District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources
Department
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-144
Revised June 6, 2013

For temporary pits, below-grade tanks, and multi-well fluid management pits, submit to the appropriate NMOCD District Office.
For permanent pits submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.

Pit, Below-Grade Tank, or Proposed Alternative Method Permit or Closure Plan Application

13691

OIL CONS. DIV DIST. 3

DEC 15 2015

Type of action:
- ☐ Below grade tank registration
- ☐ Permit of a pit or proposed alternative method
- ☒ Closure of a pit, below-grade tank, or proposed alternative method
- ☐ Modification to an existing permit/or registration
- ☐ Closure plan only submitted for an existing permitted or non-permitted pit, below-grade tank, or proposed alternative method

30-039-21007

Instructions: Please submit one application (Form C-144) per individual pit, below-grade tank or alternative request

Please be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

1.
Operator: Burlington Resources Oil & Gas Company, LP OGRID #: 14538
Address: PO BOX 4289, Farmington, NM 87499
Facility or well name: SAN JUAN 27-4 UNIT 116
API Number: 30-039-21007 OCD Permit Number: _____
U/L or Qtr/Qtr I Section 32 Township 27 N Range 4 W County: Rio Arriba
Center of Proposed Design: Latitude 36.5273 °N Longitude -107.26746 °W NAD: ☐ 1927 ☒ 1983
Surface Owner: ☒ Federal ☐ State ☐ Private ☐ Tribal Trust or Indian Allotment

2.
☐ **Pit:** Subsection F, G or J of 19.15.17.11 NMAC
Temporary: ☐ Drilling ☐ Workover
☐ Permanent ☐ Emergency ☐ Cavitation ☐ P&A ☐ Multi-Well Fluid Management Low Chloride Drilling Fluid ☐ yes ☐ no
☐ Lined ☐ Unlined Liner type: Thickness ____ mil ☒ LLDPE ☐ HDPE ☐ PVC ☐ Other _____
☐ String-Reinforced
Liner Seams: ☐ Welded ☐ Factory ☐ Other _____ Volume: ____ bbl Dimensions: L___ x W__ x D____

3.
☒ **Below-grade tank:** Subsection I of 19.15.17.11 NMAC
Volume: 120 bbl Type of fluid: Produced Water
Tank Construction material: Metal
☐ Secondary containment with leak detection ☒ Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off
☐ Visible sidewalls and liner ☐ Visible sidewalls only ☐ Other _____
Liner type: Thickness _____ mil ☐ HDPE ☐ PVC ☒ Other UNSPECIFIED

4.
☐ **Alternative Method:**
Submittal of an exception request is required. Exceptions must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

5.
Fencing: Subsection D of 19.15.17.11 NMAC *(Applies to permanent pits, temporary pits, and below-grade tanks)*
☐ Chain link, six feet in height, two strands of barbed wire at top *(Required if located within 1000 feet of a permanent residence, school, hospital, institution or church)*
☐ Four foot height, four strands of barbed wire evenly spaced between one and four feet
☐ Alternate. Please specify _____

41

dlw

6.

Netting: Subsection E of 19.15.17.11 NMAC *(Applies to permanent pits and permanent open top tanks)*

☐ Screen ☐ Netting ☐ Other_____

☐ Monthly inspections (If netting or screening is not physically feasible)

7.

Signs: Subsection C of 19.15.17.11 NMAC

☐ 12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers

☐ Signed in compliance with 19.15.16.8 NMAC

8.

Variances and Exceptions:

Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17 NMAC for guidance.

Please check a box if one or more of the following is requested, if not leave blank:

☐ Variance(s): Requests must be submitted to the appropriate division district for consideration of approval.

☐ Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

9.

Siting Criteria (regarding permitting): 19.15.17.10 NMAC

Instructions: The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of acceptable source material are provided below. **Siting criteria does not apply to drying pads or above-grade tanks.**

General siting	
Ground water is less than 25 feet below the bottom of a low chloride temporary pit or below-grade tank. - ☐ NM Office of the State Engineer - iWATERS database search; ☐ USGS; ☐ Data obtained from nearby wells	☐ Yes ☐ No ☒ NA
Ground water is less than 50 feet below the bottom of a Temporary pit, permanent pit, or Multi-Well Fluid Management pit . NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☐ No ☒ NA
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. **(Does not apply to below grade tanks)** - Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☐ No
Within the area overlying a subsurface mine. **(Does not apply to below grade tanks)** - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☐ No
Within an unstable area. **(Does not apply to below grade tanks)** - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	☐ Yes ☐ No
Within a 100-year floodplain. **(Does not apply to below grade tanks)** - FEMA map	☐ Yes ☐ No
Below Grade Tanks	
Within 100 feet of a continuously flowing watercourse, significant watercourse, lake bed, sinkhole, wetland or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within 200 horizontal feet of a spring or a fresh water well used for public or livestock consumption;. - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Temporary Pit using Low Chloride Drilling Fluid (maximum chloride content 15,000 mg/liter)	
Within 100 feet of a continuously flowing watercourse, or any other significant watercourse or within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). (Applies to low chloride temporary pits.) - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within 300 feet from a occupied permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☐ No
Within 200 horizontal feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or 300feet of any other fresh water well or spring, in existence at the time of the initial application. NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	☐ Yes ☐ No

Within 100 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Temporary Pit Non-low chloride drilling fluid	
Within 300 feet of a continuously flowing watercourse, or any other significant watercourse, or within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☐ No
Within 500 horizontal feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or 1000 feet of any other fresh water well or spring, in the existence at the time of the initial application; - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within 300 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Permanent Pit or Multi-Well Fluid Management Pit	
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☐ No
Within 500 horizontal feet of a spring or a fresh water well used for domestic or stock watering purposes, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No

10.

Temporary Pits, Emergency Pits, and Below-grade Tanks Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC

Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

☐ Hydrogeologic Report (Below-grade Tanks) - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
☐ Hydrogeologic Data (Temporary and Emergency Pits) - based upon the requirements of Paragraph (2) of Subsection B of 19.15.17.9 NMAC
☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
☐ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
☐ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____ or Permit Number: _____

11.

Multi-Well Fluid Management Pit Checklist: Subsection B of 19.15.17.9 NMAC

Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

☐ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
☐ A List of wells with approved application for permit to drill associated with the pit.
☐ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC
☐ Hydrogeologic Data - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____ or Permit Number: _____

12,

Permanent Pits Permit Application Checklist: Subsection B of 19.15.17.9 NMAC

Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Hydrogeologic Report - based upon the requirements of Paragraph (1) of Subsection B of 19.15.17.9 NMAC
- ☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Climatological Factors Assessment
- ☐ Certified Engineering Design Plans - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Dike Protection and Structural Integrity Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Leak Detection Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Liner Specifications and Compatibility Assessment - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Quality Control/Quality Assurance Construction and Installation Plan
- ☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☐ Freeboard and Overtopping Prevention Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Nuisance or Hazardous Odors, including H_2S, Prevention Plan
- ☐ Emergency Response Plan
- ☐ Oil Field Waste Stream Characterization
- ☐ Monitoring and Inspection Plan
- ☐ Erosion Control Plan
- ☐ Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

13.

Proposed Closure: 19.15.17.13 NMAC

Instructions: Please complete the applicable boxes, Boxes 14 through 18, in regards to the proposed closure plan.

Type: ☐ Drilling ☐ Workover ☐ Emergency ☐ Cavitation ☐ P&A ☐ Permanent Pit ☐ Below-grade Tank ☐ Multi-well Fluid Management Pit ☐ Alternative

Proposed Closure Method:
- ☒ Waste Excavation and Removal
- ☐ Waste Removal (Closed-loop systems only)
- ☐ On-site Closure Method (Only for temporary pits and closed-loop systems)
  - ☐ In-place Burial ☐ On-site Trench Burial
- ☐ Alternative Closure Method

14.

Waste Excavation and Removal Closure Plan Checklist: (19.15.17.13 NMAC) ***Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.***

- ☒ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☒ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.13 NMAC
- ☒ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings)
- ☒ Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☒ Re-vegetation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☒ Site Reclamation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

15.

Siting Criteria (regarding on-site closure methods only): 19.15.17.10 NMAC

Instructions: Each siting criteria requires a demonstration of compliance in the closure plan. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria require justifications and/or demonstrations of equivalency. Please refer to 19.15.17.10 NMAC for guidance.

Ground water is less than 25 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☐ No ☐ NA
Ground water is between 25-50 feet below the bottom of the buried waste - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☐ No ☐ NA
Ground water is more than 100 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☐ No ☐ NA
Within 100 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☐ No
Within 300 horizontal feet of a private, domestic fresh water well or spring used for domestic or stock watering purposes, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☐ No
Within 300 feet of a wetland. US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance	

adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☐ No
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☐ No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	☐ Yes ☐ No
Within a 100-year floodplain. - FEMA map	☐ Yes ☐ No

16.
On-Site Closure Plan Checklist: (19.15.17.13 NMAC) ***Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.***

- ☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection E of 19.15.17.13 NMAC
- ☐ Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements of Subsection K of 19.15.17.11 NMAC
- ☐ Construction/Design Plan of Temporary Pit (for in-place burial of a drying pad) - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☐ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☐ Waste Material Sampling Plan - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☐ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings or in case on-site closure standards cannot be achieved)
- ☐ Soil Cover Design - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

17.
Operator Application Certification:

I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief.

Name (Print): _____ Title: _____

Signature: _____ Date: _____

e-mail address: _____ Telephone: _____

18.
OCD Approval: ☐ Permit Application (including closure plan) ☒ Closure ~~Plan (only)~~ ☐ OCD Conditions (see attachment)

OCD Representative Signature: _____ **Approval Date:** 12/08/2015

Title: Environmental Specialist **OCD Permit Number:** _____

19.
Closure Report (required within 60 days of closure completion): 19.15.17.13 NMAC

Instructions: Operators are required to obtain an approved closure plan prior to implementing any closure activities and submitting the closure report. The closure report is required to be submitted to the division within 60 days of the completion of the closure activities. Please do not complete this section of the form until an approved closure plan has been obtained and the closure activities have been completed.

☒ **Closure Completion Date:** 6/24/15

20.
Closure Method:

☒ Waste Excavation and Removal ☐ On-Site Closure Method ☐ Alternative Closure Method ☐ Waste Removal (Closed-loop systems only)
☐ If different from approved plan, please explain.

21.
Closure Report Attachment Checklist: ***Instructions: Each of the following items must be attached to the closure report. Please indicate, by a check mark in the box, that the documents are attached.***

- ☒ Proof of Closure Notice (surface owner and division)
- ☐ Proof of Deed Notice (required for on-site closure for private land only)
- ☐ Plot Plan (for on-site closures and temporary pits)
- ☒ Confirmation Sampling Analytical Results (if applicable)
- ☐ Waste Material Sampling Analytical Results (required for on-site closure)
- ☐ Disposal Facility Name and Permit Number
- ☒ Soil Backfilling and Cover Installation
- ☒ Re-vegetation Application Rates and Seeding Technique
- ☒ Site Reclamation (Photo Documentation)

On-site Closure Location: Latitude _____ °N _____ Longitude _____ °W _____ NAD: ☐ 1927 ☐ 1983

22.

Operator Closure Certification:

I hereby certify that the information and attachments submitted with this closure report is true, accurate and complete to the best of my knowledge and belief. I also certify that the closure complies with all applicable closure requirements and conditions specified in the approved closure plan.

Name (Print): Kelly G. Roberts Title: Regulatory Technician

Signature: Kelly G. Roberts Date: 12/14/15

e-mail address: Kelly.Roberts@cop.com Telephone: (505) 326-9775

Burlington Resources Oil & Gas Company, LP
San Juan Basin
Below Grade Tank Closure Report

Lease Name: SAN JUAN 27-4 UNIT 116
API No.: 30-039-21007

In accordance with Rule 19.15.17.13 NMAC the following information describes the closure of the below-grade tank referenced above. All proper documentation regarding closure activities is being included with the C-144.

General Plan:

1. BR shall close a below-grade tank within 60 days of cessation of operations per Subsection G.4 of 19.15.17.13 NMAC. This will include a) below-grade tanks that do not meet the requirements of Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC or is not included in Paragraph (5) of Subsection I of 19.15.17.11 NMAC within five years, if not retrofitted to comply with Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC; b) an earlier date that the division requires because of imminent danger to fresh water, public health or the environment. For any closure, BR will file the C144 Closure Report as required.

   The below-grade tank referenced above was permitted and closed within 60 days of cessation of the below-grade tanks operation.

2. BR shall remove liquids and sludge from a below-grade tank prior to implementing a closure method and shall dispose of the liquids and sludge in a division-approved facility. The facilities to be used will be Basin Disposal (Permit #NM-01-005), JFJ Landfarm % Industrial Ecosystem Inc. (Permit # NM-01-0010B) and Envirotech Land Farm (Permit #NM-01-011). The liner after being cleaned well (Subsection D, Paragraph 1, Subparagraph (m) of 19.15.9.712 NMAC) will be disposed of at the San Juan County Regional Landfill located on CR 3100.

   All recovered liquids were disposed of at Basin Disposal (Permit #NM-01-005) and any sludge or soil required to be removed to facilitate closure was hauled to Envirotech Land Farm (Permit #NM-01-011) and JFJ Landfarm % IEI (Permit #NM-01-0010B). The liner was cleaned per Subsection D, Paragraph 1, Subparagraph (m) of 19.15.9.712 NMAC was disposed of at the San Juan County Regional Landfill located on CR 3100.

3. BR will receive prior approval to remove the below-grade tank and dispose of it in a division-approved facility or recycle, reuse, or reclaim it in a manner that the appropriate division district office approves.

   The below-grade tank was disposed of in a division-approved manner.

4. If there is any on-site equipment associated with a below-grade tank, then BR shall remove the equipment, unless the equipment is required for some other purpose.

   All on-site equipment associated with the below-grade tank was removed.

5. BR will test the soils beneath the below-grade tank to determine whether a release has occurred. BR shall collect, at a minimum, a five point, composite sample; collect individual grab samples from any area that is wet, discolored or showing other evidence of a release; and analyzed for the constituents listed in Table I of 19.15.17.13 NMAC. COPC shall notify the division of its results on form C-141.

A five point composite sample was taken of the below-grade tank using sampling tools and all samples tested per Subsection B of 19.15.17.1 3(B)(1)(b). (Sample results attached). Form C-141 is attached.

Components	Tests Method	Limit (mg/kg)
Benzene	EPA SW-846 8021B or 8260B	0.2
BTEX	EPA SW-846 8021B or 8260B	50
TPH	EPA SW-846 418.1	100
Chlorides	EPA 300.0	250

6. If BR or the division determines that a release has occurred, then BR shall comply with 19.15.3.116 NMAC and 19.15.1.19 NMAC, as appropriate.

   A release was determined for the above referenced well.

7. If the sampling program demonstrates that a release has not occurred or that any release does not exceed the concentrations specified in Table I of 19.15.17.13 NMAC, then BR shall backfill the excavation with compacted, non-waste containing, earthen material; construct a division-prescribed soil cover; recontour and re-vegetate the site.

   The below-grade tank area passed all requirements of Paragraph (4) of Subsection E of 19.15.17.13 NMAC and was backfilled with compacted, non-waste containing, earthen material.

8. Notice of Closure will be given prior to closure to the Aztec Division office between 72 hours and one week via email or verbally. The notification of closure will include the following:
   i. Operator's name
   ii. Location by Unit Letter, Section, Township, and Range. Well name and API number.

   Notification of closure was not provided to the Aztec Division office between 72 hours and one week prior to closure.

9. The surface owner shall be notified of BR's closing of the below-grade tank 72 hours, but not more than one week, prior to closure as per the approved closure plan via certified mail, return receipt requested.

   The closure process notification to the landowner was not found.

10. Re-contouring of location will match fit, shape, line, form and texture of the surrounding. Re-shaping will include drainage control, prevent ponding, and prevent erosion. Natural drainages will be unimpeded and water bars and/or silt traps will be place in areas where needed to prevent erosion on a large scale. Final re-contour shall have a uniform appearance with smooth surface, fitting the natural landscape.

    The below-grade tank area was re-contoured to match fit, shape, line, form and texture of the surrounding area. Re-shaping including drainage control, to prevent ponding and erosion. Natural drainages were unimpeded and water bars and/or silt traps were placed in areas where needed to prevent erosion on a large scale. Final recontour has a uniform appearance with smooth surface, fitting the natural landscape.

11. BR shall seed the disturbed areas the first favorable growing season following closure of a below-grade tank. Seeding will be accomplished via drilling on the contour whenever practical or by other division-approved methods. BLM stipulated seed mixes will used on federally regulated lands and division-approved seed mixtures (administratively approved if required) will be utilized on all State or private lands. A uniform vegetative cover has been established that reflects a life-form ratio of plus or minus fifty percent (50%) of pre- disturbance levels and a total percent plant cover of at least seventy percent (70%) of pre-disturbance levels, excluding noxious weeds. If alternate seed mix is required by the state, private owner or tribe, it will be implemented with administrative approval if needed. COPC will repeat seeding or planting will be continued until successful vegetative growth occurs.

Provision 13 was accomplished through complying with BLM seeding requirements as allowed by the BLM/OCD MOU.

12. A minimum of four feet of cover shall be achieved and the cover shall include one foot of suitable material, with chloride concentrations less than 600 mg/kg as analyzed by EPA Method 300.0, to establish vegetation at the site, or the background thickness of topsoil, whichever is greater.

    The below-grade tank area was backfilled and more than four feet of cover was achieved and the cover included one foot of suitable material to establish vegetation at the site.

13. All closure activities will include proper documentation and be available for review upon request and will be submitted to OCD within 60 days of closure of the below-grade tank. Closure report will be filed on C-144 and incorporate the following:
    - Soil Backfilling and Cover Installation **(See Report)**
    - Re-vegetation application rates and seeding techniques **(See Report)**
    - Photo documentation of the site reclamation **(Included as an attachment)**
    - Confirmation Sampling Results **(Included as an attachment)**
    - Proof of closure notice **(Included as an attachment)**

OIL CONS. DIV DIST. 3

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

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

SEP 28 2015

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company **Burlington Resources, a Wholly Owned Subsidiary of ConocoPhillips Company**	Contact **Lisa Hunter**
Address **3401 East 30th St, Farmington, NM**	Telephone No. **(505) 326-9786**
Facility Name: **San Juan 27-4 Unit 116**	Facility Type: **Gas Well**

Surface Owner **Forest**	Mineral Owner **Federal**	API No. **3003921007**

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
I	**32**	**27N**	**04W**	**1680**	**South**	**840**	**East**	**Rio Arriba**

Latitude 36.52750 Longitude -107.26835

NATURE OF RELEASE

Type of Release **Unknown - Historic**	Volume of Release **Unknown**	Volume Recovered **60 c yds**
Source of Release **Below Grade Tank (BGT)**	Date and Hour of Occurrence **Unknown**	Date and Hour of Discovery **06/15/15**
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? **N/A**	
By Whom? **N/A**	Date and Hour **N/A**	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. **N/A**	

If a Watercourse was Impacted, Describe Fully.*
N/A

Describe Cause of Problem and Remedial Action Taken.*
Below-Grade Tank Closure activities with samples taken resulting in constituents exceeded standards outlined by 19.15.17.13 NMAC. Historic contamination found.

Describe Area Affected and Cleanup Action Taken.*
NMOCD action levels for releases are specified in NMOCD's Guidelines for Leaks, Spills and Releases and the release was assigned a ranking score of 10. Historic hydrocarbon impacted soil was discovered during BGT closure sampling. Excavation measured approximately 23' X 21' x 3 (to 4.5') in depth, and approximately 60 cubic yards of soil transported to IEI land farm. The final report is attached for review.

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

Signature:	OIL CONSERVATION DIVISION
Printed Name: **Lisa Hunter**	Approved by Environmental Specialist:
Title: **Field Environmental Specialist**	Approval Date: 11/9/15 Expiration Date:
E-mail Address: **Lisa.Hunter@cop.com**	Conditions of Approval: Attached ☐
Date: **September 22, 2015** Phone: **(505) 326-9786**	

* Attach Additional Sheets If Necessary

#NCS 15 3133 7976

3

Rule Engineering, LLC
Solutions to Regulations for Industry

September 18, 2015

Ms. Lisa Hunter
ConocoPhillips
San Juan Business Unit
5525 Highway 64
Farmington, New Mexico 87401

Re: San Juan 27-4 Unit 116
Below Grade Tank Closure Sampling and Release Report

Dear Ms. Hunter:

This report summarizes below grade tank (BGT) closure sampling and remedial activities conducted at the ConocoPhillips San Juan 27-4 Unit 116, located in Unit Letter I, Section 32, Township 27N, Range 4W in Rio Arriba County, New Mexico. Site activities included collection and analysis of a 5-point composite soil closure sample from beneath the BGT, excavation of hydrocarbon impacted soils, and collection and analysis of excavation confirmation samples on June 24, 2015. A topographic map of the location is included as Figure 1 and an aerial site map is included as Figure 2.

BGT /Release Summary
Site Name – San Juan 27-4 Unit 116
Location – Unit Letter I, Section 32, Township 27N, Range 4W
API Number – 30-039-21007
Monument Latitude/Longitude – N36.52746 and W107.26829
BGT Latitude/Longitude – N36.52750 and W107.26835
Land Jurisdiction – Forest Service
Size of BGT – 120 barrels
Source of Release – historic (beneath the BGT)
Release Contents –unknown
Release Volume – unknown
Site Ranking – 10
Date of BGT Closure Soil Sampling – June 24, 2015
Date(s) of Rule Engineering, LLC (Rule) Field Work –June 24, 2015
Subcontractor(s) – M & M Trucking (MMT)
Amount of Contaminated Soil Excavated/Disposed – estimated 60 cubic yards

BGT Closure Standards
As outlined in 19.15.17.13 New Mexico Administrative Code (NMAC), BGT closure standards for the San Juan 27-4 Unit 116 are as follows: 0.2 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).

Site Ranking
In accordance with New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills, and Releases (August 1993), this site was assigned a ranking score of 10 (Table 1). Based on the ranking score of 10, action levels for remediated soils at the site are as follows: 10 mg/kg benzene, 50 mg/kg total BTEX, and 1,000 mg/kg TPH.

Depth to groundwater at the site was estimated to be 110 feet below ground surface (bgs) based on the elevation differential (100 feet) between the release location and the wash in Jaramillo Canyon.

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. Water well SJ 01205 is located approximately 2.5 miles from the location and has recorded depth to water of 750 feet bgs.

The nearest surface water, an unnamed wash which drains to Jaramillo Canyon is located approximately 280 feet west of the BGT.

Field Activities
On June 24, 2015, Rule personnel conducted a visual inspection for surface/subsurface indications of a release. Soil discoloration and hydrocarbon odor was observed, indicating a release had occurred below the BGT. Rule personnel then collected five soil samples (S-1 through S-5) from 0.5 feet beneath the BGT liner. The field work summary sheet is attached.

On the same day, MMT excavated the petroleum impacted materials from below the BGT. Rule personnel provided excavation oversight and conducted field screening activities during remediation activities. On June 24, 2015, based on visual observation and field screening results, the excavation was halted, and Rule personnel collected five confirmation samples (SC-1 through SC-5) from the sidewalls and base of the excavation. Approximately 60 cubic yards of impacted soils were removed from an area of excavation measuring approximately 23 feet x 21 feet x 3 (to 4.5) feet in depth. Figure 3 provides the locations and results of the soil samples collected during the excavation clearance.

BGT Soil Sampling
The five soil samples (S-1 through S-5) collected from below the BGT liner were combined to create soil confirmation sample SC-1 BGT. A portion of SC-1 BGT was field screened for volatile organic compounds (VOCs) and chlorides, and field analyzed for TPH per U.S. Environmental Protection Agency (USEPA) Method 418.1.

The portion of SC-1 BGT collected for laboratory analysis was placed into laboratory supplied glassware, labeled, and maintained on ice until delivery to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico. The sample was analyzed for BTEX per USEPA Method 8021B, TPH per USEPA Method 418.1, and chlorides per USEPA Method 300.0.

Field sampling results for closure sample SC-1 BGT reported VOCs at 1,877 parts per million (ppm) and TPH concentrations at 374 mg/kg. Field chloride concentrations were reported at 80 mg/kg. Laboratory analytical results for sample SC-1 BGT reported benzene and total BTEX concentrations as 0.18 mg/kg and 6.9 mg/kg, respectively. Laboratory analytical results for SC-1 BGT reported concentrations of 400 mg/kg TPH and 3.2 mg/kg chloride. Field and laboratory results for SC-1 BGT are summarized in Table 2, and the analytical laboratory report is attached.

Excavation Soil Sampling

From the excavation, Rule collected five confirmation soil samples (SC-1 through SC-5) from the sidewalls and base. Each soil sample was collected as a composite of sub-samples from within the sample locations. A portion of each composite soil sample was field screened for VOCs and field analyzed for TPH per USEPA Method 418.1.

Soil samples collected for laboratory analysis were placed into laboratory supplied glassware, labeled, and maintained on ice until delivery to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico. All samples were analyzed for BTEX per USEPA Method 8021B and TPH as gasoline range organics (GRO) and diesel range organics (DRO) per USEPA Method 8015D.

Field results for soil confirmation samples reported VOC concentrations below the NMOCD action levels of 100 ppm in all samples, except SC-5 with 1,221 ppm. Samples SC-1 through SC-5 had TPH concentrations below the NMOCD action levels of 1,000 mg/kg. Laboratory analytical results for soil confirmation samples SC-1 through SC-5 reported benzene, total BTEX, and TPH (GRO/DRO) concentrations below the applicable NMOCD action levels. Field sampling and laboratory analytical results are summarized in Table 3 and presented on Figure 3. The analytical laboratory report is attached.

Conclusions

On June 24, 2015, BGT closure sampling activities were conducted at the ConocoPhillips San Juan 27-4 Unit 116. Field and laboratory results for sample SC-1 BGT were reported below the BGT closure standards for benzene, total BTEX, and chlorides as outlined in 19.15.17.13.NMAC, but exceeded the BGT closure standard of 100 mg/kg for TPH. Based on field screening results, a release occurred below the former BGT.

On June 24, 2015, approximately 60 cubic yards of hydrocarbon contaminated soils were removed from within the impacted area. The final excavation measured approximately 23 feet x 21 feet x 3 (to 4.5) feet in depth. Five confirmation soil samples were collected from the sidewalls and base of the final excavation on June 24, 2015.

Field VOCs from the excavation were reported below the NMOCD action level of 100 ppm in all samples, except SC-5 with 1,221 ppm. Laboratory analytical results for soil confirmation samples (SC-1 through SC-5) reported benzene and total BTEX concentrations below the NMOCD action levels of 10 mg/kg and 50 mg/kg, respectively. All soil confirmation samples reported field and laboratory TPH concentrations below the NMOCD action level of 1,000 mg/kg. Based on laboratory analytical results, no further work is recommended.

Rule Engineering appreciates the opportunity to provide services to ConocoPhillips. If you have any questions, please contact me at (505) 325-1055.

Sincerely,
Rule Engineering, LLC

Heather M. Woods

Heather M. Woods, P.G.

Attachments:
Table 1. NMOCD Site Ranking Determination
Table 2. BGT Soil Sampling Results
Table 3. Excavation Soil Sampling Results
Figure 1. Topographic Map
Figure 2. Aerial Site Map
Figure 3. Excavation Clearance Soil Analytical Map
BGT Field Work Summary Sheet
Analytical Laboratory Reports (#1506C09 and #1506C10)

Table 1. NMOCD Site Ranking Determination
San Juan 27-4 Unit 116
Rio Arriba County, New Mexico
ConocoPhillips

Ranking Criteria	Ranking Score	Site-Based Ranking Score	Basis for Determination	Data Sources
Depth to Groundwater				
<50 feet	20	0	Elevation differential between location and wash in Jaramillo Canyon northwest of the location is 110 feet.	NMOCD Online database, Vigas Canyon 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. Honolulu Tank is located 1,230 feet north of the location. Water well SJ 01205 is located approximately 2.5 miles southeat of the location and reports a depth to groundwater at 750 feet.	NMOSE NMWRRS, Vigas Canyon Quadrangle, Google Earth, and Visual Inspection
	0 (No)			
Distance to Surface Water Body				
<200 horizontal feet	20	10	An unnamed, ephemeral wash which drains north to the wash in Jaramillo Canyon is located approximately 280 feet west of the BGT.	Vigas Canyon Quadrangle, Google Earth, and Visual Inspection
200 to 1,000 horizontal feet	10			
>1,000 horizontal feet	0			
Site Based Total Ranking Score		**10**		

Table 2. BGT Soil Sampling Results
San Juan 27-4 Unit 116
Rio Arriba County, New Mexico
ConocoPhillips

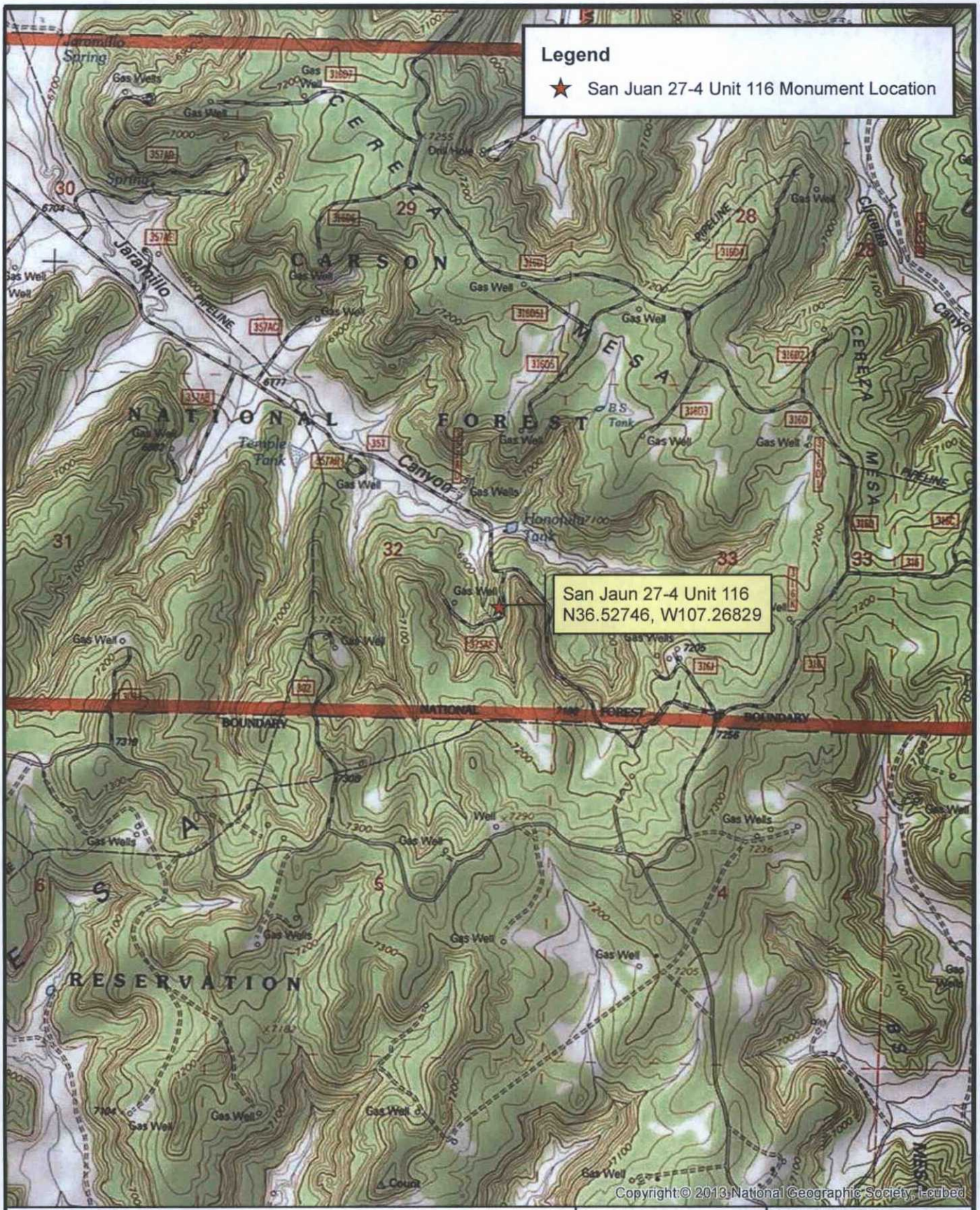
Sample ID	Date	Sample Type	Sample Depth (ft below BGT)	Field Sampling Results			Laboratory Analytical Results			
				VOCs (PID) (ppm)	TPH (mg/kg)	Chloride (mg/kg)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
BGT Closure Standards*				**----**	**100**	**250**	**0.2**	**50**	**100**	**250**
SC-1 BGT	Jun 24, 15	composite	0.5	**1,877**	**374**	80	0.18	6.9	**400**	3.2

Notes: PID - photo-ionization detector
ppm - parts per million
mg/kg - milligrams/kilograms
VOCs - volatile organic compounds
TPH-total petroleum hydrocarbons per USEPA Method 418.1
BTEX - benzene, toluene, ethylbenzene, and total xylenes
*19.15.17.13 NMAC

Table 3. Excavation Soil Sampling Results
San Juan 27-4 Unit 116
Rio Arriba County, New Mexico
ConocoPhillips

Sample ID	Date	Location	Sample Depth (ft bgs)	VOCs* (PID) (ppm)	TPH* (418.1) (mg/kg)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)
EPO/NMOCD Action Levels**				**100**	**1,000**	**10**	**50**	**1,000**	
SC-1	Jun 24, 15	North Wall	0 to 4.5	48.0	45.7	<0.049	<0.246	<4.9	<9.6
SC-2	Jun 24, 15	South Wall	0 to 3.0	59.6	76.7	<0.050	<0.249	<5.0	<9.6
SC-3	Jun 24, 15	East Wall	0 to 3.5	50.6	56.0	<0.049	<0.244	<4.9	24
SC-4	Jun 24, 15	West Wall	0 to 4.5	2.6	53.4	<0.049	<0.245	<4.9	<9.6
SC-5	Jun 24, 15	Base	3.0 (to 4.5)	**1,221**	486	0.16	2.2	260	110

Notes:
* field results
ft bgs - feet below ground surface
VOCs - volatile organic compounds
PID - photo-ionization detector
ppm - parts per million
mg/kg - milligrams/kilograms
TPH-total petroleum hydrocarbons
BTEX - benzene, toluene, ethylbenzene, and xylenes
TPH-GRO - total petroleum hydrocarbons-gasoline range organics
TPH-DRO - total petroleum hydrocarbons-diesel range organics



Rule Engineering, LLC
Solutions to Regulations for Industry

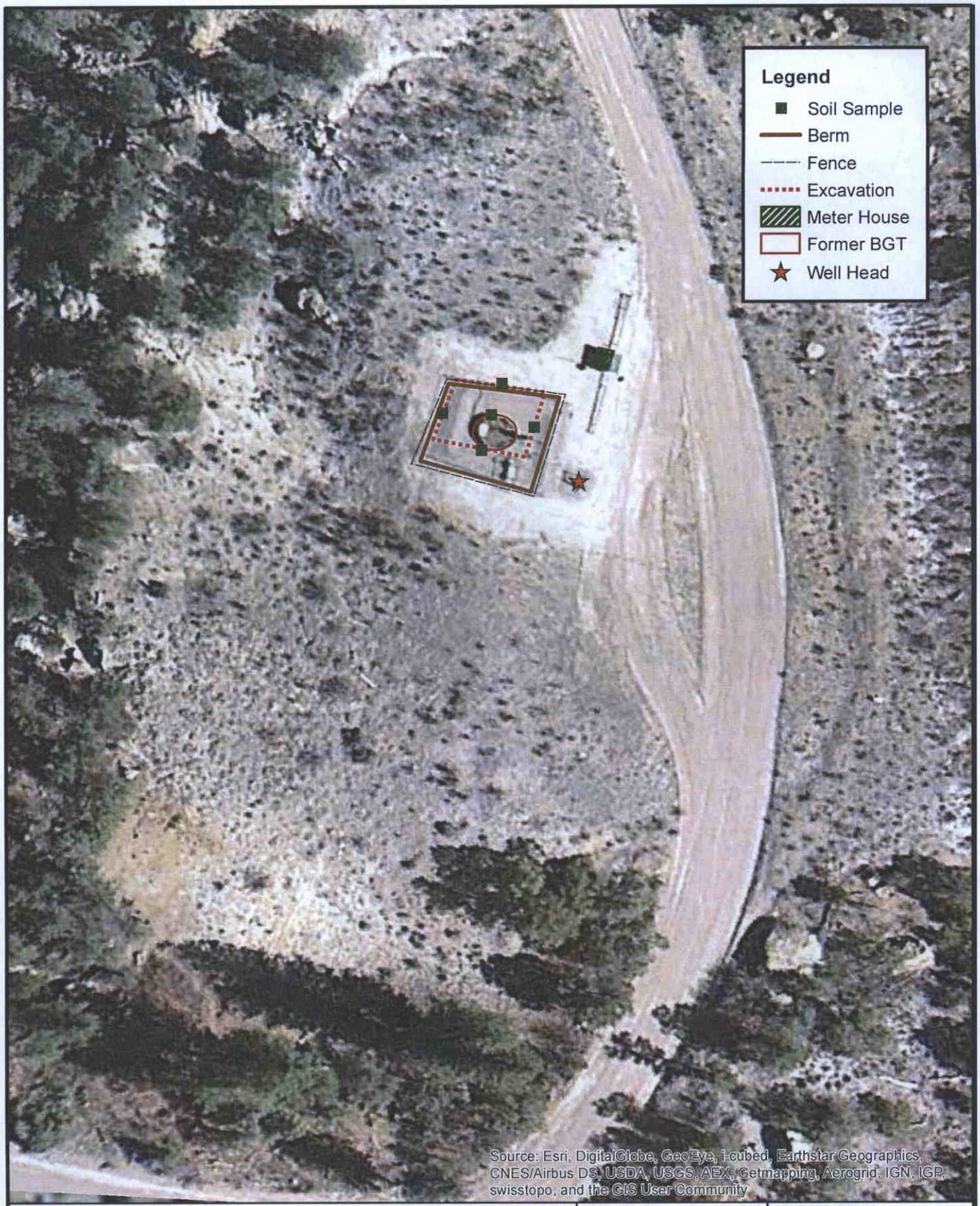
0 1,000 2,000 3,000 4,000 Feet

N

Location
I-32-T27N-R4W
N36.52746, W107.26829
Rio Arriba County, New Mexico

Topographic Map
ConocoPhillips
San Juan 27-4 Unit 116

Date: 9/18/2015 | File: 150729 San Juan 27-4 Unit 116 Topo Map | Figure: 1



Rule Engineering, LLC
Solutions to Regulations for Industry

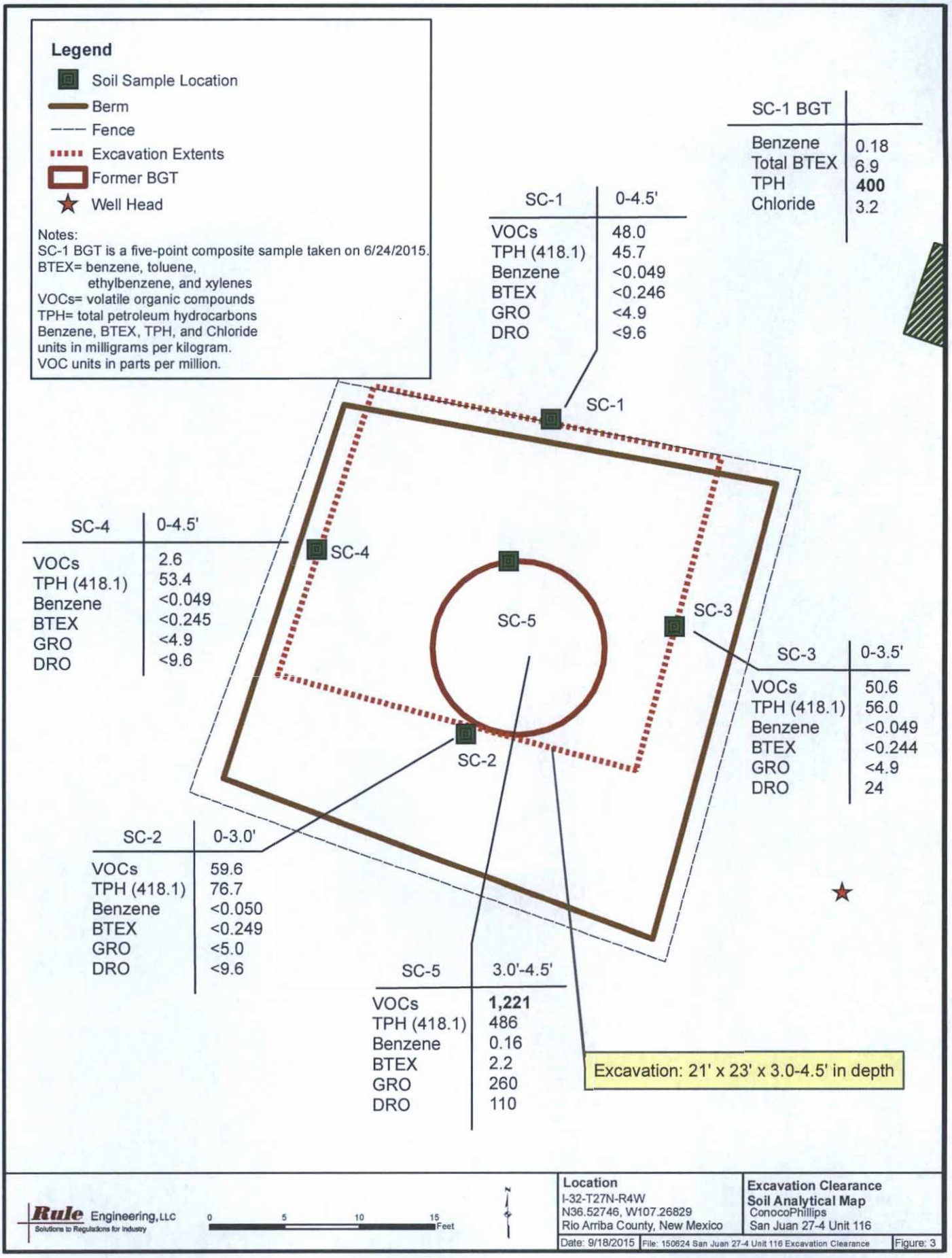
0 20 40 60 80 Feet

N

Location
I-32-T27N-R4W
N36.52746, W107.26829
Rio Arriba County, New Mexico

Aerial Site Map
ConocoPhillips
San Juan 27-4 Unit 116

Date: 9/18/2015 | File: 150729 San Juan 27-4 Unit 116 Aerial Map | Figure: 2


Legend
Soil Sample Location
Berm
Fence
Excavation Extents
Former BGT
Well Head
Notes:
SC-1 BGT is a five-point composite sample taken on 6/24/2015.
BTEX= benzene, toluene, ethylbenzene, and xylenes
VOCs= volatile organic compounds
TPH= total petroleum hydrocarbons
Benzene, BTEX, TPH, and Chloride units in milligrams per kilogram.
VOC units in parts per million.
SC-1 BGT
Benzene 0.18
Total BTEX 6.9
TPH 400
Chloride 3.2
SC-1 0-4.5'
VOCs 48.0
TPH (418.1) 45.7
Benzene <0.049
BTEX <0.246
GRO <4.9
DRO <9.6
SC-1
SC-4 0-4.5'
VOCs 2.6
TPH (418.1) 53.4
Benzene <0.049
BTEX <0.245
GRO <4.9
DRO <9.6
SC-4
SC-5
SC-3
SC-3 0-3.5'
VOCs 50.6
TPH (418.1) 56.0
Benzene <0.049
BTEX <0.244
GRO <4.9
DRO 24
SC-2
SC-2 0-3.0'
VOCs 59.6
TPH (418.1) 76.7
Benzene <0.050
BTEX <0.249
GRO <5.0
DRO <9.6
SC-5 3.0'-4.5'
VOCs 1,221
TPH (418.1) 486
Benzene 0.16
BTEX 2.2
GRO 260
DRO 110
Excavation: 21' x 23' x 3.0-4.5' in depth
Rule Engineering, LLC
Solutions to Regulations for Industry
0 5 10 15 Feet
N
Location
I-32-T27N-R4W
N36.52746, W107.26829
Rio Arriba County, New Mexico
Excavation Clearance
Soil Analytical Map
ConocoPhillips
San Juan 27-4 Unit 116
Date: 9/18/2015
File: 150624 San Juan 27-4 Unit 116 Excavation Clearance
Figure: 3

Rule Engineering Field Work Summary Sheet

Date:	24-Jun-15
Staff:	Debbie Watson

Company:	ConocoPhillips
Location:	San Juan 27-4 Unit 116
API:	30-039-21007
Legals:	I-S32-T27N-R4W
County:	Rio Arriba
Land Jurisdiction:	Forest Service

Monument GPS: 36.52746, -107.26829

BGT GPS: 36.52750, -107.26835

Siting Information based on BGT Location: Site Rank 10

Groundwater: Elevation differential location and wash in Jaramillo Canyon (>100 ft)

Surface Water: Unnamed wash located 280 feet west of BGT

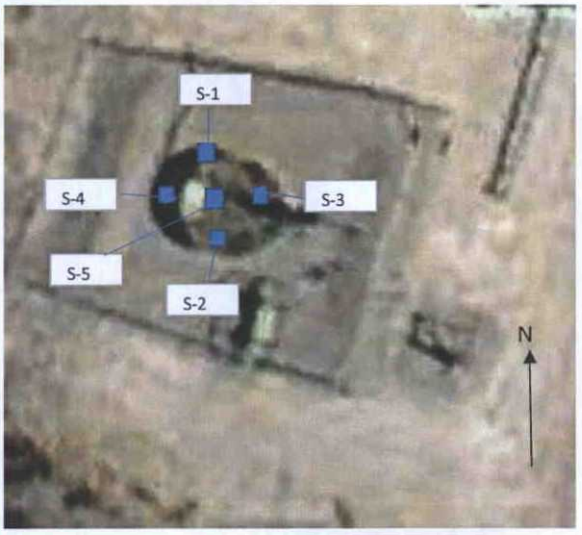
Wellhead Protection: No water source or recorded water well within 1,000 foot radius

Objective:	Closure sampling for BGT
Tank Size:	No tank, removed in December
Liner:	Not in place.
Observations:	Staining and hydrocarbon odor.
Notes:	Following BGT sampling , excavation of impacted soils .

Field Sampling Information

Name	Type of Sample	Collection Time	Collection Location	VOCs[1] (ppm)	VOCs time	TPH[2] mg/kg	TPH Time	Chloride[3] mg/kg	Chloride Time
SC-1	composite	9:45	see below	**1877**	10:05	**374**	10:18	80	10:23

SC-1 is a 5-point composite of S-1 through S-5, collected 0.5 ft below tank liner.
Sample SC-1 was laboratory analyzed for TPH (418.1), BTEX (8021) and chlorides (300.0).



Field Sampling Notes:

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

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

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

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HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

July 02, 2015

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

RE: San Juan 27-4 #116 OrderNo.: 1506C09

Dear Deborah Watson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 6/25/2015 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Case Narrative

WO#: **1506C09**
Date: **7/2/2015**

CLIENT: Rule Engineering LLC
Project: San Juan 27-4 #116

Analytical Comments for 8021BTEX_S, Sample 1506C09-001A, Batch ID 19955 : Surrogate "S" flag due to matrix interference.

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Client Sample ID: SC-1 BGT
Project: San Juan 27-4 #116
Collection Date: 6/24/2015 9:45:00 AM
Lab ID: 1506C09-001
Matrix: SOIL
Received Date: 6/25/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst: **TOM**	
Petroleum Hydrocarbons, TR	400	20		mg/Kg	1	6/26/2015	19964
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	3.2	1.5		mg/Kg	1	7/1/2015 6:38:33 PM	20057
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	0.18	0.049		mg/Kg	1	6/28/2015 10:27:17 AM	19955
Toluene	0.40	0.049		mg/Kg	1	6/28/2015 10:27:17 AM	19955
Ethylbenzene	1.1	0.049		mg/Kg	1	6/28/2015 10:27:17 AM	19955
Xylenes, Total	5.2	0.097		mg/Kg	1	6/28/2015 10:27:17 AM	19955
Surr: 4-Bromofluorobenzene	262	80-120	S	%REC	1	6/28/2015 10:27:17 AM	19955

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1506C09**

02-Jul-15

Client: Rule Engineering LLC

Project: San Juan 27-4 #116

Sample ID **MB-20057**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **20057**	RunNo: **27235**
Prep Date: **7/1/2015**	Analysis Date: **7/1/2015**	SeqNo: **815813** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID **LCS-20057**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **20057**	RunNo: **27235**
Prep Date: **7/1/2015**	Analysis Date: **7/1/2015**	SeqNo: **815814** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.2	90	110			

Sample ID **1506C09-001AMS**	SampType: **MS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **SC-1 BGT**	Batch ID: **20057**	RunNo: **27235**
Prep Date: **7/1/2015**	Analysis Date: **7/1/2015**	SeqNo: **815828** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	17	1.5	15.00	3.154	95.2	64.2	131			

Sample ID **1506C09-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 300.0: Anions**
Client ID: **SC-1 BGT**	Batch ID: **20057**	RunNo: **27235**
Prep Date: **7/1/2015**	Analysis Date: **7/1/2015**	SeqNo: **815829** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	18	1.5	15.00	3.154	95.7	64.2	131	0.433	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1506C09**

02-Jul-15

Client: Rule Engineering LLC

Project: San Juan 27-4 #116

Sample ID **MB-19964**	SampType: **MBLK**			TestCode: **EPA Method 418.1: TPH**					
Client ID: **PBS**	Batch ID: **19964**			RunNo: **27121**					
Prep Date: **6/26/2015**	Analysis Date: **6/26/2015**			SeqNo: **811099**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	ND	20								

Sample ID **LCS-19964**	SampType: **LCS**			TestCode: **EPA Method 418.1: TPH**					
Client ID: **LCSS**	Batch ID: **19964**			RunNo: **27121**					
Prep Date: **6/26/2015**	Analysis Date: **6/26/2015**			SeqNo: **811100**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	100	20	100.0	0	100	86.7	126			

Sample ID **LCSD-19964**	SampType: **LCSD**			TestCode: **EPA Method 418.1: TPH**					
Client ID: **LCSS02**	Batch ID: **19964**			RunNo: **27121**					
Prep Date: **6/26/2015**	Analysis Date: **6/26/2015**			SeqNo: **811101**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	100	20	100.0	0	105	86.7	126	4.11	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1506C09**

02-Jul-15

Client: Rule Engineering LLC

Project: San Juan 27-4 #116

Sample ID **MB-19955**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **19955**	RunNo: **27134**
Prep Date: **6/25/2015**	Analysis Date: **6/28/2015**	SeqNo: **811812** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.91		1.000		90.6	80	120			

Sample ID **LCS-19955**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **19955**	RunNo: **27134**
Prep Date: **6/25/2015**	Analysis Date: **6/28/2015**	SeqNo: **811813** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.050	1.000	0	106	76.6	128			
Toluene	1.1	0.050	1.000	0	105	75	124			
Ethylbenzene	1.1	0.050	1.000	0	107	79.5	126			
Xylenes, Total	3.2	0.10	3.000	0	105	78.8	124			
Surr: 4-Bromofluorobenzene	0.95		1.000		95.4	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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: 1506C09 RcptNo: 1

Received by/date: CM 06/25/15

Logged By: Anne Thorne 6/25/2015 7:00:00 AM Anne Thorne

Completed By: Anne Thorne 6/25/2015 Anne Thorne

Reviewed By: JA 06/25/15

Chain of Custody

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

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° 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 ☑	# of preserved bottles checked for pH: (<2 or >12 unless noted)
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 ☐	Adjusted?
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by:

Special Handling (if applicable)

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

Person Notified: Date

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

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.3	Good	Yes			

Chain-of-Custody Record

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Client: Rule Engineering

Mailing Address: 501 Airport Drive Suite 205 Farmington NM 87401

Phone #: 505 860 2712

Email or Fax#:

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

Accreditation ☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time: ☒ Standard ☐ Rush

Project Name: San Juan 27-4 #116

Project #:

Project Manager: D. Watson

Sampler: D Watson

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.3

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1506C09	BTEX + ~~MTBE~~ + Anions (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)	300.0 chlorides				Air Bubbles (Y or N)
4/24/15	0945	soil	SC-1 BGT	4oz	cold	-001	X			X								X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
4/24/15	1515	Debra Walter	Christine Walters	4/24/14	1515
4/24/15	1810	Christine Walters		04/25/15	0700

Remarks: Bill to ConocoPhillips
WO: A72889 Supervisor: Mike Smith
User: KGARCIA ordered by: Jerell Bassett
act code: D2160

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

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

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

July 06, 2015

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

RE: San Juan 27-4 #116 OrderNo.: 1506C10

Dear Deborah Watson:

Hall Environmental Analysis Laboratory received 5 sample(s) on 6/25/2015 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1506C10**
Date Reported: **7/6/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Client Sample ID: SC-1
Project: San Juan 27-4 #116
Collection Date: 6/24/2015 10:30:00 AM
Lab ID: 1506C10-001
Matrix: SOIL
Received Date: 6/25/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	6/30/2015 10:43:40 AM	19961
Surr: DNOP	97.7	57.9-140		%REC	1	6/30/2015 10:43:40 AM	19961
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/28/2015 11:24:43 AM	19955
Surr: BFB	89.8	75.4-113		%REC	1	6/28/2015 11:24:43 AM	19955
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.049		mg/Kg	1	6/28/2015 11:24:43 AM	19955
Toluene	ND	0.049		mg/Kg	1	6/28/2015 11:24:43 AM	19955
Ethylbenzene	ND	0.049		mg/Kg	1	6/28/2015 11:24:43 AM	19955
Xylenes, Total	ND	0.099		mg/Kg	1	6/28/2015 11:24:43 AM	19955
Surr: 4-Bromofluorobenzene	89.9	80-120		%REC	1	6/28/2015 11:24:43 AM	19955

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Client Sample ID: SC-2
Project: San Juan 27-4 #116
Collection Date: 6/24/2015 10:32:00 AM
Lab ID: 1506C10-002 **Matrix:** SOIL **Received Date:** 6/25/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	6/30/2015 11:04:50 AM	19961
Surr: DNOP	93.0	57.9-140		%REC	1	6/30/2015 11:04:50 AM	19961
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/28/2015 12:51:06 PM	19955
Surr: BFB	88.4	75.4-113		%REC	1	6/28/2015 12:51:06 PM	19955
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.050		mg/Kg	1	6/28/2015 12:51:06 PM	19955
Toluene	ND	0.050		mg/Kg	1	6/28/2015 12:51:06 PM	19955
Ethylbenzene	ND	0.050		mg/Kg	1	6/28/2015 12:51:06 PM	19955
Xylenes, Total	ND	0.099		mg/Kg	1	6/28/2015 12:51:06 PM	19955
Surr: 4-Bromofluorobenzene	88.6	80-120		%REC	1	6/28/2015 12:51:06 PM	19955

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Client Sample ID: SC-3
Project: San Juan 27-4 #116
Collection Date: 6/24/2015 11:30:00 AM
Lab ID: 1506C10-003 **Matrix:** SOIL **Received Date:** 6/25/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	24	10		mg/Kg	1	6/30/2015 11:26:07 AM	19961
Surr: DNOP	94.1	57.9-140		%REC	1	6/30/2015 11:26:07 AM	19961
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/28/2015 2:17:19 PM	19955
Surr: BFB	96.4	75.4-113		%REC	1	6/28/2015 2:17:19 PM	19955
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.049		mg/Kg	1	6/28/2015 2:17:19 PM	19955
Toluene	ND	0.049		mg/Kg	1	6/28/2015 2:17:19 PM	19955
Ethylbenzene	ND	0.049		mg/Kg	1	6/28/2015 2:17:19 PM	19955
Xylenes, Total	ND	0.097		mg/Kg	1	6/28/2015 2:17:19 PM	19955
Surr: 4-Bromofluorobenzene	94.0	80-120		%REC	1	6/28/2015 2:17:19 PM	19955

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Project: San Juan 27-4 #116
Lab ID: 1506C10-004 **Matrix:** SOIL

Client Sample ID: SC-4
Collection Date: 6/24/2015 10:40:00 AM
Received Date: 6/25/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	6/30/2015 8:28:31 AM	19961
Surr: DNOP	100	57.9-140		%REC	1	6/30/2015 8:28:31 AM	19961
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/28/2015 2:46:03 PM	19955
Surr: BFB	87.0	75.4-113		%REC	1	6/28/2015 2:46:03 PM	19955
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.049		mg/Kg	1	6/28/2015 2:46:03 PM	19955
Toluene	ND	0.049		mg/Kg	1	6/28/2015 2:46:03 PM	19955
Ethylbenzene	ND	0.049		mg/Kg	1	6/28/2015 2:46:03 PM	19955
Xylenes, Total	ND	0.098		mg/Kg	1	6/28/2015 2:46:03 PM	19955
Surr: 4-Bromofluorobenzene	90.4	80-120		%REC	1	6/28/2015 2:46:03 PM	19955

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC
Client Sample ID: SC-5
Project: San Juan 27-4 #116
Collection Date: 6/24/2015 9:45:00 AM
Lab ID: 1506C10-005 **Matrix:** SOIL **Received Date:** 6/25/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	110	9.9		mg/Kg	1	6/30/2015 8:49:41 AM	19961
Surr: DNOP	109	57.9-140		%REC	1	6/30/2015 8:49:41 AM	19961
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	260	99		mg/Kg	20	6/30/2015 1:01:21 AM	19955
Surr: BFB	106	75.4-113		%REC	20	6/30/2015 1:01:21 AM	19955
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	0.16	0.049		mg/Kg	1	6/28/2015 3:14:47 PM	19955
Toluene	0.14	0.049		mg/Kg	1	6/28/2015 3:14:47 PM	19955
Ethylbenzene	ND	0.049		mg/Kg	1	6/28/2015 3:14:47 PM	19955
Xylenes, Total	1.9	0.099		mg/Kg	1	6/28/2015 3:14:47 PM	19955
Surr: 4-Bromofluorobenzene	209	80-120	S	%REC	1	6/28/2015 3:14:47 PM	19955

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1506C10**

06-Jul-15

Client: Rule Engineering LLC

Project: San Juan 27-4 #116

Sample ID **MB-19961** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **PBS** Batch ID: **19961** RunNo: **27167**

Prep Date: **6/26/2015** Analysis Date: **6/29/2015** SeqNo: **813096** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Surr: DNOP	37		10.00		371	57.9	140			S

Sample ID **LCS-19961** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **LCSS** Batch ID: **19961** RunNo: **27167**

Prep Date: **6/26/2015** Analysis Date: **6/29/2015** SeqNo: **813097** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	90.7	57.4	139			
Surr: DNOP	4.2		5.000		83.9	57.9	140			

Sample ID **LCS-19990** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **LCSS** Batch ID: **19990** RunNo: **27168**

Prep Date: **6/29/2015** Analysis Date: **6/30/2015** SeqNo: **813710** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.5		5.000		109	57.9	140			

Sample ID **MB-19990** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **PBS** Batch ID: **19990** RunNo: **27182**

Prep Date: **6/29/2015** Analysis Date: **7/1/2015** SeqNo: **815505** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.7		10.00		87.1	57.9	140			

Sample ID **MB-20028** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **PBS** Batch ID: **20028** RunNo: **27182**

Prep Date: **6/30/2015** Analysis Date: **7/2/2015** SeqNo: **816327** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	10		10.00		101	57.9	140			

Sample ID **LCS-20028** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **LCSS** Batch ID: **20028** RunNo: **27182**

Prep Date: **6/30/2015** Analysis Date: **7/2/2015** SeqNo: **816328** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	6.1		5.000		121	57.9	140			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1506C10**

06-Jul-15

Client: Rule Engineering LLC

Project: San Juan 27-4 #116

Sample ID **MB-19955**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **19955**	RunNo: **27134**
Prep Date: **6/25/2015**	Analysis Date: **6/28/2015**	SeqNo: **811777** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	860		1000		86.4	75.4	113			

Sample ID **LCS-19955**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **19955**	RunNo: **27134**
Prep Date: **6/25/2015**	Analysis Date: **6/28/2015**	SeqNo: **811779** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	102	64	130			
Surr: BFB	920		1000		91.7	75.4	113			

Sample ID **1506C10-002AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SC-2**	Batch ID: **19955**	RunNo: **27134**
Prep Date: **6/25/2015**	Analysis Date: **6/28/2015**	SeqNo: **811783** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	24.93	0	105	47.9	144			
Surr: BFB	970		997.0		97.1	75.4	113			

Sample ID **1506C10-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SC-2**	Batch ID: **19955**	RunNo: **27134**
Prep Date: **6/25/2015**	Analysis Date: **6/28/2015**	SeqNo: **811785** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	24.98	0	100	47.9	144	5.06	29.9	
Surr: BFB	950		999.0		95.0	75.4	113	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1506C10**

06-Jul-15

Client: Rule Engineering LLC

Project: San Juan 27-4 #116

Sample ID **MB-19955**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **19955**	RunNo: **27134**
Prep Date: **6/25/2015**	Analysis Date: **6/28/2015**	SeqNo: **811812** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.91		1.000		90.6	80	120			

Sample ID **LCS-19955**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **19955**	RunNo: **27134**
Prep Date: **6/25/2015**	Analysis Date: **6/28/2015**	SeqNo: **811813** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.050	1.000	0	106	76.6	128			
Toluene	1.1	0.050	1.000	0	105	75	124			
Ethylbenzene	1.1	0.050	1.000	0	107	79.5	126			
Xylenes, Total	3.2	0.10	3.000	0	105	78.8	124			
Surr: 4-Bromofluorobenzene	0.95		1.000		95.4	80	120			

Sample ID **1506C10-001AMS**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **SC-1**	Batch ID: **19955**	RunNo: **27134**
Prep Date: **6/25/2015**	Analysis Date: **6/28/2015**	SeqNo: **811816** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.050	0.9980	0	101	69.2	126			
Toluene	1.0	0.050	0.9980	0.01047	102	65.6	128			
Ethylbenzene	1.1	0.050	0.9980	0.008000	104	65.5	138			
Xylenes, Total	3.1	0.10	2.994	0	104	63	139			
Surr: 4-Bromofluorobenzene	0.98		0.9980		97.9	80	120			

Sample ID **1506C10-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **SC-1**	Batch ID: **19955**	RunNo: **27134**
Prep Date: **6/25/2015**	Analysis Date: **6/28/2015**	SeqNo: **811817** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.050	0.9901	0	101	69.2	126	0.999	18.5	
Toluene	0.98	0.050	0.9901	0.01047	97.8	65.6	128	4.44	20.6	
Ethylbenzene	1.0	0.050	0.9901	0.008000	102	65.5	138	2.72	20.1	
Xylenes, Total	3.0	0.099	2.970	0	102	63	139	2.85	21.1	
Surr: 4-Bromofluorobenzene	0.94		0.9901		95.4	80	120	0	0	

Qualifiers:

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- E Value above quantitation range
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- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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: 1506C10 RcptNo: 1

Received by/date: CM 06/25/15

Logged By: Anne Thorne 5/25/2015 7:00:00 AM Anne Thorne

Completed By: Anne Thorne 6/25/2015 Anne Thorne

Reviewed By: JA 06/25/15

Chain of Custody

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

Log In

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

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

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

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

Person Notified: _____ Date _____

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

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.3	Good	Yes			

Chain-of-Custody Record

Client: Rule Engineering

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

Phone #: 505 860 2712

email or Fax#:

QA/QC Package:
[X] Standard [ ] Level 4 (Full Validation)

Accreditation
[ ] NELAP [ ] Other

[ ] EDD (Type)

Turn-Around Time:
[X] Standard [ ] Rush

Project Name:
San Juan 27-4 #116

Project #:

Project Manager:
D. Watson

Sampler: D Watson
On Ice: [ ] Yes [ ] No
Sample Temperature: 2.3

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1506C10	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)
6-24-15	1030	Soil	SC-1	1-4oz	cold	-001	X		X													
6-24-15	1032	Soil	SC-2	1-4oz	cold	-002	X		X													
6-24-15	1130	Soil	SC-3	1-4oz	cold	-003	X		X													
6-24-15	1040	Soil	SC-4	1-4oz	cold	-004	X		X													
6-24-15	0945	Soil	SC-5	1-4oz	cold	-005	X		X													

Date:	Time:	Relinquished by:	Received by:	Date	Time
6/24/15	1595	Debra Watson	Mustafa Wade	6/24/15	1575
6/24/15	1810	Mustafa Watson		06/25/15	0700

Remarks: Bill to ConocoPhillips
Wo# A72 8809
User: KGARCIA
act. code: D260
Supervisor: Mike Smith
Ordered by: Jerrell Bassett

San Juan 27-4 Unit 116