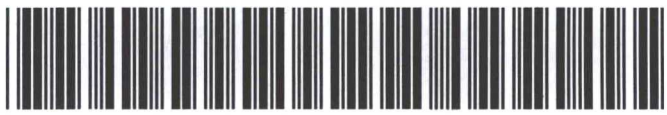
AE Order Number Banner

Report Description

This report shows an AE Order Number in Barcode format for purposes of scanning. The Barcode format is Code 39.



App Number: pJK1424832159

3RP - 1011

ENTERPRISE PRODUCTS OPERATING, LLC

1/19/2017

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

Form C-141
Revised April 3, 2017

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

NMOCD

FEB 23 2018

DISTRICT III

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company **Enterprise Field Services, LLC**	Contact **Thomas Long**
Address **614 Reilly Ave, Farmington, NM 87401**	Telephone No. **505-599-2286**
Facility Name **San Juan 29-9 #1**	Facility Type **Natural Gas Metering Gathering Pipeline**

Surface Owner **BLM**	Mineral Owner **BLM**	**Serial No. N/A**

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
D	**35**	**29N**	**9W**	**1140**		**1130**		**San Juan**

Latitude 36.686347 Longitude -107.756354 NAD83

NATURE OF RELEASE

Type of Release Natural Gas and Condensate	Volume of Release **Unknown**	Volume Recovered **None**
Source of Release Suspected Internal Corrosion	Date and Hour of Occurrence **2/7/2018 @ 1:00 p.m.**	Date and Hour of Discovery **2/7/2018 @ 1:00 p.m.**
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? : Courtesy Notification Vanessa Fields - NMOCD	
By Whom? Thomas Long	Date and Hour February 9, 2018 @ 9:06 a.m.	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.* On February 7, 2018, Enterprise technicians reported a release of natural gas and condensate on the San Juan 29-9#1 well tie. Enterprise confirmed the release and isolated, depressurized, locked out and tagged out the pipeline.

Describe Area Affected and Cleanup Action Taken.* Minimal fluids were observed on the ground surface. Repairs and remediation activities are in progress. Enterprise determined this release reportable per NMOCD regulation on February 14, 2018 due to volume of impacted subsurface soil. A third party corrective action report will be included with the "Final." C-141.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature:	OIL CONSERVATION DIVISION
Printed Name: Jon E. Fields	Approved by Environmental Specialist:
Title: Director, Environmental	Approval Date: 2/23/18 Expiration Date:
E-mail Address: jefields@eprod.com	Conditions of Approval: Attached ☐
Date: 2/15/2018 Phone: (713) 381-6684	

* Attach Additional Sheets If Necessary

NVF1805452753

3

Operator/Responsible Party,

The OCD has received the form C-141 you provided on 2/23/18 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number _____ has been assigned. **Please refer to this case number in all future correspondence.**

NVF1805452753

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

> *The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC.* [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District III office in 30 days_ on or before 3/23/18. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.

- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.

- Nominal detection limits for field and laboratory analyses must be provided.

- Composite sampling is not generally allowed.

- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

•Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

• If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

• Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold
OCD Environmental Bureau Chief
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3465
jim.griswold@state.nm.us

District I
1625 N. French Dr., Hobbs, NM 88240
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State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: Enterprise Field Services LLC	Contact: Thomas Long/Runell Seale
Address: 614 Reilly Ave, Farmington, NM 87401	Telephone No. 505-599-2286
Facility Name: **Valencia Canyon #35 Pipeline**	Facility Type: **Natural Gas Gathering Pipeline**

Surface Owner: **Forrest Service**	Mineral Owner: **Forrest Service**	API No. **NA**

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K	**34**	**28N**	**4W**	**2161**		**1921**		**Rio Arriba**

Latitude 36.61520 Longitude -107.24122

NATURE OF RELEASE

Type of Release: Natural Gas and Natural Gas Liquids	Volume of Release: **Unknown**	Volume Recovered: **None**
Source of Release: Internal corrosion	Date and Hour of Occurrence: **6/29/2017 @ 11:30 a.m.**	Date and Hour of Discovery: **6/29/2017 @ 11:30 a.m.**
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? Courtesy Notification: Vanessa Fields – NMOCD;	
By Whom? Thomas Long	Date and Hour July 12, 2017 at 8:25 a.m.	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action: On June 29, 2017, Enterprise responded to a natural gas release on the Valencia Canyon #35 pipeline. The pipeline was isolated, depressurized, locked out and tagged out. An area approximately 12 feet long by 10 feet wide was affected by fluids released. Repairs were completed on July 20, 2017.

Describe Area Affected and Cleanup Action Taken.* A third party environmental contractor assessed the release site and collected soil samples for laboratory analysis on July 12, 2017. Laboratory results for collected soil samples were received on July 19, 2017 and indicate contaminant concentrations exceed NMOCD remediation standards. Enterprise determined the release was reportable per NMOCD regulation due to the volume of impacted soil. Additional delineation activities were requested by the NMOCD on July 24, 2017. A third party investigation report will be included with the "Final." C-141.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Jon E. Fields	OIL CONSERVATION DIVISION
Printed Name: Jon E. Fields	Approved by Environmental Specialist: Vanessa Fields
Title: Director, Environmental	Approval Date: 8/31/2017 Expiration Date:
E-mail Address:jefields@eprod.com	Conditions of Approval: → Attached ☒
Date: 7/28/2017 Phone: (713)381-6684	NVF1724334039

* Attach Additional Sheets If Necessary

3

Operator/Responsible Party,

The OCD has received the form C-141 you provided on 8/3/2017 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number _____ has been assigned. **Please refer to this case number in all future correspondence.**

NVF1721334039

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

> *The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC.* [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District III office in 30 days_ on or before 9/3/2017. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.

- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.

- Nominal detection limits for field and laboratory analyses must be provided.

- Composite sampling is not generally allowed.

- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

•Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

• If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

• Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold
OCD Environmental Bureau Chief
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3465
jim.griswold@state.nm.us

District I
1625 N. French Dr., Hobbs, NM 88240
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811 S. First St., Artesia, NM 88210
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1000 Rio Brazos Road, Aztec, NM 87410
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State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised April 3, 2017

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

9/5/2017 OCD

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Enterprise Field Services, LLC	Contact Thomas Long
Address 614 Reilly Ave, Farmington, NM 87401	Telephone No. 505-599-2286
Facility Name **Lateral 2A-4**	Facility Type **Natural Gas Gathering Pipeline**

Surface Owner **BLM**	Mineral Owner **BLM**	API No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
M	**24**	**27N**	**10W**	**1290**		**816**		**Rio Arriba**

Latitude 36.55694 Longitude 107.85322 NAD83

NATURE OF RELEASE

Type of Release Natural Gas and Natural Gas Liquids	Volume of Release **Unknown Gas Loss; 5-10 BBLs Condensate**	Volume Recovered **None**
Source of Release Internal Corrosion	Date and Hour of Occurrence **8/2/2017 @ 3:05 p.m.**	Date and Hour of Discovery **3/27/2017 @ 3:05 p.m.**
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? : Vanessa Fields – NMOCD; Whitney Smith - BLM	
By Whom? Runell Seale	Date and Hour August 9, 2017 @ 12;21 p.m.	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*On August 2, 2017 Enterprise technicians discovered a release on the Lateral 2A-4 pipeline. The pipeline was isolated, depressurized, locked out and tagged out. An area on the ground surface of approximately 20 feet long and 10 feet wide was impacted by release fluids.

Describe Area Affected and Cleanup Action Taken.*Repairs and remediation were completed the week of August 14, 2017. The contaminant mass was removed by mechanical excavation. A third party corrective action report will be included with the "Final." C-141.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: J. E. Fields

Printed Name: Jon E. Fields

Title: Director, Environmental

E-mail Address: jefields@eprod.com

Date: 8/22/2017 Phone: (713) 381-6684

OIL CONSERVATION DIVISION

Approved by Environmental Specialist:

Approval Date: 9/20/2017 Expiration Date:

Conditions of Approval: Sample Area 8015 8021 Include MRO

Attached ☐

NVF1726327940

* Attach Additional Sheets If Necessary

Fields, Vanessa, EMNRD

From: Fields, Vanessa, EMNRD
Sent: Wednesday, September 20, 2017 7:30 AM
To: Long, Thomas; Smith, Cory, EMNRD; l1thomas@blm.gov
Cc: Stone, Brian; Abiodun Adeloye
Subject: RE: Lateral 2A-4 UL M Section 24-T27N-R10W ; 36.55694,-107.8532

Good morning Tom,

Per our phone conversation the OCD grants a variance on sample SC-5. Enterprise may backfill as requested.

OCD approval does not relieve operator of approvals from other agencies.

Thank you,

Vanessa Fields
Environmental Specialist
Oil Conservation Division
Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410
(505)334-6178 ext 119
Cell: (505) 419-0463
vanessa.fields@state.nm.us

From: Long, Thomas [mailto:tjlong@eprod.com]
Sent: Tuesday, September 19, 2017 3:31 PM
To: Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>; Smith, Cory, EMNRD <Cory.Smith@state.nm.us>; l1thomas@blm.gov
Cc: Stone, Brian <bmstone@eprod.com>
Subject: FW: Lateral 2A-4 UL M Section 24-T27N-R10W ; 36.55694,-107.8532

Vanessa/Whitney,

Please find the attached site sketch and laboratory reports for the excavation at the Lateral 2A-4 release site. All sample results are below the site specific remediation standard, except for SC-5 (south wall). The sample result for SC-5 is 13 ppm DRO and 110 ppm MRO for a sum of 123 ppm TPH. Enterprise requests to backfill the excavation with this result. If you have any questions or concerns, please call or email.

Sincerely,

Tom Long
505-599-2286 (office)
505-215-4727 (Cell)
tjlong@eprod.com

From: Long, Thomas
Sent: Wednesday, August 23, 2017 9:31 AM
To: Fields, Vanessa, EMNRD (Vanessa.Fields@state.nm.us); l1thomas@blm.gov; 'Smith, Cory, EMNRD (Cory.Smith@state.nm.us)'
Cc: Stone, Brian
Subject: Lateral 2A-4 UL M Section 24-T27N-R10W ; 36.55694,-107.8532

Vanessa/Whitney,

This email is to notify you that Enterprise had a release of natural gas and condensate on the Lateral 2A-4 pipeline on August 21, 2017 at approximately 9:30 A.M. No water ways were affected. An area of approximately 120 feet in diameter was misted by condensate. The pipeline has been isolated, depressurized, locked out and tagged out. The release site is located at UL M Section 24-T27N-R10W ; 36.55694,-107.8532. I will keep you informed as to when the repairs and remediation is scheduled. 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)
tjlong@eprod.com

Enterprise Products

District I
1625 N. French Dr., Hobbs, NM 88240
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1000 Rio Brazos Road, Aztec, NM 87410
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State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised April 3, 2017

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

OCD Rec 10/24/17

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company: Enterprise Field Services LLC	Contact **Thomas Long/Runell Seale**
Address 614 Reilly Ave, Farmington, NM 87401	Telephone No. **505-599-2286/505-599-2124**
Facility Name **Jicarilla Apache H Tract 2 #2**	Facility Type **Natural Gas Gathering Pipeline**

Surface Owner **Jicarilla Apache Tribe**	Mineral Owner **BIA**	API No. NA

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from	North/South	Feet from	East/West	County
B	**9**	**23N**	**2W**	the **950**	Line	the **1500**	Line	**Rio Arriba**

Latitude 36.24780 **Longitude** -107.04819 **NAD83**

NATURE OF RELEASE

Type of Release **Natural Gas and Natural Gas Liquids**	Volume of Release **1.0 MFC Gas; 5-10 BBLs condensate**	Volume Recovered **None**
Source of Release **Internal corrosion**	Date and Hour of Occurrence **8/1/2017 @ 12:45 p.m.**	Date and Hour of Discovery **8-1-2017 @ 12:45 p.m.**
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? **Vanessa Fields-NMOCD Hobson Sandoval-JAO&G, Jason Sandoval-JAO&G Kurt Sandoval-BIA**	
By Whom? **Runell Seale**	Date and Hour **August 1, 2017 @ 3:42 p.m.**	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*On August 1, 2017, during a pipeline patrol, a leak was reported on the Jicarilla Apache H Tract 2 #2 pipeline. Enterprise employee was dispatched and verified the leak. The pipeline was isolated, depressurized, locked out and tagged out.

Describe Area Affected and Cleanup Action Taken.* Repairs and remediation were completed on August 22, 2017. The contaminant mass was removed by mechanical excavation. The final excavation measured approximately 10 feet long, ranging from 8-12 feet wide, and ranging from 4-7 feet deep. Approximately 108 cubic yards of hydrocarbon impacted soil was excavated and transported to New Mexico Oil Conservation Division approved land farm facility. A third party corrective action report will be included with the "Final." C-141.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Jon Fields	**OIL CONSERVATION DIVISION**
Printed Name: **Jon E. Fields**	Approved by Environmental Specialist:
Title: **Director, Environmental**	Approval Date: 12/19/2017 Expiration Date:
E-mail Address: **jefields@eprod.com**	Conditions of Approval: – Attached ☐
Date: 10-19-2017 Phone: **713-381-6684**	

* Attach Additional Sheets If Necessary

NVF1726329571

52

Enterprise Products

ENTERPRISE PRODUCTS PARTNERS L.P.
ENTERPRISE PRODUCTS HOLDINGS LLC
(General Partner)

ENTERPRISE PRODUCTS OPERATING LLC

October 19, 2017

OIL CONS. DIV DIST. 3

OCT 24 2017

EMNRD Oil Conservation Division
Aztec District III Office
Attention: Vanessa Fields
1000 Rio Brazos Road
Aztec, New Mexico 87410

Return Receipt Requested
7015 1520 0002 7267 1547

Jicarilla Apache Tribe
Environmental Protection Office
Attention: Cordell Te Cube and Hobson Sandoval
P.O. Box 507
Dulce, New Mexico 87528-0507

Return Receipt Requested
7015 1520 0002 7267 1554

RE: Jicarilla Apache H Tract 2 #2
Rio Arriba County

Ms. Fields, Mr. Te Cube and Mr. Sandoval:

Attached are the final Release Notification and Corrective Action Report (C-141) along with the Release Report as prepared by our consultant, Rule Engineering, LLC. Should have questions or need additional information, please contact Thomas Long at 505-599-2286 or me directly at 713-381-6595.

Yours truly,

Shiver J. Nolan
Sr. Compliance Administrator

enclosures

P. O. BOX 4324
HOUSTON, TX 77210-4324
713.381.6500

1100 LOUISIANA STREET
HOUSTON, TX 77002-5227
www.enterpriseproducts.com

Jicarilla Apache H Tract 2 #2
Well Tie Pipeline
Release Report

UL P, Sec 4, T23N, R2W
Rio Arriba County, New Mexico

November 18, 2017

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

Rule Engineering, LLC
Solutions to Regulations for Industry

Enterprise Field Services, LLC
Jicarilla Apache H Tract 2 #2 Well Tie Pipeline
Release 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

Heather M. Woods

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

Reviewed by:

Russell Knight, PG, Principal Hydrogeologist

November 18, 2017

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Appendices

1.0 Introduction

The Enterprise Field Services, LLC (Enterprise) Jicarilla Apache H Tract 2 #2 well tie pipeline release site is located in Unit Letter P, Section 4, Township 23 North, Range 2 West, in Rio Arriba County, New Mexico, on the Jicarilla Apache Nation. The release resulted from corrosion of pipeline discovered on August 1, 2017.

On August 14, 2017, Enterprise initiated repair activities at the location. Site work the installation of approximately 75 feet of new pipeline and excavation of hydrocarbon impacted soils.

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

2.0 Release Summary

Site Name	Jicarilla Apache H Tract 2 #2 Well Tie Pipeline Release		
Site Location Description	Unit Letter P, Section 4, Township 23 North, Range 2 West (N36.24778, W107.04833)		
Land Jurisdiction	Jicarilla Apache Nation		
Discovery Date	August 1, 2017		
Release Source	Corrosion of pipeline		
Substance(s) Released	Natural Gas and Pipeline Liquids		
JANEPO/NMOCD Site Rank	30		
Distance to Surface Water	An unnamed, ephemeral wash is located approximately 260 feet northwest of the release location which drains to Cañada Larga		
Estimated Depth to Groundwater	Less than 50 feet below grade surface (bgs)	***Distance to Water Well or Spring***	Greater than 1,000 feet
Contractor	West States Energy Contractors (West States)	***Remedial Excavation Dimensions***	Approximately 100 feet by 8 to 12 feet and 4 to 7 feet in depth
Volume of Soil Transported for Disposal/Remediation	Approximately 108 cubic yards	***Disposal Facility***	Envirotech Landfarm (Permit #NM-01-0011)

3.0 JANEPO/NMOCD Site Ranking

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

Depth to groundwater at the site is estimated to be less than 50 feet below grade surface (bgs) based on the elevation differential between the release location and Cañada Larga along with anticipated drainage area geology.

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 foot radius of the location. No water wells were observed within a 1,000 foot radius of the location during a visual inspection.

An unnamed, ephemeral wash traverses the area approximately 260 feet northwest of the release location and drains to Cañada Larga.

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

4.0 Field Activities

On August 14, 2017, Enterprise initiated repair activities at the location. West States provided heavy equipment operation and repair support. Rule Engineering, LLC (Rule) personnel provided excavation guidance and collected confirmation samples from the resultant excavation. The repair included the installation of approximately 75 feet of new pipeline and excavation of the hydrocarbon impacted soils. Approximately 108 cubic yards of hydrocarbon impacted soils were removed from an area of excavation measuring approximately 100 feet by 8 to 12 feet and 4 to 7 feet in depth.

A depiction of the excavation with sample locations and summary of analytical results is included as Figure 2. A copy of the executed C-138 Solid Waste Acceptance Form is included in Appendix A and a photograph log is included in Appendix B.

5.0 Soil Sampling

Rule collected confirmation soil samples (SC-1 through SC-14) from the sidewalls and base of the excavation on August 17, 2017. Based on laboratory results indicating TPH

concentrations in excess of JANEPO action levels, additional excavation was performed on the portion of the sidewall and base associated with samples SC-3 and SC-9. Confirmation samples SC-15 and SC-16 were collected subsequent to the extension of the excavation on August 22, 2017. 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 U.S. Environmental Protection Agency (USEPA) Method 8021B and TPH (GRO/DRO) per USEPA 8015M/D. Laboratory analytical results are summarized in Table 2, and the analytical laboratory reports are included in Appendix C.

A portion of each sample was field screened for VOCs and selected samples were also field analyzed for TPH. Field screening for VOC vapors was conducted with a MiniRAE 3000 photoionization detector (PID). Prior to field screening, the PID was calibrated with 100 parts per million (ppm) isobutylene gas. Field analysis for TPH was conducted for selected samples per United States Environmental Protection Agency (USEPA) Method 418.1, utilizing a Buck Scientific HC-404 total hydrocarbon analyzer. Prior to field analysis, the analyzer was calibrated following the manufacturer's procedure which includes calculation of a calibration curve using known concentration standards. Rule's practical quantitation limit for USEPA Method 418.1 is 20 mg/kg.

6.0 Laboratory Analytical Results

Laboratory analytical results for confirmation samples SC-3 and SC-9 reported TPH concentrations 160 mg/kg and 350 mg/kg, which exceed the JANEPO action levels for a site rank of 30. The portions of the excavation represented by these samples were removed by further excavation and confirmation samples SC-15 and SC-16 were collected from the expanded excavation extents.

Laboratory analytical results for confirmation samples SC-1 through SC-16 (excluding SC-3 and SC-9) reported benzene concentrations below the laboratory reporting limits, which are below the JANEPO action level of 10 mg/kg. Laboratory analytical results reported total BTEX concentrations ranged from below laboratory reporting limits to 5.5 mg/kg for confirmation samples SC-1 through SC-16 (excluding SC-3 and SC-9), which are below the JANEPO action level of 50 mg/kg. Laboratory analytical results reported TPH concentrations ranging from below laboratory reporting limits to 36 mg/kg for confirmation samples SC-1 through SC-16 (excluding SC-3 and SC-9), which are below JANEPO action level of 100 mg/kg for a site rank of 30. Laboratory analytical results are summarized in Table 2 and the laboratory analytical reports are included in Appendix C.

7.0 Conclusions

The Enterprise Jicarilla Apache H Tract 2 #2 well tie pipeline release site is located in Unit Letter P, Section 4, Township 23 North, Range 3 West, in Rio Arriba County, New Mexico,

on the Jicarilla Apache Nation. The release resulted from corrosion of the pipeline discovered on August 1, 2017. Subsequent to repair, approximately 108 cubic yards of hydrocarbon impacted soils were excavated and transported to the Envirotech Landfarm. Confirmation samples were collected from the sidewalls and base of the resultant excavation which measured approximately 100 feet by 8 feet by 12 feet and 4 to 7 feet in depth. Laboratory analytical results for the soil confirmation samples (SC-1 through SC-16, excluding samples SC-3 and SC-9 removed by excavation) reported benzene, total BTEX, and TPH concentrations below the applicable JANEPO action levels.

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

8.0 Closure and Limitations

This report has been prepared for the exclusive use of 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.

Tables

Table 1. JANEPO/NMOCD Site Ranking Determination
Enterprise Field Services, LLC
Jicarilla Apache H Tract 2 #2 Well Tie Pipeline Release
Rio Arriba County, New Mexico

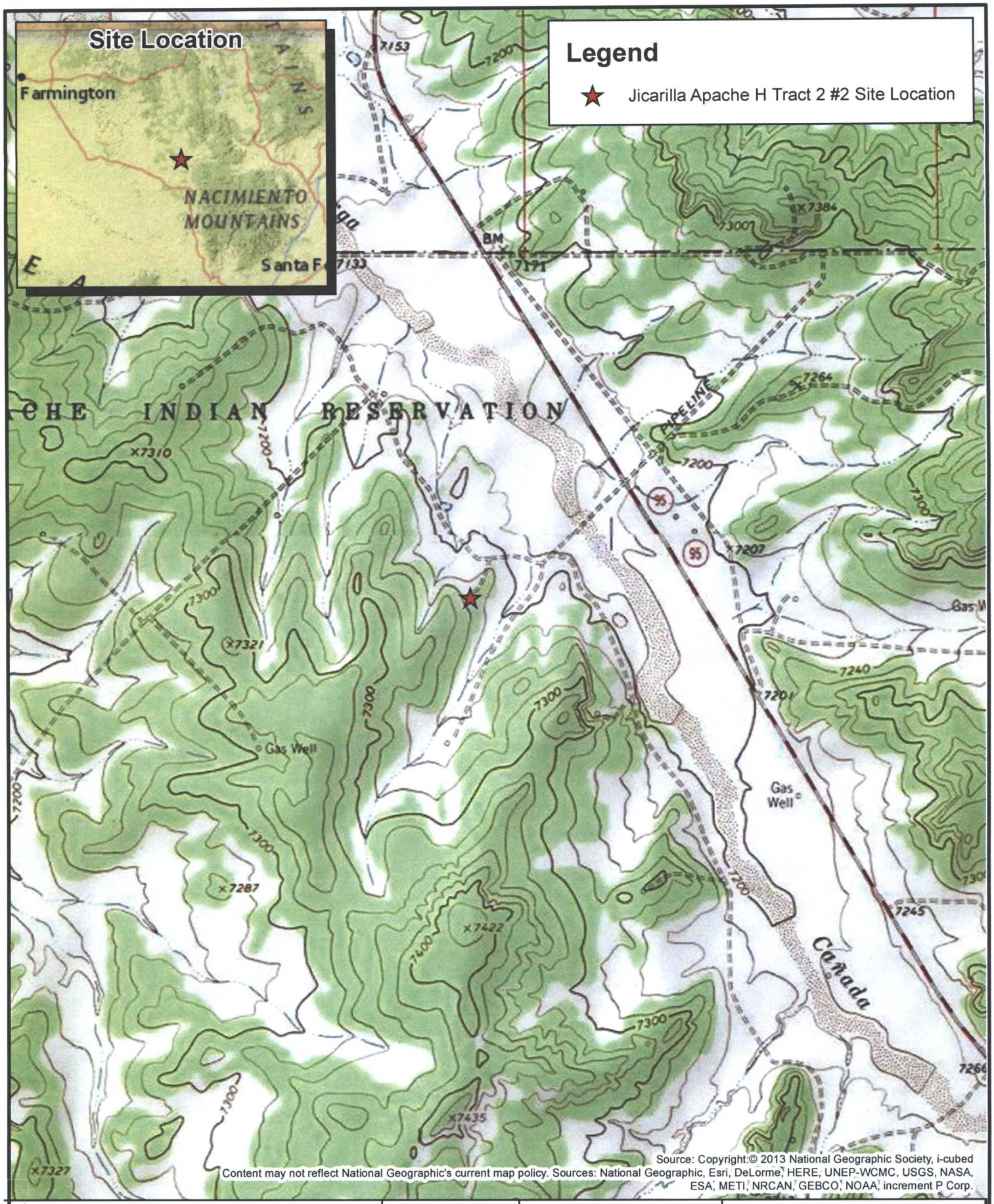
Ranking Criteria	Ranking Score	Site-Based Ranking Score	Basis for Determination	Data Sources
Depth to Groundwater				
<50 feet	20	20	Elevation differential information between the location and Canada Larga derived from the topographic map.	NMOCD Online database, Five Lakes Canyon NE Quadrangle, Google Earth, and Visual Inspection
50-99 feet	10			
>100 feet	0			
Wellhead Protection Area				
<1,000 feet from a water source, or <200 feet from private domestic water source	20 (Yes)	0	No water source or recorded water wells within 1,000 foot radius of location.	NMOSE NMWRRS, Five Lakes Canyon NE Quadrangle, Google Earth, and Visual Inspection
	0 (No)			
Distance to Surface Water Body				
<200 horizontal feet	20	10	An unnamed, ephemeral wash is located approximately 260 feet to the northwest which drains to Canada Larga.	Five Lakes Canyon NE Quadrangle, Google Earth, and Visual Inspection
200 to 1,000 horizontal feet	10			
>1,000 horizontal feet	0			
Site Based Total Ranking Score		**30**		

Table 2. Soil Sampling Results - Benzene, Total BTEX, and TPH
Enterprise Field Services, LLC
Jicarilla Apache H Tract 2 #2 Well Tie Pipeline Release
Rio Arriba County, New Mexico

Sample Name	Date	Approximate Sample Depth (ft bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylben-zene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	TPH as GRO (mg/kg)	TPH as DRO (mg/kg)	TPH as MRO (mg/kg)
JANEPO/NMOCD Action Levels*			**10**	**NE**	**NE**	**NE**	**50**	**100****		
Excavation Confirmation Samples										
SC-1	8/17/2017	0 to 4	<0.018	<0.036	<0.036	<0.073	ND	<3.6	<10	<51
SC-2	8/17/2017	4	<0.017	0.13	0.14	1.1	1.4	9.8	<9.3	<47
SC-4	8/17/2017	3	<0.091	<0.18	<0.18	<0.36	ND	<18	<9.5	<47
SC-5	8/17/2017	3	<0.016	<0.032	<0.032	<0.063	ND	<3.2	<9.6	<48
SC-6	8/17/2017	0 to 3	<0.016	<0.031	<0.031	<0.063	ND	<3.1	<9.6	<48
SC-7	8/17/2017	0 to 3	<0.017	<0.033	<0.033	<0.066	ND	<3.3	<9.7	<48
SC-8	8/17/2017	0 to 4	<0.087	<0.17	0.20	1.4	1.6	<17	<9.7	<48
SC-10	8/17/2017	0 to 4	<0.019	<0.038	<0.038	<0.076	ND	<3.8	<9.7	<49
SC-11	8/17/2017	0 to 4	<0.021	<0.042	<0.042	0.10	0.10	<4.2	<9.7	<48
SC-12	8/17/2017	0 to 4	<0.11	0.25	0.26	1.9	2.4	<21	11	<49
SC-13	8/17/2017	0 to 4	<0.024	<0.048	<0.048	<0.096	ND	<4.8	<9.9	<50
SC-14	8/17/2017	0 to 3	<0.042	<0.082	0.14	1.0	1.1	11	16	<49
SC-15	8/22/2017	0 to 7	<0.097	0.4	0.58	4.5	5.5	36	<9.4	<47
SC-16	8/22/2017	4 to 7	<0.10	<0.21	<0.21	0.65	0.65	<21	<9.2	<46
Samples REMOVED by Excavation										
SC-3	8/17/2017	4	0.26	4.2	2.7	20	27	**160**	**<9.2**	**<46**
SC-9	8/17/2017	0 to 4	0.79	7.3	4.1	29	41	**330**	**20**	**<48**

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

Figures



Document Path: U:\Enterprise Products\Jicarilla Apache H Tract 2 #2\Jicarilla Apache H Tract 2 #2 Topo Map.mxd

Rule Engineering, LLC
Solutions to Regulations for Industry

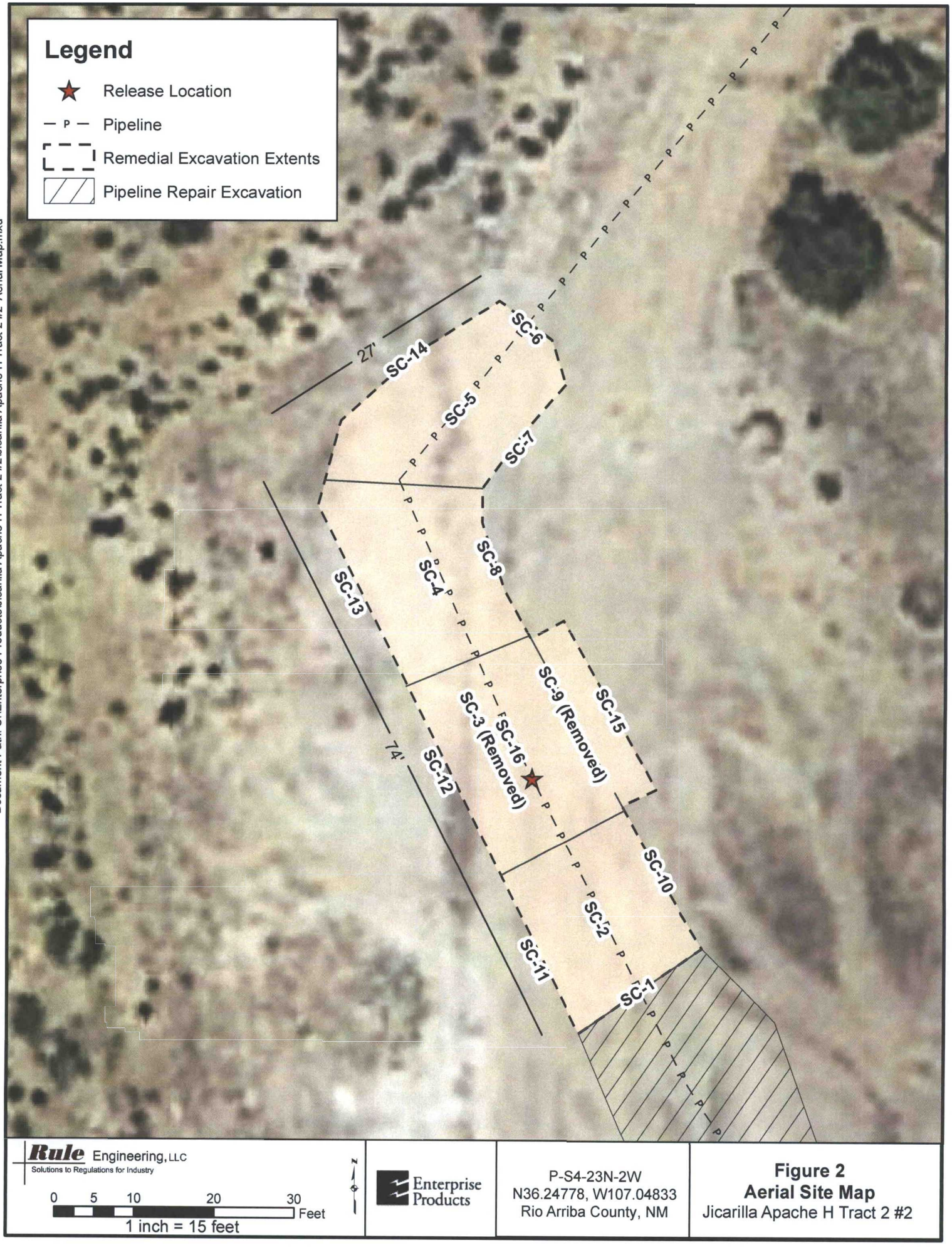
0 1,050 2,100 4,200 Feet

Five Lakes Canyon NE Quadrangle
1:24,000

Enterprise Products

P-S4-23N-2W
N36.24778, W107.04833
Rio Arriba County, NM

Figure 1
Topographic Site Map
Jicarilla Apache H Tract 2 #2



Rule Engineering, LLC
Solutions to Regulations for Industry

0 5 10 20 30 Feet
1 inch = 15 feet

N

Enterprise Products

P-S4-23N-2W
N36.24778, W107.04833
Rio Arriba County, NM

Figure 2
Aerial Site Map
Jicarilla Apache H Tract 2 #2

Appendix A

Executed C-138 Solid Waste Acceptance Form

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

97057-0856

Form C-138
Revised 08/01/11

*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:**
Enterprise Field Services, LLC, 614 Reilly Ave, Farmington NM 87401

2. **Originating Site:**
Jicarilla Apache H Tract 2 #2

3. **Location of Material (Street Address, City, State or ULSTR):**
UL B Section 9 Township 23 North Range 2 West; 36.24780, -107.04819

August 2017

4. **Source and Description of Waste:**
Source: Natural Gas Gathering Line
Description: Hydrocarbon impacted soil associated with remediation activities of a leaking natural gas gathering pipeline.
Estimated Volume 50 (yd^3) / bbls Known Volume (to be entered by the operator at the end of the haul) 1.08 (yd^3) bbls

5. **GENERATOR CERTIFICATION STATEMENT OF WASTE STATUS**

I, Thomas Long (Thomas Long), representative or authorized agent for Enterprise Products Operating do hereby
Generator Signature
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)

☒ RCRA Exempt: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste. ***Operator Use Only: Waste Acceptance Frequency*** ☐ ***Monthly*** ☐ ***Weekly*** ☐ ***Per Load***

☐ 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)

☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☒ Process Knowledge ☐ Other (Provide description in Box 4)

GENERATOR 19.15.36.15 WASTE TESTING CERTIFICATION STATEMENT FOR LANDFARMS

I, Thomas Long (Thomas Long) 8-22-17, representative for Enterprise Products Operating authorizes Envirotech, Inc. to complete
Generator Signature
the required testing/sign the Generator Waste Testing Certification.

I, (Greg Crabtree), representative for Envirotech, Inc. 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.

5. **Transporter: West States Energy Contractors or subcontractors**, HBL

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: Environmental Manager DATE: 8/22/17
SIGNATURE: (Greg Crabtree) TELEPHONE NO.: 505-632-0615
Surface Waste Management Facility Authorized Agent

Appendix B

Photograph Log

Photograph Log
Jicarilla Apache H Tract 2 #2 Well Tie Pipeline Release
Enterprise Field Services, LLC

Rule

Photograph #1	
Client: Enterprise	
Site Name: Jicarilla Apache H Tract 2 #2 Well Tie Pipeline Release	
Date Photo Taken: August 22, 2017	
Release Location: N36.24778, W107.04833 P-4-23N-2W Rio Arriba County, NM	
Photo Taken by: Heather Woods	Description: Facing southwest, view of the final excavation extents at the north end of the excavation.

Photograph #2	
Client: Enterprise	
Site Name: Jicarilla Apache H Tract 2 #2 Well Tie Pipeline Release	
Date Photo Taken: August 22, 2017	
Release Location: N36.24778, W107.04833 P-4-23N-2W Rio Arriba County, NM	
Photo Taken by: Heather Woods	Description: Facing southeast, view of the final excavation extents.

Photograph Log
Jicarilla Apache H Tract 2 #2 Well Tie Pipeline Release
Enterprise Field Services, LLC

Rule

Photograph #3	
Client: Enterprise	
Site Name: Jicarilla Apache H Tract 2 #2 Well Tie Pipeline Release	
Date Photo Taken: August 22, 2017	
Release Location: N36.24778, W107.04833 P-4-23N-2W Rio Arriba County, NM	
Photo Taken by: Heather Woods	Description: Facing east, view of the expanded area of the final excavation.

Appendix C

Analytical Laboratory Reports

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

August 21, 2017

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

RE: Jicarilla Apache H Tract 2 #2 OrderNo.: 1708B15

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 14 sample(s) on 8/18/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data 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 **1708B15**
Date Reported: **8/21/2017**

CLIENT: Rule Engineering LLC
Project: Jicarilla Apache H Tract 2 #2
Lab ID: 1708B15-001 **Matrix:** SOIL

Client Sample ID: SC-1
Collection Date: 8/17/2017 6:00:00 PM
Received Date: 8/18/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	8/18/2017 9:53:44 AM	33442
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	8/18/2017 9:53:44 AM	33442
Surr: DNOP	93.7	70-130		%Rec	1	8/18/2017 9:53:44 AM	33442
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	3.6		mg/Kg	1	8/18/2017 10:24:23 AM	33428
Surr: BFB	81.6	54-150		%Rec	1	8/18/2017 10:24:23 AM	33428
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.018		mg/Kg	1	8/18/2017 10:24:23 AM	33428
Toluene	ND	0.036		mg/Kg	1	8/18/2017 10:24:23 AM	33428
Ethylbenzene	ND	0.036		mg/Kg	1	8/18/2017 10:24:23 AM	33428
Xylenes, Total	ND	0.073		mg/Kg	1	8/18/2017 10:24:23 AM	33428
Surr: 4-Bromofluorobenzene	111	66.6-132		%Rec	1	8/18/2017 10:24:23 AM	33428

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 Quanitative 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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Client Sample ID: SC-2
Project: Jicarilla Apache H Tract 2 #2
Collection Date: 8/17/2017 6:05:00 PM
Lab ID: 1708B15-002 **Matrix:** SOIL **Received Date:** 8/18/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	8/18/2017 10:15:46 AM	33442
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/18/2017 10:15:46 AM	33442
Surr: DNOP	92.2	70-130		%Rec	1	8/18/2017 10:15:46 AM	33442
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	9.8	3.4		mg/Kg	1	8/18/2017 1:12:04 PM	33428
Surr: BFB	150	54-150		%Rec	1	8/18/2017 1:12:04 PM	33428
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.017		mg/Kg	1	8/18/2017 1:12:04 PM	33428
Toluene	0.13	0.034		mg/Kg	1	8/18/2017 1:12:04 PM	33428
Ethylbenzene	0.14	0.034		mg/Kg	1	8/18/2017 1:12:04 PM	33428
Xylenes, Total	1.1	0.068		mg/Kg	1	8/18/2017 1:12:04 PM	33428
Surr: 4-Bromofluorobenzene	130	66.6-132		%Rec	1	8/18/2017 1:12:04 PM	33428

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 Quanitative 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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Client Sample ID: SC-3
Project: Jicarilla Apache H Tract 2 #2
Collection Date: 8/17/2017 6:10:00 PM
Lab ID: 1708B15-003 **Matrix:** SOIL **Received Date:** 8/18/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	8/18/2017 10:37:51 AM	33442
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/18/2017 10:37:51 AM	33442
Surr: DNOP	85.4	70-130		%Rec	1	8/18/2017 10:37:51 AM	33442
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	160	18		mg/Kg	5	8/18/2017 11:12:18 AM	33428
Surr: BFB	238	54-150	S	%Rec	5	8/18/2017 11:12:18 AM	33428
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	0.26	0.088		mg/Kg	5	8/18/2017 11:12:18 AM	33428
Toluene	4.2	0.18		mg/Kg	5	8/18/2017 11:12:18 AM	33428
Ethylbenzene	2.7	0.18		mg/Kg	5	8/18/2017 11:12:18 AM	33428
Xylenes, Total	20	0.35		mg/Kg	5	8/18/2017 11:12:18 AM	33428
Surr: 4-Bromofluorobenzene	159	66.6-132	S	%Rec	5	8/18/2017 11:12:18 AM	33428

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 Quanitative 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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Client Sample ID: SC-4
Project: Jicarilla Apache H Tract 2 #2
Collection Date: 8/17/2017 6:15:00 PM
Lab ID: 1708B15-004 **Matrix:** SOIL **Received Date:** 8/18/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	8/18/2017 11:00:14 AM	33442
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/18/2017 11:00:14 AM	33442
Surr: DNOP	93.7	70-130		%Rec	1	8/18/2017 11:00:14 AM	33442
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	18		mg/Kg	5	8/18/2017 11:36:20 AM	33428
Surr: BFB	86.3	54-150		%Rec	5	8/18/2017 11:36:20 AM	33428
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.091		mg/Kg	5	8/18/2017 11:36:20 AM	33428
Toluene	ND	0.18		mg/Kg	5	8/18/2017 11:36:20 AM	33428
Ethylbenzene	ND	0.18		mg/Kg	5	8/18/2017 11:36:20 AM	33428
Xylenes, Total	ND	0.36		mg/Kg	5	8/18/2017 11:36:20 AM	33428
Surr: 4-Bromofluorobenzene	118	66.6-132		%Rec	5	8/18/2017 11:36:20 AM	33428

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 Quanitative 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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Client Sample ID: SC-5
Project: Jicarilla Apache H Tract 2 #2
Collection Date: 8/17/2017 6:20:00 PM
Lab ID: 1708B15-005 **Matrix:** SOIL **Received Date:** 8/18/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	8/18/2017 11:22:18 AM	33442
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/18/2017 11:22:18 AM	33442
Surr: DNOP	101	70-130		%Rec	1	8/18/2017 11:22:18 AM	33442
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	3.2		mg/Kg	1	8/18/2017 12:00:14 PM	33428
Surr: BFB	85.8	54-150		%Rec	1	8/18/2017 12:00:14 PM	33428
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.016		mg/Kg	1	8/18/2017 12:00:14 PM	33428
Toluene	ND	0.032		mg/Kg	1	8/18/2017 12:00:14 PM	33428
Ethylbenzene	ND	0.032		mg/Kg	1	8/18/2017 12:00:14 PM	33428
Xylenes, Total	ND	0.063		mg/Kg	1	8/18/2017 12:00:14 PM	33428
Surr: 4-Bromofluorobenzene	115	66.6-132		%Rec	1	8/18/2017 12:00:14 PM	33428

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

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 Quanitative 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, Inc.

CLIENT: Rule Engineering LLC
Client Sample ID: SC-6
Project: Jicarilla Apache H Tract 2 #2
Collection Date: 8/17/2017 6:23:00 PM
Lab ID: 1708B15-006 **Matrix:** SOIL **Received Date:** 8/18/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	8/18/2017 11:44:33 AM	33442
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/18/2017 11:44:33 AM	33442
Surr: DNOP	99.5	70-130		%Rec	1	8/18/2017 11:44:33 AM	33442
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	3.1		mg/Kg	1	8/18/2017 12:24:06 PM	33428
Surr: BFB	89.6	54-150		%Rec	1	8/18/2017 12:24:06 PM	33428
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.016		mg/Kg	1	8/18/2017 12:24:06 PM	33428
Toluene	ND	0.031		mg/Kg	1	8/18/2017 12:24:06 PM	33428
Ethylbenzene	ND	0.031		mg/Kg	1	8/18/2017 12:24:06 PM	33428
Xylenes, Total	ND	0.063		mg/Kg	1	8/18/2017 12:24:06 PM	33428
Surr: 4-Bromofluorobenzene	123	66.6-132		%Rec	1	8/18/2017 12:24:06 PM	33428

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 Quanitative 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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Client Sample ID: SC-7
Project: Jicarilla Apache H Tract 2 #2
Collection Date: 8/17/2017 6:26:00 PM
Lab ID: 1708B15-007 **Matrix:** SOIL **Received Date:** 8/18/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	8/18/2017 12:06:37 PM	33442
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/18/2017 12:06:37 PM	33442
Surr: DNOP	98.2	70-130		%Rec	1	8/18/2017 12:06:37 PM	33442
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	3.3		mg/Kg	1	8/18/2017 12:48:04 PM	33428
Surr: BFB	82.5	54-150		%Rec	1	8/18/2017 12:48:04 PM	33428
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.017		mg/Kg	1	8/18/2017 12:48:04 PM	33428
Toluene	ND	0.033		mg/Kg	1	8/18/2017 12:48:04 PM	33428
Ethylbenzene	ND	0.033		mg/Kg	1	8/18/2017 12:48:04 PM	33428
Xylenes, Total	ND	0.066		mg/Kg	1	8/18/2017 12:48:04 PM	33428
Surr: 4-Bromofluorobenzene	113	66.6-132		%Rec	1	8/18/2017 12:48:04 PM	33428

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 Quanitative 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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Client Sample ID: SC-8
Project: Jicarilla Apache H Tract 2 #2
Collection Date: 8/17/2017 6:30:00 PM
Lab ID: 1708B15-008 **Matrix:** SOIL
Received Date: 8/18/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	8/18/2017 12:28:48 PM	33442
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/18/2017 12:28:48 PM	33442
Surr: DNOP	93.7	70-130		%Rec	1	8/18/2017 12:28:48 PM	33442
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	17		mg/Kg	5	8/18/2017 10:04:31 AM	G45053
Surr: BFB	99.7	54-150		%Rec	5	8/18/2017 10:04:31 AM	G45053
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.087		mg/Kg	5	8/18/2017 10:04:31 AM	B45053
Toluene	ND	0.17		mg/Kg	5	8/18/2017 10:04:31 AM	B45053
Ethylbenzene	0.20	0.17		mg/Kg	5	8/18/2017 10:04:31 AM	B45053
Xylenes, Total	1.4	0.35		mg/Kg	5	8/18/2017 10:04:31 AM	B45053
Surr: 4-Bromofluorobenzene	105	66.6-132		%Rec	5	8/18/2017 10:04:31 AM	B45053

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 Quanitative 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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Client Sample ID: SC-9
Project: Jicarilla Apache H Tract 2 #2
Collection Date: 8/17/2017 6:33:00 PM
Lab ID: 1708B15-009 **Matrix:** SOIL **Received Date:** 8/18/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	20	9.5		mg/Kg	1	8/18/2017 12:51:09 PM	33442
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/18/2017 12:51:09 PM	33442
Surr: DNOP	68.6	70-130	S	%Rec	1	8/18/2017 12:51:09 PM	33442
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	330	4.3		mg/Kg	1	8/18/2017 10:28:10 AM	G45053
Surr: BFB	1060	54-150	S	%Rec	1	8/18/2017 10:28:10 AM	G45053
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	0.79	0.022		mg/Kg	1	8/18/2017 10:28:10 AM	B45053
Toluene	7.3	0.86		mg/Kg	20	8/18/2017 1:14:09 PM	B45053
Ethylbenzene	4.1	0.043		mg/Kg	1	8/18/2017 10:28:10 AM	B45053
Xylenes, Total	29	1.7		mg/Kg	20	8/18/2017 1:14:09 PM	B45053
Surr: 4-Bromofluorobenzene	116	66.6-132		%Rec	20	8/18/2017 1:14:09 PM	B45053

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

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 Quanitative 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, Inc.

CLIENT: Rule Engineering LLC
Project: Jicarilla Apache H Tract 2 #2
Lab ID: 1708B15-010 **Matrix:** SOIL

Client Sample ID: SC-10
Collection Date: 8/17/2017 6:38:00 PM
Received Date: 8/18/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	8/18/2017 11:47:06 AM	33442
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/18/2017 11:47:06 AM	33442
Surr: DNOP	89.3	70-130		%Rec	1	8/18/2017 11:47:06 AM	33442
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	3.8		mg/Kg	1	8/18/2017 11:15:34 AM	G45053
Surr: BFB	90.3	54-150		%Rec	1	8/18/2017 11:15:34 AM	G45053
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.019		mg/Kg	1	8/18/2017 11:15:34 AM	B45053
Toluene	ND	0.038		mg/Kg	1	8/18/2017 11:15:34 AM	B45053
Ethylbenzene	ND	0.038		mg/Kg	1	8/18/2017 11:15:34 AM	B45053
Xylenes, Total	ND	0.076		mg/Kg	1	8/18/2017 11:15:34 AM	B45053
Surr: 4-Bromofluorobenzene	102	66.6-132		%Rec	1	8/18/2017 11:15:34 AM	B45053

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 Quanitative 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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Client Sample ID: SC-11
Project: Jicarilla Apache H Tract 2 #2
Collection Date: 8/17/2017 6:40:00 PM
Lab ID: 1708B15-011
Matrix: SOIL
Received Date: 8/18/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	8/18/2017 11:19:01 AM	33442
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/18/2017 11:19:01 AM	33442
Surr: DNOP	84.0	70-130		%Rec	1	8/18/2017 11:19:01 AM	33442
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.2		mg/Kg	1	8/18/2017 11:39:20 AM	G45053
Surr: BFB	94.7	54-150		%Rec	1	8/18/2017 11:39:20 AM	G45053
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.021		mg/Kg	1	8/18/2017 11:39:20 AM	B45053
Toluene	ND	0.042		mg/Kg	1	8/18/2017 11:39:20 AM	B45053
Ethylbenzene	ND	0.042		mg/Kg	1	8/18/2017 11:39:20 AM	B45053
Xylenes, Total	0.10	0.084		mg/Kg	1	8/18/2017 11:39:20 AM	B45053
Surr: 4-Bromofluorobenzene	104	66.6-132		%Rec	1	8/18/2017 11:39:20 AM	B45053

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 Quanitative 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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Client Sample ID: SC-12
Project: Jicarilla Apache H Tract 2 #2
Collection Date: 8/17/2017 6:45:00 PM
Lab ID: 1708B15-012
Matrix: SOIL
Received Date: 8/18/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	11	9.8		mg/Kg	1	8/18/2017 10:50:56 AM	33442
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/18/2017 10:50:56 AM	33442
Surr: DNOP	83.0	70-130		%Rec	1	8/18/2017 10:50:56 AM	33442
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	21		mg/Kg	5	8/18/2017 12:03:01 PM	G45053
Surr: BFB	104	54-150		%Rec	5	8/18/2017 12:03:01 PM	G45053
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.11		mg/Kg	5	8/18/2017 12:03:01 PM	B45053
Toluene	0.25	0.21		mg/Kg	5	8/18/2017 12:03:01 PM	B45053
Ethylbenzene	0.26	0.21		mg/Kg	5	8/18/2017 12:03:01 PM	B45053
Xylenes, Total	1.9	0.42		mg/Kg	5	8/18/2017 12:03:01 PM	B45053
Surr: 4-Bromofluorobenzene	107	66.6-132		%Rec	5	8/18/2017 12:03:01 PM	B45053

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

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 Quanitative 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, Inc.

CLIENT: Rule Engineering LLC
Client Sample ID: SC-13
Project: Jicarilla Apache H Tract 2 #2
Collection Date: 8/17/2017 6:50:00 PM
Lab ID: 1708B15-013 **Matrix:** SOIL **Received Date:** 8/18/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	8/18/2017 10:23:12 AM	33442
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	8/18/2017 10:23:12 AM	33442
Surr: DNOP	91.2	70-130		%Rec	1	8/18/2017 10:23:12 AM	33442
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/18/2017 12:26:45 PM	G45053
Surr: BFB	89.7	54-150		%Rec	1	8/18/2017 12:26:45 PM	G45053
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	8/18/2017 12:26:45 PM	B45053
Toluene	ND	0.048		mg/Kg	1	8/18/2017 12:26:45 PM	B45053
Ethylbenzene	ND	0.048		mg/Kg	1	8/18/2017 12:26:45 PM	B45053
Xylenes, Total	ND	0.096		mg/Kg	1	8/18/2017 12:26:45 PM	B45053
Surr: 4-Bromofluorobenzene	101	66.6-132		%Rec	1	8/18/2017 12:26:45 PM	B45053

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 Quanitative 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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Client Sample ID: SC-14
Project: Jicarilla Apache H Tract 2 #2
Collection Date: 8/17/2017 6:55:00 PM
Lab ID: 1708B15-014 **Matrix:** SOIL **Received Date:** 8/18/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	16	9.8		mg/Kg	1	8/18/2017 9:55:27 AM	33442
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/18/2017 9:55:27 AM	33442
Surr: DNOP	90.6	70-130		%Rec	1	8/18/2017 9:55:27 AM	33442
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	11	8.4		mg/Kg	2	8/18/2017 12:50:28 PM	G45053
Surr: BFB	115	54-150		%Rec	2	8/18/2017 12:50:28 PM	G45053
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.042		mg/Kg	2	8/18/2017 12:50:28 PM	B45053
Toluene	ND	0.084		mg/Kg	2	8/18/2017 12:50:28 PM	B45053
Ethylbenzene	0.14	0.084		mg/Kg	2	8/18/2017 12:50:28 PM	B45053
Xylenes, Total	1.0	0.17		mg/Kg	2	8/18/2017 12:50:28 PM	B45053
Surr: 4-Bromofluorobenzene	110	66.6-132		%Rec	2	8/18/2017 12:50:28 PM	B45053

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 Quanitative 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#: **1708B15**

21-Aug-17

Client: Rule Engineering LLC

Project: Jicarilla Apache H Tract 2 #2

Sample ID	**LCS-33442**	SampType:	**LCS**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID:	**33442**		RunNo:	**45040**				
Prep Date:	**8/18/2017**	Analysis Date:	**8/18/2017**		SeqNo:	**1426068**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	93.6	73.2	114			
Surr: DNOP	4.4		5.000		87.4	70	130			

Sample ID	**MB-33442**	SampType:	**MBLK**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID:	**33442**		RunNo:	**45040**				
Prep Date:	**8/18/2017**	Analysis Date:	**8/18/2017**		SeqNo:	**1426069**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.9		10.00		99.3	70	130			

Sample ID	**LCS-33429**	SampType:	**LCS**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID:	**33429**		RunNo:	**45041**				
Prep Date:	**8/17/2017**	Analysis Date:	**8/18/2017**		SeqNo:	**1426491**	Units:	**%Rec**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.8		5.000		95.0	70	130			

Sample ID	**MB-33429**	SampType:	**MBLK**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID:	**33429**		RunNo:	**45041**				
Prep Date:	**8/17/2017**	Analysis Date:	**8/18/2017**		SeqNo:	**1426492**	Units:	**%Rec**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.0		10.00		90.4	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative 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#: **1708B15**

21-Aug-17

Client: Rule Engineering LLC

Project: Jicarilla Apache H Tract 2 #2

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **G45053**	RunNo: **45053**
Prep Date:	Analysis Date: **8/18/2017**	SeqNo: **1427093** 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	930		1000		92.9	54	150			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **G45053**	RunNo: **45053**
Prep Date:	Analysis Date: **8/18/2017**	SeqNo: **1427094** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	88.3	76.4	125			
Surr: BFB	1000		1000		100	54	150			

Sample ID **1708B15-008AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SC-8**	Batch ID: **G45053**	RunNo: **45053**
Prep Date:	Analysis Date: **8/18/2017**	SeqNo: **1427095** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	83	17	87.05	12.88	80.4	77.8	128			
Surr: BFB	3800		3482		109	54	150			

Sample ID **1708B15-008AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SC-8**	Batch ID: **G45053**	RunNo: **45053**
Prep Date:	Analysis Date: **8/18/2017**	SeqNo: **1427096** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	90	17	87.05	12.88	88.8	77.8	128	8.53	20	
Surr: BFB	3900		3482		112	54	150	0	0	

Sample ID **MB-33428**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **33428**	RunNo: **45051**
Prep Date: **8/17/2017**	Analysis Date: **8/18/2017**	SeqNo: **1427171** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	820		1000		82.2	54	150			

Sample ID **LCS-33428**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **33428**	RunNo: **45051**
Prep Date: **8/17/2017**	Analysis Date: **8/18/2017**	SeqNo: **1427173** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

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 Quanitative 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#: **1708B15**

21-Aug-17

Client: Rule Engineering LLC

Project: Jicarilla Apache H Tract 2 #2

Sample ID **LCS-33428**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **33428**	RunNo: **45051**
Prep Date: **8/17/2017**	Analysis Date: **8/18/2017**	SeqNo: **1427173** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	94.3	76.4	125			
Surr: BFB	930		1000		93.4	54	150			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative 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#: **1708B15**

21-Aug-17

Client: Rule Engineering LLC

Project: Jicarilla Apache H Tract 2 #2

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **B45053**	RunNo: **45053**
Prep Date:	Analysis Date: **8/18/2017**	SeqNo: **1427124** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		103	66.6	132			

Sample ID **100NG BTEX LCS**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **B45053**	RunNo: **45053**
Prep Date:	Analysis Date: **8/18/2017**	SeqNo: **1427125** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	92.7	80	120			
Toluene	0.92	0.050	1.000	0	92.0	80	120			
Ethylbenzene	0.92	0.050	1.000	0	92.1	80	120			
Xylenes, Total	2.8	0.10	3.000	0	93.3	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		106	66.6	132			

Sample ID **1708B15-010AMS**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **SC-10**	Batch ID: **B45053**	RunNo: **45053**
Prep Date:	Analysis Date: **8/18/2017**	SeqNo: **1427126** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.71	0.019	0.7582	0	94.2	80.9	132			
Toluene	0.70	0.038	0.7582	0.01717	90.3	79.8	136			
Ethylbenzene	0.71	0.038	0.7582	0.01118	92.0	79.4	140			
Xylenes, Total	2.2	0.076	2.275	0.03334	94.2	78.5	142			
Surr: 4-Bromofluorobenzene	0.81		0.7582		107	66.6	132			

Sample ID **1708B15-010AMSD**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **SC-10**	Batch ID: **B45053**	RunNo: **45053**
Prep Date:	Analysis Date: **8/18/2017**	SeqNo: **1427127** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.72	0.019	0.7582	0	94.5	80.9	132	0.338	20	
Toluene	0.70	0.038	0.7582	0.01717	89.9	79.8	136	0.446	20	
Ethylbenzene	0.70	0.038	0.7582	0.01118	90.4	79.4	140	1.72	20	
Xylenes, Total	2.2	0.076	2.275	0.03334	93.1	78.5	142	1.18	20	
Surr: 4-Bromofluorobenzene	0.80		0.7582		106	66.6	132	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative 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#: **1708B15**

21-Aug-17

Client: Rule Engineering LLC

Project: Jicarilla Apache H Tract 2 #2

Sample ID **MB-33428**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **33428**	RunNo: **45051**
Prep Date: **8/17/2017**	Analysis Date: **8/18/2017**	SeqNo: **1427275** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		114	66.6	132			

Sample ID **LCS-33428**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **33428**	RunNo: **45051**
Prep Date: **8/17/2017**	Analysis Date: **8/18/2017**	SeqNo: **1427276** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	104	80	120			
Toluene	1.0	0.050	1.000	0	103	80	120			
Ethylbenzene	1.0	0.050	1.000	0	102	80	120			
Xylenes, Total	3.1	0.10	3.000	0	104	80	120			
Surr: 4-Bromofluorobenzene	1.2		1.000		116	66.6	132			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative 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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: RULE ENGINEERING LL Work Order Number: 1708B15 RcptNo: 1

Received By: Anne Thorne 8/18/2017 7:00:00 AM Anne Thorne

Completed By: Anne Thorne 8/18/2017 7:46:04 AM Anne Thorne

Reviewed By: 8/18/17

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

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

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			

Chain-of-Custody Record

Client: Rule Engineering LLC

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

Phone #: (505) 716-2787

email or Fax#: jvaldez@ruleengineering.com
hwoods@ruleengineering.com

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☐ Standard ☒ Rush Same Day

Project Name:
Jicarilla Apache H Tract 2 #2

Project #:

Project Manager:
Heather Woods

Sampler: Justin Valdez

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.3

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

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1708B15	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
8/17/17	1800	Soil	SC-1	MeOH Kit 1 (4) oz Glass	MeOH / Cold	-01	X		X													
8/17/17	1805	Soil	SC-2			-02	X		X													
8/17/17	1810	Soil	SC-3			-03	X		X													
8/17/17	1815	Soil	SC-4			-04	X		X													
8/17/17	1820	Soil	SC-5			-05	X		X													
8/17/17	1823	Soil	SC-6			-06	X		X													
8/17/17	1826	Soil	SC-7			-07	X		X													
8/17/17	1830	Soil	SC-8			-08	X		X													
8/17/17	1833	Soil	SC-9			-09	X		X													
8/17/17	1838	Soil	SC-10			-10	X		X													
8/17/17	1840	Soil	SC-11			-11	X		X													
8/17/17	1845	Soil	SC-12			-12	X		X													

Date	Time	Relinquished by:	Received by:	Date	Time
8/17/17	2108	Justin Valdez		8/17/17	2108
8/17/17	2115			08/18/17	0700

Remarks: Page 1 of 2 Per CW Invoice Enterprise/AT 08/18/17

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

Chain-of-Custody Record

Client: Rule Engineering LLC

Mailing Address: 501 Airport Dr, Ste 205

Farmington, NM 87401

Phone #: (505) 716-2787

email or Fax#: jvaldez@ruleengineering.com hwoods@ruleengineering.com

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

☐ Standard ☒ Rush Same Day

Project Name: Jicarilla Apache H Tract 2 #2

Project #:

Project Manager: Heather Woods

Sampler: Justin Valdez

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.3

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1708815	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
8/17/17	1850	Soil	SC-13	MeOH Kit (1) 4oz Glass	MeOH / cold	-013	X		X													
8/17/17	1855	Soil	SC-14	1	1	-014	X		X													

Date:	Time:	Relinquished by:	Received by:	Date	Time
8/17/17	2108	Justin Valdez	Chad Ward	8/17/17	2108
8/17/17	2115	Heather Woods			
			Received by:	Date	Time
				08/18/17	0700

Remarks: Page 2 of 2

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

August 25, 2017

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

RE: Enterprise Jicarilla Apache Tract 2 #2 OrderNo.: 1708C94

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 2 sample(s) on 8/23/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data 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.

CLIENT: Rule Engineering LLC
Client Sample ID: SC-15
Project: Enterprise Jicarilla Apache Tract 2 #2
Collection Date: 8/22/2017 11:55:00 AM
Lab ID: 1708C94-001
Matrix: SOIL
Received Date: 8/23/2017 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	8/23/2017 10:26:25 AM	33506
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/23/2017 10:26:25 AM	33506
Surr: DNOP	89.1	70-130		%Rec	1	8/23/2017 10:26:25 AM	33506
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	36	19		mg/Kg	5	8/23/2017 9:35:36 AM	G45160
Surr: BFB	135	54-150		%Rec	5	8/23/2017 9:35:36 AM	G45160
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.097		mg/Kg	5	8/23/2017 9:35:36 AM	B45160
Toluene	0.40	0.19		mg/Kg	5	8/23/2017 9:35:36 AM	B45160
Ethylbenzene	0.58	0.19		mg/Kg	5	8/23/2017 9:35:36 AM	B45160
Xylenes, Total	4.5	0.39		mg/Kg	5	8/23/2017 9:35:36 AM	B45160
Surr: 4-Bromofluorobenzene	127	66.6-132		%Rec	5	8/23/2017 9:35:36 AM	B45160

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 Quanitative 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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Client Sample ID: SC-16
Project: Enterprise Jicarilla Apache Tract 2 #2
Collection Date: 8/22/2017 2:40:00 PM
Lab ID: 1708C94-002 **Matrix:** SOIL
Received Date: 8/23/2017 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	8/23/2017 10:48:25 AM	33506
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/23/2017 10:48:25 AM	33506
Surr: DNOP	95.2	70-130		%Rec	1	8/23/2017 10:48:25 AM	33506
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	21		mg/Kg	5	8/23/2017 9:59:38 AM	G45160
Surr: BFB	99.2	54-150		%Rec	5	8/23/2017 9:59:38 AM	G45160
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.10		mg/Kg	5	8/23/2017 9:59:38 AM	B45160
Toluene	ND	0.21		mg/Kg	5	8/23/2017 9:59:38 AM	B45160
Ethylbenzene	ND	0.21		mg/Kg	5	8/23/2017 9:59:38 AM	B45160
Xylenes, Total	0.65	0.42		mg/Kg	5	8/23/2017 9:59:38 AM	B45160
Surr: 4-Bromofluorobenzene	109	66.6-132		%Rec	5	8/23/2017 9:59:38 AM	B45160

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 Quanitative 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#: **1708C94**

25-Aug-17

Client: Rule Engineering LLC

Project: Enterprise Jicarilla Apache Tract 2 #2

Sample ID **LCS-33506**	SampType: **LCS**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **LCSS**	Batch ID: **33506**			RunNo: **45143**					
Prep Date: **8/23/2017**	Analysis Date: **8/23/2017**			SeqNo: **1429401**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	95.0	73.2	114			
Surr: DNOP	4.4		5.000		88.6	70	130			

Sample ID **MB-33506**	SampType: **MBLK**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **PBS**	Batch ID: **33506**			RunNo: **45143**					
Prep Date: **8/23/2017**	Analysis Date: **8/23/2017**			SeqNo: **1429402**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.4		10.00		94.4	70	130			

Sample ID **1708C94-001AMS**	SampType: **MS**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **SC-15**	Batch ID: **33506**			RunNo: **45143**					
Prep Date: **8/23/2017**	Analysis Date: **8/23/2017**			SeqNo: **1429889**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	9.7	48.64	4.062	93.3	55.8	122			
Surr: DNOP	4.0		4.864		81.7	70	130			

Sample ID **1708C94-001AMSD**	SampType: **MSD**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **SC-15**	Batch ID: **33506**			RunNo: **45143**					
Prep Date: **8/23/2017**	Analysis Date: **8/23/2017**			SeqNo: **1429890**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51	9.9	49.65	4.062	94.2	55.8	122	2.78	20	
Surr: DNOP	4.3		4.965		85.7	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative 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#: **1708C94**

25-Aug-17

Client: Rule Engineering LLC

Project: Enterprise Jicarilla Apache Tract 2 #2

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **G45160**	RunNo: **45160**
Prep Date:	Analysis Date: **8/23/2017**	SeqNo: **1430147** 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	900		1000		90.2	54	150			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **G45160**	RunNo: **45160**
Prep Date:	Analysis Date: **8/23/2017**	SeqNo: **1430148** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	98.1	76.4	125			
Surr: BFB	1000		1000		100	54	150			

Sample ID **1708C94-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SC-15**	Batch ID: **G45160**	RunNo: **45160**
Prep Date:	Analysis Date: **8/23/2017**	SeqNo: **1430149** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	130	19	96.75	36.03	102	77.8	128			
Surr: BFB	5600		3870		144	54	150			

Sample ID **1708C94-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SC-15**	Batch ID: **G45160**	RunNo: **45160**
Prep Date:	Analysis Date: **8/23/2017**	SeqNo: **1430150** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	130	19	96.75	36.03	96.2	77.8	128	3.99	20	
Surr: BFB	5500		3870		141	54	150	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative 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#: **1708C94**

25-Aug-17

Client: Rule Engineering LLC

Project: Enterprise Jicarilla Apache Tract 2 #2

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **B45160**	RunNo: **45160**
Prep Date:	Analysis Date: **8/23/2017**	SeqNo: **1430178** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.2		1.000		115	66.6	132			

Sample ID **100NG BTEX LCS**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **B45160**	RunNo: **45160**
Prep Date:	Analysis Date: **8/23/2017**	SeqNo: **1430179** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	109	80	120			
Toluene	1.1	0.050	1.000	0	109	80	120			
Ethylbenzene	1.1	0.050	1.000	0	107	80	120			
Xylenes, Total	3.3	0.10	3.000	0	109	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		113	66.6	132			

Sample ID **1708C94-002AMS**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **SC-16**	Batch ID: **B45160**	RunNo: **45160**
Prep Date:	Analysis Date: **8/23/2017**	SeqNo: **1430180** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.7	0.10	4.191	0.05239	110	80.9	132			
Toluene	4.9	0.21	4.191	0.1681	112	79.8	136			
Ethylbenzene	4.8	0.21	4.191	0.1320	111	79.4	140			
Xylenes, Total	15	0.42	12.57	0.6538	115	78.5	142			
Surr: 4-Bromofluorobenzene	4.9		4.191		116	66.6	132			

Sample ID **1708C94-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **SC-16**	Batch ID: **B45160**	RunNo: **45160**
Prep Date:	Analysis Date: **8/23/2017**	SeqNo: **1430181** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.5	0.10	4.191	0.05239	106	80.9	132	4.16	20	
Toluene	4.6	0.21	4.191	0.1681	107	79.8	136	4.94	20	
Ethylbenzene	4.6	0.21	4.191	0.1320	107	79.4	140	3.58	20	
Xylenes, Total	14	0.42	12.57	0.6538	110	78.5	142	4.27	20	
Surr: 4-Bromofluorobenzene	4.7		4.191		113	66.6	132	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative 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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: RULE ENGINEERING LL Work Order Number: 1708C94 RcptNo: 1

Received By: Anne Thorne 8/23/2017 7:15:00 AM Anne Thorne

Completed By: Anne Thorne 8/23/2017 7:28:57 AM Anne Thorne

Reviewed By: AV 8/23/17

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

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

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			

Chain-of-Custody Record

Client: Rule Engineering, LLC

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

Phone #: (505) 716-2787

email or Fax#: hwoods@ruleengineering.com

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☐ Standard ☒ Rush Same Day

Project Name:
Enterprise Jicarilla Apache Tract 2 #2

Project #:

Project Manager:
Heather Woods

Sampler: Heather Woods

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.3

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Date	Time	Matrix	Sample Request ID	Container Type and # (8/23/17 Meoh kit)	Preservative Type	HEAL No. 1708C94	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
8/22/17	1155	Soil	SC-15	(1) 4oz Glass	non	-001	X		X													
8/22/17	1440	Soil	SC-16	(1) 4oz Glass	non	-002	X		X													

Date:	Time:	Relinquished by:	Received by:	Date	Time
8/22/17	1722	Heath M Woods	Christa Waste	8/22/17	1722
8/22/17	1840	Christa Waste		8/23/17	0715

Remarks: Direct Bill to Enterprise

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.

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

Form C-141
Revised April 3, 2017

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Repor

Name of Company: Enterprise Field Services LLC	Contact **Thomas Long/Runell Seale**
Address 614 Reilly Ave, Farmington, NM 87401	Telephone No. **505-599-2286/505-599-2124**
Facility Name **Jicarilla Apache H Tract 2 #2**	Facility Type **Natural Gas Gathering Pipeline**

Surface Owner **Jicarilla Apache Tribe**	Mineral Owner **BIA**	API No. NA

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from	North/South Line	Feet from	East/West Line	County
B	**9**	**23N**	**2W**	the **950**		the **1500**		**Rio Arriba**

Latitude 36.24780 **Longitude** -107.04819 **NAD83**

NATURE OF RELEASE

Type of Release **Natural Gas and Natural Gas Liquids**	Volume of Release **UNKNOWN**	Volume Recovered **None**
Source of Release **Suspected internal corrosion**	Date and Hour of Occurrence **8/1/2017 @ 12:45 p.m.**	Date and Hour of Discovery **8-1-2017 @ 12:45 p.m.**
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? **Vanessa Fields-NMOCD Hobson Sandoval-JAO&G, Jason Sandoval-JAO&G Kurt Sandoval-BIA**	
By Whom? **Runell Seale**	Date and Hour **August 1, 2017 @ 3:42 p.m.**	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

OIL CONS. DIV DIST. 3

SEP 14 2017

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*On August 1, 2017, during a pipeline patrol, a leak was reported on the Jicarilla Apache H Tract 2 #2 pipeline. Enterprise employee was dispatched and verified the leak. The pipeline was isolated, depressurized, locked out and tagged out. Courtesy notification was sent to NMOCD on August 1, 2017. During pipeline repair activities, Enterprise determined this reportable per NMOCD regulation due to the volume of subsurface impacts.

Describe Area Affected and Cleanup Action Taken.* Repairs and remediation are complete. Enterprise removed the contaminant mass by mechanical excavation. A third party corrective action report will be included with the "Final" C-141.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: J E. Fields	OIL CONSERVATION DIVISION
Printed Name: **Jon E. Fields**	Approved by Environmental Specialist:
Title: **Director, Environmental**	Approval Date: 9/20/17 Expiration Date:
E-mail Address: **jefields@eprod.com**	Conditions of Approval: Attached ☒
Date: 9/6/2017 Phone: **713-381-6684**	

* Attach Additional Sheets If Necessary

NVF1726329571

3

Operator/Responsible Party,

The OCD has received the form C-141 you provided on 9/14/17 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number _____ has been assigned. **Please refer to this case number in all future correspondence.**

NVF1726329571

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

> *The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC.* [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District III office in 30 days_ on or before 10/14/17. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.

- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.

- Nominal detection limits for field and laboratory analyses must be provided.

- Composite sampling is not generally allowed.

- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

•Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

• If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

• Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold
OCD Environmental Bureau Chief
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3465
jim.griswold@state.nm.us

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

Form C-141
Revised April 3, 2017

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company **Enterprise Field Services, LLC**	Contact **Thomas Long**
Address **614 Reilly Ave, Farmington, NM 87401**	Telephone No. **505-599-2286**
Facility Name **Gobenador Compressor Station**	Facility Type **Natural Gas Compressor Station**

Surface Owner **Private**	Mineral Owner **BLM**	Serial Number:

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from	North/South Line	Feet from	East/West Line	County
D	**31**	**30N**	**7W**	the 635		the **120**		**Rio Arriba**

Latitude 36.77467 Longitude 107.61787 NAD83

NATURE OF RELEASE

Type of Release: Fresh Lubrication Oil	Volume of Release **8-10 BBLs of Fresh Lubrication Oil**	Volume Recovered **None**
Source of Release Day Tank	Date and Hour of Occurrence **11/14/2017 @ 12:00p.m.**	Date and Hour of Discovery **11/14/2017 @ 12:00p.m.**
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? : Notification to Cory Smith – NMOCD	
By Whom? Thomas Long	Date and Hour 11/15/2017 @ 11:34 a.m.	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

OIL CONS. DIV DIST. 3
NOV 27 2017

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.* On November 14, 2017, a technician was filing the day tank and the overflow switch failed causing fresh lubrication oil to overflow the day tank. An estimated volume of 8-10 barrels was released and flowed out of the compressor building and onto the ground.

Describe Area Affected and Cleanup Action Taken.* The remediation is in the scheduling process. The contaminant mass will be removed by hand tools as much as practical. A third party corrective action report will be included with the "Final." C-141.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature:	OIL CONSERVATION DIVISION
Printed Name: Jon E. Fields	Approved by Environmental Specialist:
Title: Director, Environmental	Approval Date: 12/6/17 Expiration Date:
E-mail Address: jefields@eprod.com	Conditions of Approval: Attached ☑
Date: 11/17/17 Phone: (713) 381-6684	

* Attach Additional Sheets If Necessary

NVF1734047236

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Operator/Responsible Party,

The OCD has received the form C-141 you provided on 11/27/2017 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number NVF1734047786 has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

> *The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC.* [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District III office in 30 days_ on or before 12/30/2017. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.

- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.

- Nominal detection limits for field and laboratory analyses must be provided.

- Composite sampling is not generally allowed.

- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

•Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

• If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

• Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold
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