chloride concentrations below the closure criteria set forth for the release. Therefore, no further work is recommended.

## 8.0 Closure and Limitations

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

Table

**Table 1. Summary of Laboratory Analytical Results**  
**Enterprise Field Services**  
**Lateral 2C-116 Pipeline Release**  
**Rio Arriba County, New Mexico**

Sample Name	Date	Approximate Sample Depth (ft bgs)	Sample Location	Laboratory Analytical Results								
				Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	TPH as GRO (mg/kg)	TPH as DRO (mg/kg)	TPH as MRO (mg/kg)	Chloride (mg/kg)
<b>Closure Criteria*</b>				<b>10</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>50</b>	<b>1,000 as GRO+DRO / 2,500 Total</b>			<b>20,000</b>
SC-1	1/17/2019	0 - 6.5	North Wall	<0.022	<0.044	<0.044	<0.087	ND	<4.4	<9.5	<47	140
SC-2	1/17/2019	0 - 6.5	South Wall	<0.019	<0.038	<0.038	<0.076	ND	<3.8	<9.3	<47	170
SC-3	1/17/2019	0 - 6.5	East Wall	<0.10	<0.20	<0.20	<0.41	ND	<20	27	<48	230
SC-4	1/17/2019	0 - 6.5	West Wall	0.17	1.0	0.62	3.5	5.3	220	470	210	160
SC-5	1/17/2019	6.5	Excavation Base	0.034	<0.044	<0.044	<0.088	0.034	<4.4	28	<46	150
SC-6	1/17/2019	1 - 1.25	Shallow Surface Exc.	<0.029	<0.059	<0.059	<0.12	ND	<5.9	<9.2	<46	120

Notes: ft bgs - feet below grade surface  
mg/kg - milligrams per kilogram  
NE - not established  
ND - not detected above laboratory reporting limits  
\*Per Table 1 of 19.15.29.12 NMAC, based on category "greater than 100 feet" depth to groundwater

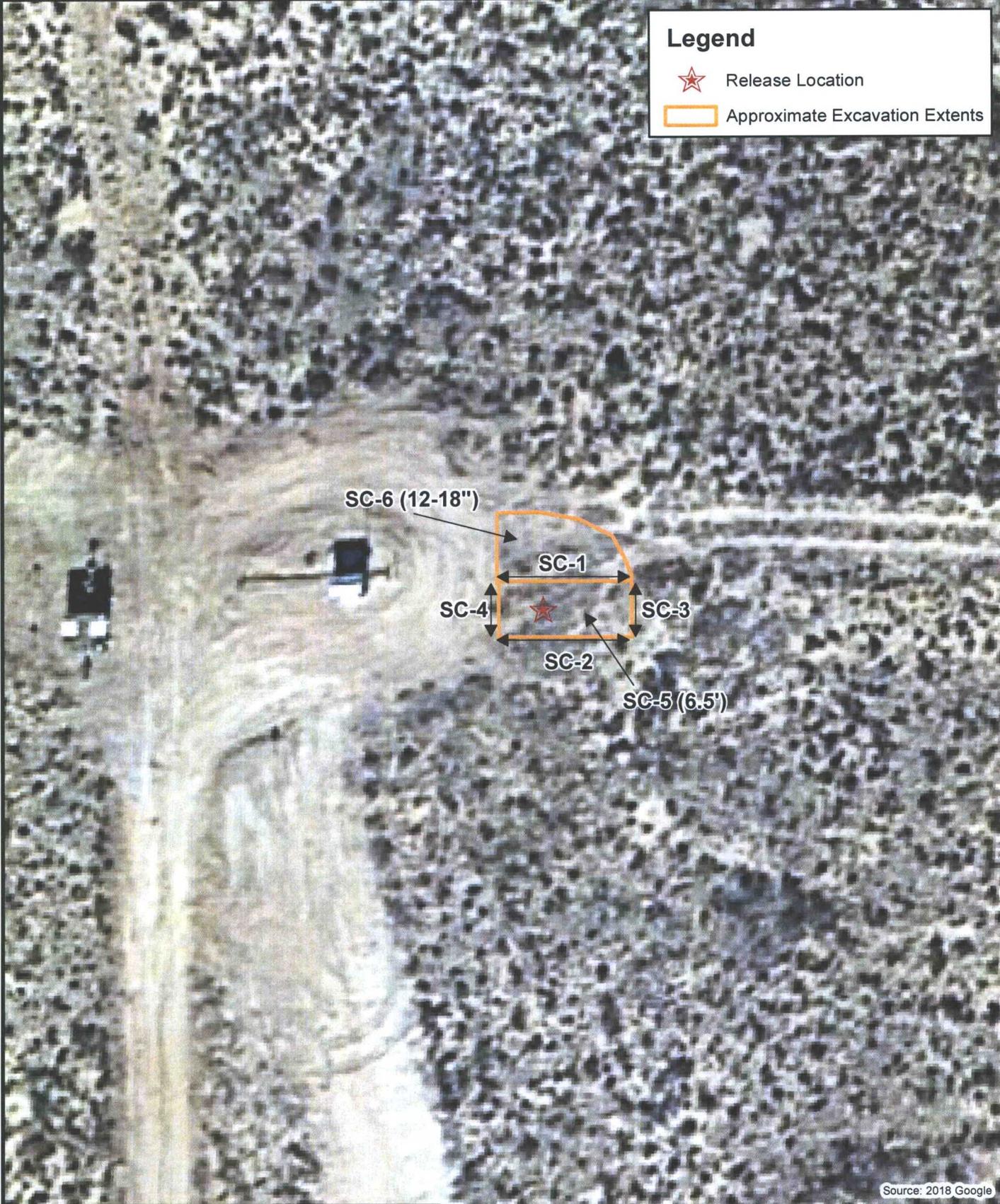
TPH - total petroleum hydrocarbons  
GRO - gasoline range organics  
DRO - diesel range organics  
MRO - mineral oil range organics

## Figures



**Legend**

- ★ Release Location
- Approximate Excavation Extents



Source: 2018 Google

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

0 5 10 20 30 40 Feet

1 in = 30 ft

**Enterprise Products**

S12-T24N-R7W  
N36.323741, W107.53284  
Rio Arriba, NM

**Figure 2**  
**Aerial Site Map**  
Enterprise Lateral  
2C-116

## Appendix A

### Closure Criteria Determination Documents

## Lateral 2C-116 Pipeline Release Hydrogeologic Information

Depth to groundwater is anticipated to be greater than 100 feet below ground surface. The site is located on top of a sandstone mesa at an elevation of 6930 amsl. The shale bottom valleys surrounding the mesa are about 6700 amsl immediately adjacent to the cliff faces, therefore groundwater is anticipated to be at least 200 feet deep at the site.

There are no springs indicated on the topographic map and no increased vegetation cover on the aerial photo to suggest the presence of a spring within 0.5 mile of the site.

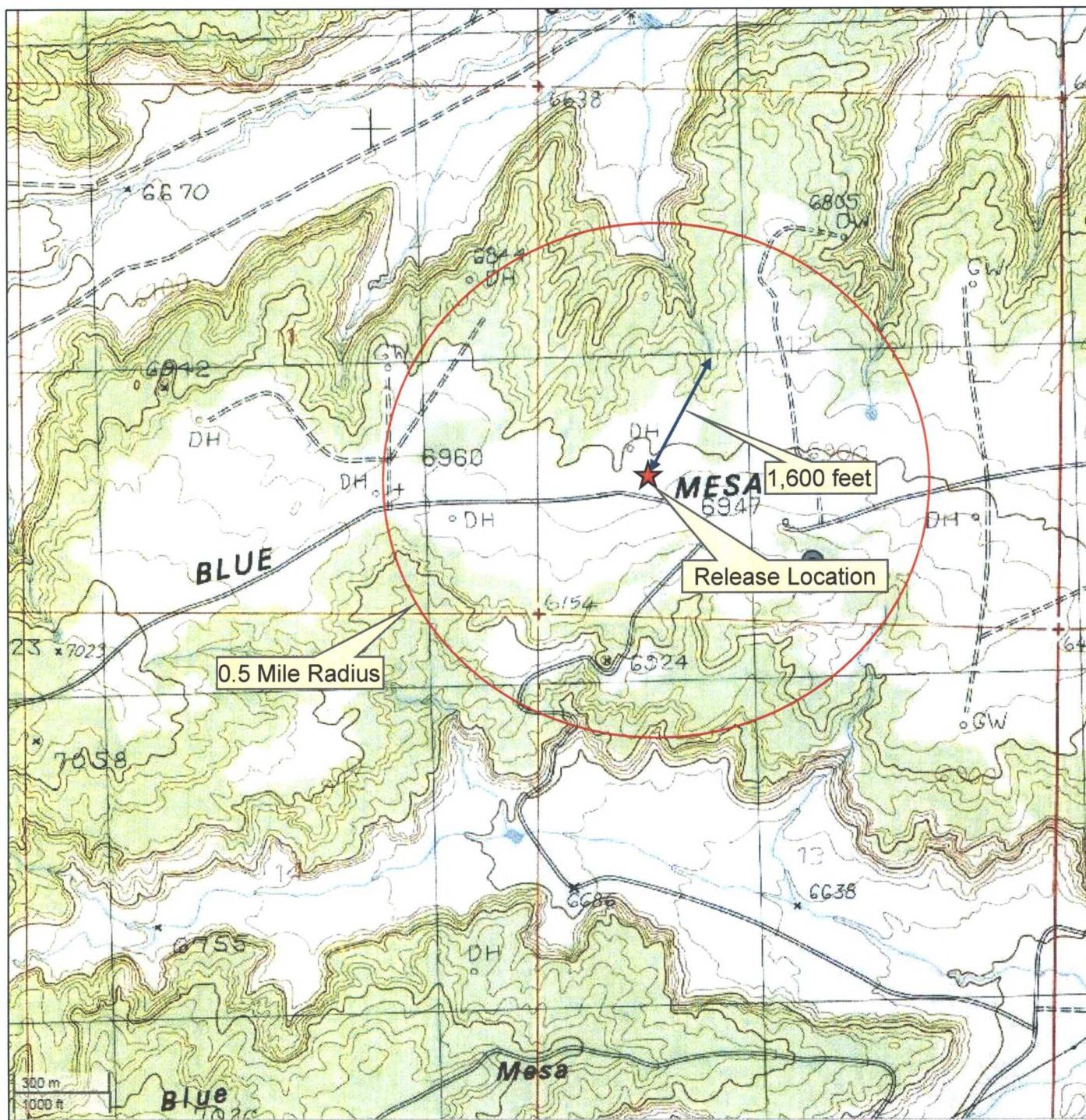
The nearest significant watercourse is a tributary to the Rockhouse Canyon Wash located approximately 1,600 feet northeast of the location.

There are no water wells registered within 0.5 mile of the location.

The site is not within 300 feet of a wetland and is not within a 100-year floodplain.

The site is underlain by the Tertiary San Jose Formation which does not exhibit karst features.

Hydrology Figure 1. Topographic Map





---

# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

---

No records found.

**UTMNAD83 Radius Search (in meters):**

**Easting (X):** 273452.43

**Northing (Y):** 4022813.7

**Radius:** 805

---

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

---

# Lateral 2C-116 Pipeline Release

## Legend

- 1,000 Foot Radius
- 300 Foot Radius
- 500 Foot Radius
- Lateral 2C-116

Lateral 2C-116

Google Earth

© 2018 Google

1000 ft



# National Flood Hazard Layer FIRMette



36°14'12.38"N

107°32'16.95"W



USGS The National Map: Orthoimagery, Data refreshed October, 2017.



## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		Area of Minimal Flood Hazard Zone X
		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		Cross Sections with 1% Annual Chance Water Surface Elevation 20.2 17.5
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

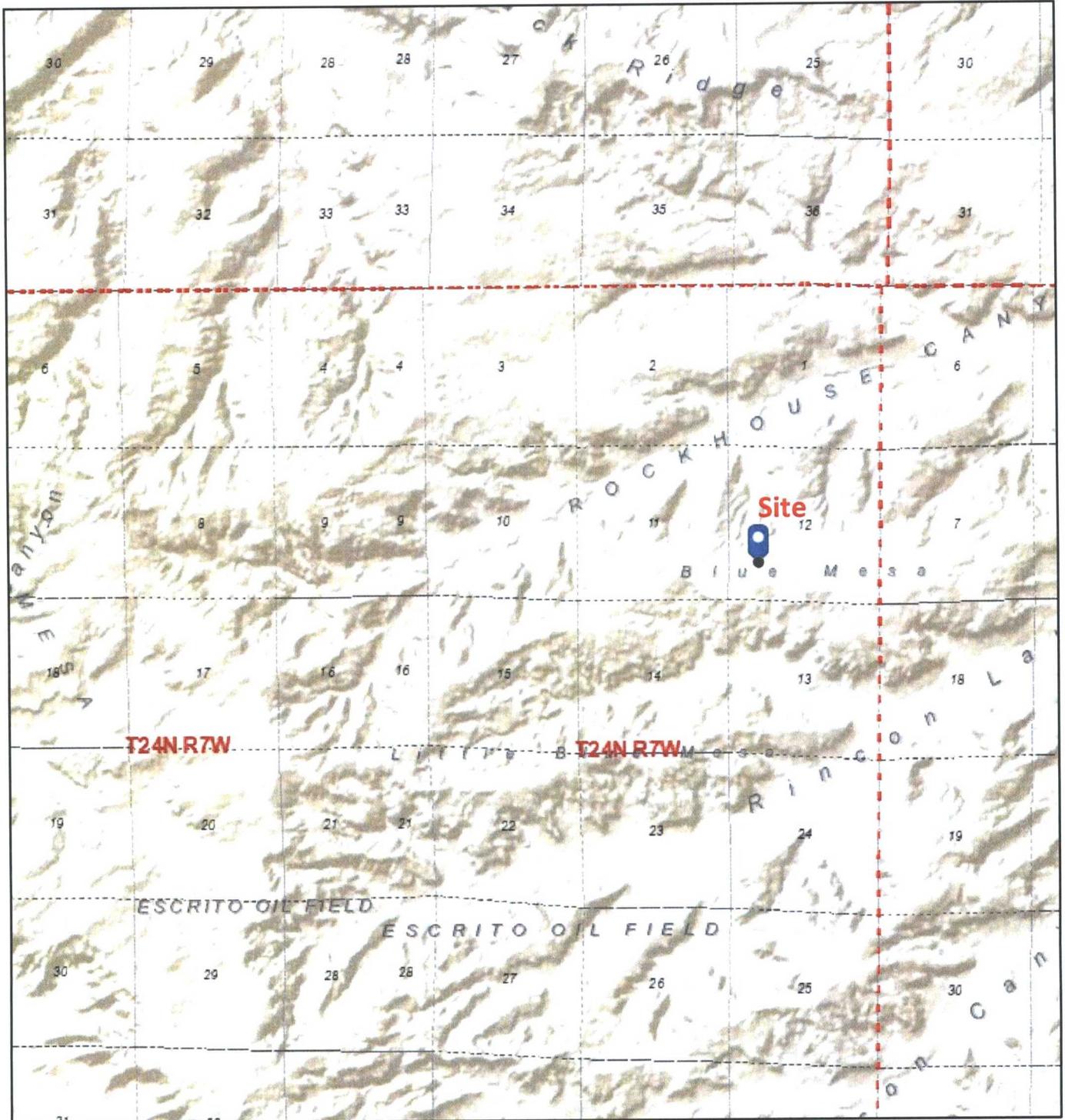
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 1/14/2019 at 6:50:51 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

107°31'39.50"W

# Active Mines in New Mexico



1/14/2019, 5:01:57 PM



Bureau of Land Management Geographic Coordinate Database, Sources: Esri, USGS, NOAA, Sources: Esri, Garmin, USGS, NPS

Appendix B  
NMOCD Correspondence

**From:** [Smith, Cory, EMNRD](#)  
**To:** [Long, Thomas, Fields, Vanessa, EMNRD](#); ["lthomas@blm.gov"](#)  
**Cc:** [Stone, Brian](#)  
**Subject:** RE: Lateral 2C-116 - UL M Section 12 T24N R7W; 36.323769, -107.532816 incident# ncs1903153382  
**Date:** Thursday, January 31, 2019 2:54:42 PM  
**Attachments:** [image002.png](#)

---

Tom,

OCD has received the initial C-141 for this site and has assigned it to the below highlighted incident #.

It will be scanned into 3RP-1012.

## **NCS1903153382 LATERAL 2C-116 @ FJK1424833624**

### **General Incident Information**

**Site Name:** LATERAL 2C-116  
**Well:**  
**Facility:** **FJK1424833624** ENTERPRISE RIO ARRIBA PIPELINE **3R-1012**  
**Operator:** **151618** ENTERPRISE FIELD SERVICES L L C  
**Status:** **Closure Not Approved**  
**Type:** Oil Release  
**District:** Aztec

**Incident Location:** M-12-24N-07W Lot 0 FNL 0 FEL  
**Lat/Long:** 36.323769 -107.532816 NAD83

**Severity:**  
**Surface Owner:** Federal  
**County:** Rio Arriba (39)

Cory Smith  
Environmental Specialist  
Oil Conservation Division  
Energy, Minerals, & Natural Resources  
1000 Rio Brazos, Aztec, NM 87410  
(505)334-6178 ext 115  
[cory.smith@state.nm.us](mailto:cory.smith@state.nm.us)

**From:** Long, Thomas <tjlong@eprod.com>  
**Sent:** Monday, January 21, 2019 10:43 AM  
**To:** Smith, Cory, EMNRD <Cory.Smith@state.nm.us>; Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>; 'lthomas@blm.gov' <lthomas@blm.gov>  
**Cc:** Stone, Brian <bstone@eprod.com>  
**Subject:** [EXT] RE: Lateral 2C-116 - UL M Section 12 T24N R7W; 36.323769, -107.532816

Cory,

Please find the attached site sketch and lab report for the Lateral 2C-116 excavation. All sample results are below the NMOCD Tier 3 remediation standard. Enterprise will backfill the excavation with clean imported fill material. If you have any questions, please call or email.

**Tom Long**  
**505-599-2286 (office)**  
**505-215-4727 (Cell)**  
[tjlong@eprod.com](mailto:tjlong@eprod.com)

**From:** Smith, Cory, EMNRD <Cory.Smith@state.nm.us>  
**Sent:** Friday, January 18, 2019 7:45 AM  
**To:** Long, Thomas <tjlong@eprod.com>; Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>; 'lthomas@blm.gov' <lthomas@blm.gov>  
**Cc:** Stone, Brian <bstone@eprod.com>  
**Subject:** RE: Lateral 2C-116 - UL M Section 12 T24N R7W; 36.323769, -107.532816

Tom,

OCD approves Enterprises shortened sampling notification due to pending inclement weather. In addition to the typical 200 sqft, if there is any areas that show signs of staining or abnormalities compared to the surrounding surface please collect a grab sample as describe in [19\\_15\\_29\\_12](#) NMAC.

Please include this approval in your Final C-141

OCD approval does not relieve Enterprise of any requirements imposed by other regulatory agencies.

Cory Smith  
Environmental Specialist  
Oil Conservation Division  
Energy, Minerals, & Natural Resources  
1000 Rio Brazos, Aztec, NM 87410  
(505)334-6178 ext 115  
[cory.smith@state.nm.us](mailto:cory.smith@state.nm.us)

**From:** Long, Thomas <tjlong@eprod.com>  
**Sent:** Thursday, January 17, 2019 3:12 PM  
**To:** Smith, Cory, EMNRD <Cory.Smith@state.nm.us>; Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>; 'lthomas@blm.gov' <lthomas@blm.gov>  
**Cc:** Stone, Brian <bstone@eprod.com>  
**Subject:** [EXT] RE: Lateral 2C-116 - UL M Section 12 T24N R7W; 36.323769, -107.532816

Cory/Whitney,

This email is a follow up to our phone conversation earlier and to notify you that Enterprise will be ready to collect soil samples for laboratory analysis at the 2C-116 excavation this afternoon. The

surface expression excavation is approximately 14 feet long by 9 feet wide by approximately 1 foot deep and the main excavation is approximately 14 feet long by 9 feet wide by approximately 6 feet deep. Enterprise will collect one composite soil sample every 200 square feet from each excavation. The main excavation will have total of 5 composite soil samples collected and the small excavation will have a total of one composite soil sample collected for laboratory analysis. If you have any questions or concerns, please call or email.

**Tom Long**  
**505-599-2286 (office)**  
**505-215-4727 (Cell)**  
[tjlong@eprod.com](mailto:tjlong@eprod.com)

**From:** Smith, Cory, EMNRD <[Cory.Smith@state.nm.us](mailto:Cory.Smith@state.nm.us)>  
**Sent:** Thursday, January 17, 2019 8:59 AM  
**To:** Long, Thomas <[tjlong@eprod.com](mailto:tjlong@eprod.com)>; Fields, Vanessa, EMNRD <[Vanessa.Fields@state.nm.us](mailto:Vanessa.Fields@state.nm.us)>; 'l1thomas@blm.gov' <[l1thomas@blm.gov](mailto:l1thomas@blm.gov)>  
**Cc:** Stone, Brian <[bmstone@eprod.com](mailto:bmstone@eprod.com)>  
**Subject:** RE: Lateral 2C-116 - UL M Section 12 T24N R7W; 36.323769, -107.532816

Tom,

Looking at the data Provided by Enterprise I would concur with your site ranking.

Cory Smith  
Environmental Specialist  
Oil Conservation Division  
Energy, Minerals, & Natural Resources  
1000 Rio Brazos, Aztec, NM 87410  
(505)334-6178 ext 115  
[cory.smith@state.nm.us](mailto:cory.smith@state.nm.us)

**From:** Long, Thomas <[tjlong@eprod.com](mailto:tjlong@eprod.com)>  
**Sent:** Thursday, January 17, 2019 7:47 AM  
**To:** Smith, Cory, EMNRD <[Cory.Smith@state.nm.us](mailto:Cory.Smith@state.nm.us)>; Fields, Vanessa, EMNRD <[Vanessa.Fields@state.nm.us](mailto:Vanessa.Fields@state.nm.us)>; 'l1thomas@blm.gov' <[l1thomas@blm.gov](mailto:l1thomas@blm.gov)>  
**Cc:** Stone, Brian <[bmstone@eprod.com](mailto:bmstone@eprod.com)>  
**Subject:** [EXT] FW: Lateral 2C-116 - UL M Section 12 T24N R7W; 36.323769, -107.532816

Cory,

We are beginning the repairs today. In the event that this release becomes reportable, please find the attached siting criteria package. Do you concur that this release site would fall under the Tier III remediation standards (Benzene = 10 ppm, BTEX = 50 ppm, TPH = 2,500 ppm, GRO+DRO = 1,000 ppm and Chloride = 20,000 ppm) where groundwater is greater than 100 feet below ground surface? Please let me know your thoughts.

Sincerely,

**Tom Long**  
**505-599-2286 (office)**  
**505-215-4727 (Cell)**  
[tjlong@eprod.com](mailto:tjlong@eprod.com)

**From:** Smith, Cory, EMNRD <[Cory.Smith@state.nm.us](mailto:Cory.Smith@state.nm.us)>  
**Sent:** Friday, January 11, 2019 7:39 AM  
**To:** Long, Thomas <[tjlong@eprod.com](mailto:tjlong@eprod.com)>; Fields, Vanessa, EMNRD <[Vanessa.Fields@state.nm.us](mailto:Vanessa.Fields@state.nm.us)>; 'l1thomas@blm.gov' <[l1thomas@blm.gov](mailto:l1thomas@blm.gov)>  
**Cc:** Stone, Brian <[bmstone@eprod.com](mailto:bmstone@eprod.com)>  
**Subject:** RE: Lateral 2C-116 - UL M Section 12 T24N R7W; 36.323769, -107.532816

Tom,

Thank you for the notification, please respond to the release per [19,15,29,8](#) NMAC. If the release is reportable please let us know as soon as possible.

Cory Smith  
Environmental Specialist  
Oil Conservation Division  
Energy, Minerals, & Natural Resources  
1000 Rio Brazos, Aztec, NM 87410  
(505)334-6178 ext 115  
[cory.smith@state.nm.us](mailto:cory.smith@state.nm.us)

**From:** Long, Thomas <[tjlong@eprod.com](mailto:tjlong@eprod.com)>  
**Sent:** Thursday, January 10, 2019 1:30 PM  
**To:** Smith, Cory, EMNRD <[Cory.Smith@state.nm.us](mailto:Cory.Smith@state.nm.us)>; Fields, Vanessa, EMNRD <[Vanessa.Fields@state.nm.us](mailto:Vanessa.Fields@state.nm.us)>; 'l1thomas@blm.gov' <[l1thomas@blm.gov](mailto:l1thomas@blm.gov)>  
**Cc:** Stone, Brian <[bmstone@eprod.com](mailto:bmstone@eprod.com)>  
**Subject:** [EXT] Lateral 2C-116 - UL M Section 12 T24N R7W; 36.323769, -107.532816

Cory/Whitney,

This email is a courtesy notification that Enterprise had a release of natural gas and natural gas liquids on the Lateral 2C-116 pipeline yesterday. The pipeline was isolated, depressurized, locked out and tagged out. An area of approximately three feet in diameter was impacted by the released fluids. Enterprise has not yet determined this release reportable per NMOCD regulation. The release is located at UL M Section 12 T24N R7W; 36.323769, -107.532816. I will keep you informed as to the reporting status and the field work. If you have any questions, please call or email.

Sincerely,

**Thomas J. Long**  
**Senior Environmental Scientist**  
**Enterprise Products Company**  
**614 Reilly Ave.**  
**Farmington, New Mexico 87401**  
**505-599-2286 (office)**

505-215-4727 (Cell)  
[tjong@eprod.com](mailto:tjong@eprod.com)



---

This message (including any attachments) is confidential and intended for a specific individual and purpose. If you are not the intended recipient, please notify the sender immediately and delete this message.

## Appendix C

### Executed C-138 Soil Waste Acceptance Form

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., 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

97057-0988 Form C-138  
Revised August 1, 2011  
\*Surface Waste Management Facility Operator  
and Generator shall maintain and make this  
documentation available for Division inspection.

### REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. Generator Name and Address: 2. Enterprise Field Services, LLC, 614 Reilly Avenue, Farmington, NM 87401	Invoice Information: AFE: N40089 PM: ME Eddleman Pay Key: RB21200
3. Originating Site: Lateral 2C-116	
4. Location of Material (Street Address, City, State or ULSTR): UL M Section 12 T24N R7W; 36.323769, -107.532816	Jan. 2019
4. Source and Description of Waste: Hydrocarbon/Methanol impacted soil from remediation activities associated with a natural gas meter tube release.	
5. Estimated Volume <u>30</u> (yd) / bbls Known Volume (to be entered by the operator at the end of the haul) <u>74</u> (yd) / bbls	
6. GENERATOR CERTIFICATION STATEMENT OF WASTE STATUS	
I, <u>Thomas Long</u> representative or authorized agent for <u>Enterprise Field Services, LLC</u> do hereby PRINT & SIGN NAME COMPANY NAME certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste is: (Check the appropriate classification)	
<input checked="" type="checkbox"/> RCRA Exempt: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste. <del>Operational Only Waste Attention Emergency Monthly Weekly Periodic</del>	
<input type="checkbox"/> RCRA Non-Exempt: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined in 40 CFR, part 261, subpart D, as amended. The following documentation is attached to demonstrate the above-described waste is non-hazardous. (Check the appropriate items)	
<input type="checkbox"/> MSDS Information <input checked="" type="checkbox"/> RCRA Hazardous Waste Analysis <input type="checkbox"/> Process Knowledge <input type="checkbox"/> Other (Provide description in Box 4)	
GENERATOR 19.15.36.15 WASTE TESTING CERTIFICATION STATEMENT FOR LANDFARMS	
I, <u>Thomas Long</u> <u>1-17-19</u> , representative for <u>Enterprise Field Services, LLC</u> authorize <u>Envirotech, Inc.</u> to Generator Signature complete the required testing/sign the Generator Waste Testing Certification.	
I, <u>Greg Crabtree</u> , representative for <u>Envirotech, Inc.</u> do hereby certify that representative samples of the oil field waste have been subjected to the paint filter test and tested for chloride content and that the samples have been found to conform to the specific requirements applicable to landfarms pursuant to Section 15 of 19.15.36 NMAC. The results of the representative samples are attached to demonstrate the above-described waste conform to the requirements of Section 15 of 19.15.36 NMAC.	
a. Transporter: <u>OFT</u>	

OCD Permitted Surface Waste Management Facility  
Name and Facility Permit #: Envirotech, Inc. Soil Remediation Facility \* Permit #: NM 01-0011  
Address of Facility: Hilltop, NM

Method of Treatment and/or Disposal:

Evaporation  Injection  Treating Plant  Landfarm  Landfill  Other

Waste Acceptance Status:

APPROVED

DENIED (Must Be Maintained As Permanent Record)

PRINT NAME: Greg Crabtree

TITLE: Enviro Manager

DATE: 1/17/19

SIGNATURE: [Signature]  
Surface Waste Management Facility Authorized Agent

TELEPHONE NO.: 505-632-0615

## Appendix D

### Photograph Log

Photograph #1	
Client: Enterprise	
Site Name:  Lateral 2C-116 Pipeline Release	
Date Photo Taken: January 17, 2019	
Release Location: N36.32380, W107.53279  L-12-24N-7W Rio Arriba County, NM	
Photo Taken by: Heather Woods	
Description: Facing east, view of the final excavation extents.	

Photograph #2	
Client: Enterprise	
Site Name:  Lateral 2C-116 Pipeline Release	
Date Photo Taken: January 17, 2019	
Release Location: N36.32380, W107.53279  L-12-24N-7W Rio Arriba County, NM	
Photo Taken by: Heather Woods	
Description: Facing north, view of the final excavation extents, including shallow excavation to the north of main excavation.	

Appendix E  
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)

January 22, 2019

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

RE: Enterprise Lateral 2C 116

OrderNo.: 1901739

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 6 sample(s) on 1/18/2019 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 #NM0901

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a light blue horizontal line.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

**Analytical Report**

Lab Order 1901739

Date Reported: 1/22/2019

**Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Rule Engineering LLC**Client Sample ID:** SC-1**Project:** Enterprise Lateral 2C 116**Collection Date:** 1/17/2019 4:22:00 PM**Lab ID:** 1901739-001**Matrix:** SOIL**Received Date:** 1/18/2019 7:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	140	30		mg/Kg	20	1/18/2019 11:03:50 AM	42696
<b>EPA METHOD 8015D MOD: GASOLINE RANGE</b>							Analyst: <b>AG</b>
Gasoline Range Organics (GRO)	ND	4.4		mg/Kg	1	1/18/2019 11:02:16 AM	A57111
Surr: BFB	97.6	70-130		%Rec	1	1/18/2019 11:02:16 AM	A57111
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	1/18/2019 10:09:37 AM	42695
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/18/2019 10:09:37 AM	42695
Surr: DNOP	98.9	50.6-138		%Rec	1	1/18/2019 10:09:37 AM	42695
<b>EPA METHOD 8260B: VOLATILES SHORT LIST</b>							Analyst: <b>AG</b>
Benzene	ND	0.022		mg/Kg	1	1/18/2019 11:02:16 AM	R57111
Toluene	ND	0.044		mg/Kg	1	1/18/2019 11:02:16 AM	R57111
Ethylbenzene	ND	0.044		mg/Kg	1	1/18/2019 11:02:16 AM	R57111
Xylenes, Total	ND	0.087		mg/Kg	1	1/18/2019 11:02:16 AM	R57111
Surr: 1,2-Dichloroethane-d4	110	70-130		%Rec	1	1/18/2019 11:02:16 AM	R57111
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	1/18/2019 11:02:16 AM	R57111
Surr: Dibromofluoromethane	114	70-130		%Rec	1	1/18/2019 11:02:16 AM	R57111
Surr: Toluene-d8	103	70-130		%Rec	1	1/18/2019 11:02:16 AM	R57111

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
PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1901739

Date Reported: 1/22/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Client Sample ID: SC-2

Project: Enterprise Lateral 2C 116

Collection Date: 1/17/2019 3:20:00 PM

Lab ID: 1901739-002

Matrix: SOIL

Received Date: 1/18/2019 7:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	170	30		mg/Kg	20	1/18/2019 11:16:14 AM	42696
<b>EPA METHOD 8015D MOD: GASOLINE RANGE</b>							Analyst: <b>AG</b>
Gasoline Range Organics (GRO)	ND	3.8		mg/Kg	1	1/18/2019 11:30:54 AM	A57111
Surr: BFB	99.3	70-130		%Rec	1	1/18/2019 11:30:54 AM	A57111
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	1/18/2019 10:34:00 AM	42695
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/18/2019 10:34:00 AM	42695
Surr: DNOP	91.2	50.6-138		%Rec	1	1/18/2019 10:34:00 AM	42695
<b>EPA METHOD 8260B: VOLATILES SHORT LIST</b>							Analyst: <b>AG</b>
Benzene	ND	0.019		mg/Kg	1	1/18/2019 11:30:54 AM	R57111
Toluene	ND	0.038		mg/Kg	1	1/18/2019 11:30:54 AM	R57111
Ethylbenzene	ND	0.038		mg/Kg	1	1/18/2019 11:30:54 AM	R57111
Xylenes, Total	ND	0.076		mg/Kg	1	1/18/2019 11:30:54 AM	R57111
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	1/18/2019 11:30:54 AM	R57111
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	1/18/2019 11:30:54 AM	R57111
Surr: Dibromofluoromethane	109	70-130		%Rec	1	1/18/2019 11:30:54 AM	R57111
Surr: Toluene-d8	103	70-130		%Rec	1	1/18/2019 11:30:54 AM	R57111

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

<b>Qualifiers:</b>	* 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
	PQL Practical Quantitative Limit	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1901739

Date Reported: 1/22/2019

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Rule Engineering LLC

**Client Sample ID:** SC-3

**Project:** Enterprise Lateral 2C 116

**Collection Date:** 1/17/2019 3:25:00 PM

**Lab ID:** 1901739-003

**Matrix:** SOIL

**Received Date:** 1/18/2019 7:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	230	30		mg/Kg	20	1/18/2019 11:28:39 AM	42696
<b>EPA METHOD 8015D MOD: GASOLINE RANGE</b>							Analyst: <b>AG</b>
Gasoline Range Organics (GRO)	ND	20		mg/Kg	5	1/18/2019 11:59:30 AM	A57111
Surr: BFB	96.0	70-130		%Rec	5	1/18/2019 11:59:30 AM	A57111
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	27	9.6		mg/Kg	1	1/18/2019 10:58:16 AM	42695
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/18/2019 10:58:16 AM	42695
Surr: DNOP	99.5	50.6-138		%Rec	1	1/18/2019 10:58:16 AM	42695
<b>EPA METHOD 8260B: VOLATILES SHORT LIST</b>							Analyst: <b>AG</b>
Benzene	ND	0.10		mg/Kg	5	1/18/2019 11:59:30 AM	R57111
Toluene	ND	0.20		mg/Kg	5	1/18/2019 11:59:30 AM	R57111
Ethylbenzene	ND	0.20		mg/Kg	5	1/18/2019 11:59:30 AM	R57111
Xylenes, Total	ND	0.41		mg/Kg	5	1/18/2019 11:59:30 AM	R57111
Surr: 1,2-Dichloroethane-d4	108	70-130		%Rec	5	1/18/2019 11:59:30 AM	R57111
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	5	1/18/2019 11:59:30 AM	R57111
Surr: Dibromofluoromethane	108	70-130		%Rec	5	1/18/2019 11:59:30 AM	R57111
Surr: Toluene-d8	104	70-130		%Rec	5	1/18/2019 11:59:30 AM	R57111

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

<b>Qualifiers:</b>	* 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
	PQL Practical Quantitative Limit	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1901739

Date Reported: 1/22/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Client Sample ID: SC-4

Project: Enterprise Lateral 2C 116

Collection Date: 1/17/2019 3:30:00 PM

Lab ID: 1901739-004

Matrix: SOIL

Received Date: 1/18/2019 7:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	160	30		mg/Kg	20	1/18/2019 11:41:04 AM	42696
<b>EPA METHOD 8015D MOD: GASOLINE RANGE</b>							Analyst: <b>AG</b>
Gasoline Range Organics (GRO)	220	19		mg/Kg	5	1/18/2019 12:28:12 PM	A57111
Surr: BFB	96.2	70-130		%Rec	5	1/18/2019 12:28:12 PM	A57111
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	470	9.5		mg/Kg	1	1/18/2019 10:13:46 AM	42695
Motor Oil Range Organics (MRO)	210	47		mg/Kg	1	1/18/2019 10:13:46 AM	42695
Surr: DNOP	101	50.6-138		%Rec	1	1/18/2019 10:13:46 AM	42695
<b>EPA METHOD 8260B: VOLATILES SHORT LIST</b>							Analyst: <b>AG</b>
Benzene	0.17	0.097		mg/Kg	5	1/18/2019 12:28:12 PM	R57111
Toluene	1.0	0.19		mg/Kg	5	1/18/2019 12:28:12 PM	R57111
Ethylbenzene	0.62	0.19		mg/Kg	5	1/18/2019 12:28:12 PM	R57111
Xylenes, Total	3.5	0.39		mg/Kg	5	1/18/2019 12:28:12 PM	R57111
Surr: 1,2-Dichloroethane-d4	107	70-130		%Rec	5	1/18/2019 12:28:12 PM	R57111
Surr: 4-Bromofluorobenzene	91.8	70-130		%Rec	5	1/18/2019 12:28:12 PM	R57111
Surr: Dibromofluoromethane	107	70-130		%Rec	5	1/18/2019 12:28:12 PM	R57111
Surr: Toluene-d8	98.3	70-130		%Rec	5	1/18/2019 12:28:12 PM	R57111

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

<b>Qualifiers:</b>	* 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
	PQL Practical Quantitative Limit	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1901739

Date Reported: 1/22/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Client Sample ID: SC-5

Project: Enterprise Lateral 2C 116

Collection Date: 1/17/2019 3:35:00 PM

Lab ID: 1901739-005

Matrix: SOIL

Received Date: 1/18/2019 7:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	150	30		mg/Kg	20	1/18/2019 11:53:29 AM	42696
<b>EPA METHOD 8015D MOD: GASOLINE RANGE</b>							Analyst: <b>AG</b>
Gasoline Range Organics (GRO)	ND	4.4		mg/Kg	1	1/18/2019 1:25:29 PM	A57111
Surr: BFB	96.9	70-130		%Rec	1	1/18/2019 1:25:29 PM	A57111
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	28	9.2		mg/Kg	1	1/18/2019 9:51:51 AM	42695
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/18/2019 9:51:51 AM	42695
Surr: DNOP	103	50.6-138		%Rec	1	1/18/2019 9:51:51 AM	42695
<b>EPA METHOD 8260B: VOLATILES SHORT LIST</b>							Analyst: <b>AG</b>
Benzene	0.034	0.022		mg/Kg	1	1/18/2019 1:25:29 PM	R57111
Toluene	ND	0.044		mg/Kg	1	1/18/2019 1:25:29 PM	R57111
Ethylbenzene	ND	0.044		mg/Kg	1	1/18/2019 1:25:29 PM	R57111
Xylenes, Total	ND	0.088		mg/Kg	1	1/18/2019 1:25:29 PM	R57111
Surr: 1,2-Dichloroethane-d4	104	70-130		%Rec	1	1/18/2019 1:25:29 PM	R57111
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	1/18/2019 1:25:29 PM	R57111
Surr: Dibromofluoromethane	106	70-130		%Rec	1	1/18/2019 1:25:29 PM	R57111
Surr: Toluene-d8	101	70-130		%Rec	1	1/18/2019 1:25:29 PM	R57111

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

<b>Qualifiers:</b>	* 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
	PQL Practical Quantitative Limit	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

**Analytical Report**

Lab Order **1901739**

Date Reported: **1/22/2019**

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Rule Engineering LLC

**Client Sample ID:** SC-6

**Project:** Enterprise Lateral 2C 116

**Collection Date:** 1/17/2019 3:40:00 PM

**Lab ID:** 1901739-006

**Matrix:** SOIL

**Received Date:** 1/18/2019 7:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	120	30		mg/Kg	20	1/18/2019 12:05:54 PM	42696
<b>EPA METHOD 8015D MOD: GASOLINE RANGE</b>							Analyst: <b>AG</b>
Gasoline Range Organics (GRO)	ND	5.9		mg/Kg	1	1/18/2019 1:54:08 PM	A57111
Surr: BFB	95.2	70-130		%Rec	1	1/18/2019 1:54:08 PM	A57111
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	1/18/2019 9:29:49 AM	42695
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/18/2019 9:29:49 AM	42695
Surr: DNOP	98.2	50.6-138		%Rec	1	1/18/2019 9:29:49 AM	42695
<b>EPA METHOD 8260B: VOLATILES SHORT LIST</b>							Analyst: <b>AG</b>
Benzene	ND	0.029		mg/Kg	1	1/18/2019 1:54:08 PM	R57111
Toluene	ND	0.059		mg/Kg	1	1/18/2019 1:54:08 PM	R57111
Ethylbenzene	ND	0.059		mg/Kg	1	1/18/2019 1:54:08 PM	R57111
Xylenes, Total	ND	0.12		mg/Kg	1	1/18/2019 1:54:08 PM	R57111
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	1/18/2019 1:54:08 PM	R57111
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	1/18/2019 1:54:08 PM	R57111
Surr: Dibromofluoromethane	110	70-130		%Rec	1	1/18/2019 1:54:08 PM	R57111
Surr: Toluene-d8	102	70-130		%Rec	1	1/18/2019 1:54:08 PM	R57111

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

<b>Qualifiers:</b>	* 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
	PQL Practical Quantitative Limit	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#: 1901739

22-Jan-19

**Client:** Rule Engineering LLC  
**Project:** Enterprise Lateral 2C 116

Sample ID	<b>MB-42696</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 300.0: Anions</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>42696</b>	RunNo:	<b>57105</b>					
Prep Date:	<b>1/18/2019</b>	Analysis Date:	<b>1/18/2019</b>	SeqNo:	<b>1910647</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	<b>LCS-42696</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 300.0: Anions</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>42696</b>	RunNo:	<b>57105</b>					
Prep Date:	<b>1/18/2019</b>	Analysis Date:	<b>1/18/2019</b>	SeqNo:	<b>1910648</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.6	90	110			

### Qualifiers:

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

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1901739

22-Jan-19

**Client:** Rule Engineering LLC  
**Project:** Enterprise Lateral 2C 116

Sample ID <b>MB-42695</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>PBS</b>	Batch ID: <b>42695</b>	RunNo: <b>57091</b>								
Prep Date: <b>1/18/2019</b>	Analysis Date: <b>1/18/2019</b>	SeqNo: <b>1909748</b>							Units: <b>mg/Kg</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.1		10.00		91.4	50.6	138			

Sample ID <b>LCS-42695</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>42695</b>	RunNo: <b>57091</b>								
Prep Date: <b>1/18/2019</b>	Analysis Date: <b>1/18/2019</b>	SeqNo: <b>1909852</b>							Units: <b>mg/Kg</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	10	50.00	0	84.1	63.9	124			
Surr: DNOP	4.3		5.000		86.4	50.6	138			

Sample ID <b>1901739-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>SC-1</b>	Batch ID: <b>42695</b>	RunNo: <b>57091</b>								
Prep Date: <b>1/18/2019</b>	Analysis Date: <b>1/18/2019</b>	SeqNo: <b>1910112</b>							Units: <b>mg/Kg</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	41	9.5	47.39	0	86.2	53.5	126			
Surr: DNOP	4.3		4.739		91.3	50.6	138			

Sample ID <b>1901739-001AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>SC-1</b>	Batch ID: <b>42695</b>	RunNo: <b>57091</b>								
Prep Date: <b>1/18/2019</b>	Analysis Date: <b>1/18/2019</b>	SeqNo: <b>1910113</b>							Units: <b>mg/Kg</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	9.6	47.80	0	87.0	53.5	126	1.81	21.7	
Surr: DNOP	4.4		4.780		91.1	50.6	138	0	0	

Sample ID <b>LCS-42680</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>42680</b>	RunNo: <b>57091</b>								
Prep Date: <b>1/17/2019</b>	Analysis Date: <b>1/18/2019</b>	SeqNo: <b>1910565</b>							Units: <b>%Rec</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.5		5.000		109	50.6	138			

Sample ID <b>MB-42680</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>PBS</b>	Batch ID: <b>42680</b>	RunNo: <b>57091</b>								
Prep Date: <b>1/17/2019</b>	Analysis Date: <b>1/18/2019</b>	SeqNo: <b>1910566</b>							Units: <b>%Rec</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1901739  
22-Jan-19

**Client:** Rule Engineering LLC  
**Project:** Enterprise Lateral 2C 116

Sample ID: <b>MB-42680</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>PBS</b>	Batch ID: <b>42680</b>	RunNo: <b>57091</b>								
Prep Date: <b>1/17/2019</b>	Analysis Date: <b>1/18/2019</b>	SeqNo: <b>1910566</b>	Units: <b>%Rec</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.4		10.00		94.2	50.6	138			

**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                                    |
| PQL Practical Quantitative Limit                        | 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#: 1901739

22-Jan-19

**Client:** Rule Engineering LLC  
**Project:** Enterprise Lateral 2C 116

Sample ID <b>100ng lcs</b>		SampType: <b>LCS</b>		TestCode: <b>EPA Method 8260B: Volatiles Short List</b>						
Client ID: <b>LCSS</b>		Batch ID: <b>R57111</b>		RunNo: <b>57111</b>						
Prep Date:		Analysis Date: <b>1/18/2019</b>		SeqNo: <b>1910187</b>		Units: <b>mg/Kg</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	102	70	130			
Toluene	0.96	0.050	1.000	0	95.7	70	130			
Surr: 1,2-Dichloroethane-d4	0.52		0.5000		104	70	130			
Surr: 4-Bromofluorobenzene	0.52		0.5000		103	70	130			
Surr: Dibromofluoromethane	0.55		0.5000		109	70	130			
Surr: Toluene-d8	0.50		0.5000		99.3	70	130			

Sample ID <b>1901739-001ams</b>		SampType: <b>MS</b>		TestCode: <b>EPA Method 8260B: Volatiles Short List</b>						
Client ID: <b>SC-1</b>		Batch ID: <b>R57111</b>		RunNo: <b>57111</b>						
Prep Date:		Analysis Date: <b>1/18/2019</b>		SeqNo: <b>1910189</b>		Units: <b>mg/Kg</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.85	0.022	0.8726	0.01607	95.1	68.9	131			
Toluene	0.78	0.044	0.8726	0.01424	88.3	64.3	137			
Surr: 1,2-Dichloroethane-d4	0.47		0.4363		107	70	130			
Surr: 4-Bromofluorobenzene	0.45		0.4363		103	70	130			
Surr: Dibromofluoromethane	0.48		0.4363		110	70	130			
Surr: Toluene-d8	0.43		0.4363		98.8	70	130			

Sample ID <b>rb</b>		SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8260B: Volatiles Short List</b>						
Client ID: <b>PBS</b>		Batch ID: <b>R57111</b>		RunNo: <b>57111</b>						
Prep Date:		Analysis Date: <b>1/18/2019</b>		SeqNo: <b>1910195</b>		Units: <b>mg/Kg</b>				
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: 1,2-Dichloroethane-d4	0.53		0.5000		105	70	130			
Surr: 4-Bromofluorobenzene	0.54		0.5000		108	70	130			
Surr: Dibromofluoromethane	0.53		0.5000		107	70	130			
Surr: Toluene-d8	0.51		0.5000		103	70	130			

Sample ID <b>1901739-001amsd</b>		SampType: <b>MSD</b>		TestCode: <b>EPA Method 8260B: Volatiles Short List</b>						
Client ID: <b>SC-1</b>		Batch ID: <b>R57111</b>		RunNo: <b>57111</b>						
Prep Date:		Analysis Date: <b>1/18/2019</b>		SeqNo: <b>1910559</b>		Units: <b>mg/Kg</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.022	0.8726	0.01607	105	68.9	131	9.35	20	
Toluene	0.86	0.044	0.8726	0.01424	96.7	64.3	137	8.98	20	

**Qualifiers:**

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

**QC SUMMARY REPORT**  
**Hall Environmental Analysis Laboratory, Inc.**

WO#: 1901739  
 22-Jan-19

**Client:** Rule Engineering LLC  
**Project:** Enterprise Lateral 2C 116

Sample ID	1901739-001amsd	SampType:	MSD	TestCode:	EPA Method 8260B: Volatiles Short List					
Client ID:	SC-1	Batch ID:	R57111	RunNo:	57111					
Prep Date:		Analysis Date:	1/18/2019	SeqNo:	1910559	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.46		0.4363		105	70	130	0		0
Surr: 4-Bromofluorobenzene	0.46		0.4363		105	70	130	0		0
Surr: Dibromofluoromethane	0.48		0.4363		110	70	130	0		0
Surr: Toluene-d8	0.43		0.4363		97.7	70	130	0		0

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1901739  
22-Jan-19

**Client:** Rule Engineering LLC  
**Project:** Enterprise Lateral 2C 116

Sample ID: <b>2.5ug gro lcs</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015D Mod: Gasoline Range</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>A57111</b>	RunNo: <b>57111</b>								
Prep Date:	Analysis Date: <b>1/18/2019</b>	SeqNo: <b>1910202</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	102	70	130			
Surr: BFB	470		500.0		94.7	70	130			

Sample ID: <b>rb</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015D Mod: Gasoline Range</b>								
Client ID: <b>PBS</b>	Batch ID: <b>A57111</b>	RunNo: <b>57111</b>								
Prep Date:	Analysis Date: <b>1/18/2019</b>	SeqNo: <b>1910203</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	490		500.0		97.8	70	130			

Sample ID: <b>1901739-002ams</b>	SampType: <b>MS</b>	TestCode: <b>EPA Method 8015D Mod: Gasoline Range</b>								
Client ID: <b>SC-2</b>	Batch ID: <b>A57111</b>	RunNo: <b>57111</b>								
Prep Date:	Analysis Date: <b>1/18/2019</b>	SeqNo: <b>1910552</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	3.8	18.92	0	110	68.2	135			
Surr: BFB	370		378.5		97.7	70	130			

Sample ID: <b>1901739-002amsd</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 8015D Mod: Gasoline Range</b>								
Client ID: <b>SC-2</b>	Batch ID: <b>A57111</b>	RunNo: <b>57111</b>								
Prep Date:	Analysis Date: <b>1/18/2019</b>	SeqNo: <b>1910553</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	19	3.8	18.92	0	99.4	68.2	135	10.3	20	
Surr: BFB	360		378.5		96.3	70	130	0	0	

**Qualifiers:**

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



Hall Environmental Analysis Laboratory  
 4901 Hawkins NE  
 Albuquerque, NM 87109  
 TEL: 505-345-3975 FAX: 505-345-4107  
 Website: www.hallenvironmental.com

# Sample Log-In Check List

Client Name: **RULE ENGINEERING LL**

Work Order Number: **1901739**

RcptNo: **1**

Received By: **Isaiah Ortiz** 1/18/2019 7:50:00 AM

*I-Ox*

Completed By: **Anne Thorne** 1/18/2019 7:56:07 AM

*Anne Thorne*

Reviewed By: **DAD 1/18/19**

*Labeled by: AS 01/18/19*

**Chain of Custody**

1. Is Chain of Custody complete? Yes  No  Not Present   
 2. How was the sample delivered? Courier

**Log In**

3. Was an attempt made to cool the samples? Yes  No  NA   
 4. Were all samples received at a temperature of >0° C to 6.0°C Yes  No  NA   
 5. Sample(s) in proper container(s)? Yes  No   
 6. Sufficient sample volume for indicated test(s)? Yes  No   
 7. Are samples (except VOA and ONG) properly preserved? Yes  No   
 8. Was preservative added to bottles? Yes  No  NA   
 9. VOA vials have zero headspace? Yes  No  No VOA Vials   
 10. Were any sample containers received broken? Yes  No   
 11. Does paperwork match bottle labels? Yes  No   
 (Note discrepancies on chain of custody)  
 12. Are matrices correctly identified on Chain of Custody? Yes  No   
 13. Is it clear what analyses were requested? Yes  No   
 14. 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)**

15. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

16. Additional remarks:

**Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.1	Good	Yes			

# Chain-of-Custody Record

Client: Rule Engineering

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

Phone #: (505) 716-2707

email or Fax#: hwoods@ruleengineering.com

QA/QC Package: tjlong@eprod.com

Standard  Level 4 (Full Validation)

Accreditation

NELAP  Other \_\_\_\_\_

EDD (Type) \_\_\_\_\_

Turn-Around Time:

Standard  Rush Same Day

Project Name:

Enterprise Lateral 2C-116

Project #:

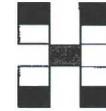
Project Manager:

Heather Woods

Sampler: Heather Woods

On Ice:  Yes  No

Sample Temperature: 2.1



## 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	As of 11/17/19 Container Type and #	Preservative Type	HEAL No.	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	Arsenic (As), NO <sub>2</sub> , NO <sub>3</sub> , NO <sub>2+3</sub> , PO <sub>4</sub> , SO <sub>4</sub>	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Air Bubbles (Y or N)	
1/17/19	1622	Soil	SC-1	(1) 4oz Glass	None	201	X	X						X					
1/17/19	1520	Soil	SC-2			202	X	X						X					
1/17/19	1525	Soil	SC-3			203	X	X						X					
1/17/19	1530	Soil	SC-4			204	X	X						X					
1/17/19	1535	Soil	SC-5			205	X	X						X					
1/17/19	1540	Soil	SC-6			206	X	X						X					
<del>None</del>																			

Date: 1/17/19 Time: 1937 Relinquished by: Heather M. Woods

Received by: Christ Walt Date: 1/17/19 Time: 1937

Remarks: Direct Bill to Enterprise  
Non-AFE: N40089

Date: 1/17/19 Time: 1956 Relinquished by: Christ Walt

Received by: Christ Walt Date: 1/18/19 Time: 0750

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.