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

15613

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

***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: RICHARDSON 9
API Number: 30-045-10813 OCD Permit Number: _____
U/L or Qtr/Qtr C Section 15 Township 31N Range 12W County: San Juan
Center of Proposed Design: Latitude 36.90371 °N Longitude -108.08699 °W NAD: ☐1927 ☒ 1983
Surface Owner: ☒ Federal ☐ State ☐ Private ☐ Tribal Trust or Indian Allotment

OIL CONS. DIV DIST.
OCT 05 2016

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 45 mil ☐ HDPE ☐ PVC ☒ Other LLDPE

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_____

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.** ☐ Yes ☐ No ☒ NA
- ☐ NM Office of the State Engineer - iWATERS database search; ☐ USGS; ☐ Data obtained from nearby wells

**Ground water is less than 50 feet below the bottom of a Temporary pit, permanent pit, or Multi-Well Fluid Management pit .** ☐ Yes ☐ No ☒ NA
NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells

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)** ☐ Yes ☐ No
- Written confirmation or verification from the municipality; Written approval obtained from the municipality

Within the area overlying a subsurface mine. **(Does not apply to below grade tanks)** ☐ Yes ☐ No
- Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division

Within an unstable area. **(Does not apply to below grade tanks)** ☐ Yes ☐ No
- Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map

Within a 100-year floodplain. **(Does not apply to below grade tanks)** ☐ Yes ☐ No
- FEMA map

## 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). ☐ Yes ☒ No
- Topographic map; Visual inspection (certification) of the proposed site

Within 200 horizontal feet of a spring or a fresh water well used for public or livestock consumption;. ☐ Yes ☒ No
- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

## 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.) ☐ Yes ☐ No
- Topographic map; Visual inspection (certification) of the proposed site

Within 300 feet from a occupied permanent residence, school, hospital, institution, or church in existence at the time of initial application. ☐ Yes ☐ No
- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image

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. ☐ Yes ☐ No
NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

| | |
|---|---|
| Within 100 feet of a wetland.<br>- 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).<br>- 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.<br>- 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;<br>- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site | ☐ Yes ☐ No |
| Within 300 feet of a wetland.<br>- 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).<br>- 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.<br>- 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.<br>- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site | ☐ Yes ☐ No |
| Within 500 feet of a wetland.<br>- 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.<br>- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells | ☐ Yes ☐ No<br>☐ NA |
| Ground water is between 25-50 feet below the bottom of the buried waste<br>- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells | ☐ Yes ☐ No<br>☐ NA |
| Ground water is more than 100 feet below the bottom of the buried waste.<br>- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells | ☐ Yes ☐ No<br>☐ 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).<br>- 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.<br>- 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.<br>- 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.<br>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.<br>- Written confirmation or verification from the municipality; Written approval obtained from the municipality | ☐ Yes ☐ No |
| Within the area overlying a subsurface mine.<br>- Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division | ☐ Yes ☐ No |
| Within an unstable area.<br>- 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.<br>- 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:** 10/13/2016

**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:** 7/7/2016

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) Crystal Walker Title: Regulatory Coordinator

Signature: Crystal Walker Date: 10/4/2016

e-mail address: crystal.walker@cop.com Telephone: (505) 326-9837

**Burlington Resources Oil & Gas Company**
**San Juan Basin: New Mexico Assets**
Below Grade Tank Closure Report

**Lease Name:** Richardson 9
**API No.:** 30-045-10813

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 Requirements:**

1. Prior to initiating any BGT closure, except in the case of an emergency, BR will notify the surface owner of the intent to close the BGT by certified mail no later than 72 hours or one week before closure and a copy of this notification will be included in the closure report. In the case of an emergency, the surface owner will be notified as soon as practical.

   **The surface owner was notified by email of the closure process and the notification is attached.**

2. Notice of closure will be given to the District Division office between 72 hours and one week of the scheduled closure via email or phone. The notification of closure will include the following:
   a. Operators Name
   b. Well Name and API Number
   c. Location

   **Notification is attached.**

3. All liquids will be removed from the BGT following cessation of operation. Produced water will be disposed of at one of COP's approved Salt Water Disposal facilities or at a District Division approved facility.

   **All recovered liquids were disposed of at an approved SWD facility or an approved District Division facility within 60 days of cessation of operation.**

4. Solids and sludge's will be shoveled and/or vacuumed out for disposal at one of the District Division approved facilities, depending on the proximity of the BGT site: Envirotech Land Farm (Permit #NM-01-011), JFJ Land Farm % Industrial Ecosystems Inc. (Permit #NM-01-0010B), and Basin Disposal (Permit #NM-01-005).

   **Any sludge or soil required to be removed to facilitate closure was transported to Envirotech Land Farm (Permit # NM-01-011) and/or JFJ Landfarm % IEI (Permit# NM-01-0010B).**

5. BR will obtain prior approval from District Division to dispose, recycle, reuse, or reclaim the BGT and provide documentation of the disposition of the BGT in the closure report. Steel materials will be recycled or reused as approved by the District Division. Fiberglass tanks will be empty, cut up or shredded, and EPA cleaned for disposal as solid waste. Liner materials will be cleaned without soils or contaminated material for disposal as solid waste. Fiberglass tanks and liner materials will meet the conditions of 19.15.35 NMAC. Disposal will be at a licensed disposal facility, presently San Juan County Landfill operated by Waste Management under NMED Permit SWM-052426.

   **The below-grade tank was disposed of in a division-approved manner. The liner was cleaned per 19.15.35.8.C(1)(m) NMAC and disposed of at the San Juan County Regional Landfill located on CR 3100.**

6. Any equipment associated with the BGT that is no longer required for some other purpose, following the closure, will be removed.

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

7. Following removal of the tank and any liner material, BR will test the soils beneath the BGT as follows:
   a. At a minimum, a five-point composite sample will be taken to include any obvious stained or wet soils or any other evidence of contamination.
   b. The laboratory sample shall be analyzed for the constituents listed in Table I of 19.15.17.13.

   **A five point composite sample was taken of the below-grade tank using sampling tools and all samples tested per Table I of 19.15.17.13 and the results are attached.**

8. If the District Division and/or BR determine there is a release, BR will comply with 19.15.17.13.C.3b.

   **A release was not determined for the above referenced well.**

9. Upon completion of the tank removal, pursuant to 19.15.17.13.C.3c, if all contaminant concentrations are less than or equal to the parameters listed in Table I of 19.15.17.13 NMAC, the excavation will be backfilled with non-waste earthen material compacted and covered with a minimum of one foot top soil or background thickness whichever is greater and to existing grade. The surface will be re-contoured to match the native grade and to prevent ponding.

   **The tank removal area passed all requirements of Table I of 19.15.17.13 NMAC and was backfilled with compacted, non-waste containing, earthen material which included at least one foot of suitable material to establish vegetation at the site.**

10. For those portions of the former BGT area no longer required for production activities, BR will seed the disturbed area the first favorable growing season after the BGT is covered. Seeding will be accomplished via drilling on the contour whenever practical, or by other District Division-approved methods. BR will notify the District Division when reclamation and re-vegetation is complete.

    Reclamation of the BGT shall be considered complete when:
    - Vegetative cover reflects a life form ratio of +/- 50% of pre disturbance levels.
    - Total percent plant cover of at least 70% of pre-disturbance levels (Excluding noxious weeds) OR
    - Pursuant to 19.15.17.13.H.5d BR will comply with obligations imposed by other applicable federal or tribal agencies in which there re-vegetation and reclamation requirements provide equal or better protection of fresh water, human health and the environment.

    **Provision 10 will be accomplished pursuant to 19.15.17.H.5d and notification will be submitted upon completion.**

11. For those portions of the former BGT area required for production activities, reseeding will be done at well abandonment, and following the procedure noted above.

    **The former BGT area is not required for production activities and reseeding will be in Spring 2017 per the procedure noted above.**

**Closure Report:**
All closure activities will include proper documentation and will be submitted to OCD within 60 days of the BGT closure on a Closure Report using District Division Form C-144. The Report will include the following:

- Proof of Closure Notice (surface owner and District Division) **(Attached)**
- Backfilling & cover installation **(See Report)**
- Confirmation Sampling Analytical Results **(Attached)**
- Application Rate & Seeding techniques **(See Report)**
- Photo Documentation of Reclamation **(Attached)**

## Walker, Crystal

**From:** Roberts, Kelly G
**Sent:** Thursday, June 30, 2016 7:04 AM
**To:** Cory Smith; Fields, Vanessa, EMNRD; Katherina Diemer (kdiemer@blm.gov); McKinney John (jmckinne@blm.gov); Porter Mike (mgporter@blm.gov)
**Cc:** Fincher, Shawn S; Farrell, Juanita R; GRP:SJBU Regulatory; Jones, Lisa; SJBU E-Team
**Subject:** 72 Hour BGT Closure Notification: Richardson 9

**Subject: 72 Hour BGT Closure Notification**

**Anticipated Start Date:** **Thursday July 7, 2016 10:30 am**

**The subject well has a below-grade tank that will begin the closure process between 72 hours and one week from this notification. Please contact me at any time if you have any questions or concerns.**

**Well Name:** Richardson 9

**API#:** 30-045-10813

**Location:** Unit C (NE/NW), Section 15, T31N, R12W, San Juan County, New Mexico

**Footages:** 790' FNL & 1500' FWL

**Operator:** Burlington Resources Oil and Gas Co. LP **Surface Owner: BLM (SF-077651)**

*Kelly G. Roberts*
ConocoPhillips Co.
Rockies Business Unit
San Juan Asset
Regulatory Technician
505-326-9775
505-330-7921

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

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

# Release Notification and Corrective Action

## OPERATOR

☐ Initial Report ☒ Final Report

| | |
|---|---|
| Name of Company Burlington Resources O&G Company, LP | Contact Crystal Walker |
| Address 3401 East 30th St, Farmington, NM | Telephone No.(505) 326-9837 |
| Facility Name: Richardson 9 | Facility Type: Gas Well |

| | | |
|---|---|---|
| Surface Owner BLM | Mineral Owner BLM | API No. 30-045-10813 |

## LOCATION OF RELEASE

| Unit Letter | Section | Township | Range | Feet from the | North/South Line | Feet from the | East/West Line | County |
|---|---|---|---|---|---|---|---|---|
| C | 15 | 31N | 12W | 790 | North | 1500 | West | San Juan |

Latitude 36.90371 Longitude -108.08699

## NATURE OF RELEASE

| | | |
|---|---|---|
| Type of Release | Volume of Release | Volume Recovered |
| Source of Release | Date and Hour of Occurrence | Date and Hour of Discovery |
| Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required | If YES, To Whom? | |
| By Whom? | Date and Hour | |
| Was a Watercourse Reached? ☐ Yes ☒ No | If YES, Volume Impacting the Watercourse. | |

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

Describe Cause of Problem and Remedial Action Taken.*
**No release was encountered during the BGT Closure.**

Describe Area Affected and Cleanup Action Taken.*
**N/A**

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: Crystal Walker | OIL CONSERVATION DIVISION | |
| Printed Name: Crystal Walker | Approved by Environmental Specialist: | |
| Title: Regulatory Coordinator | Approval Date: | Expiration Date: |
| E-mail Address: crystal.walker@cop.com | Conditions of Approval: | Attached ☐ |
| Date: 10/4/16 Phone: (505) 326-9837 | | |

* Attach Additional Sheets If Necessary

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

September 30, 2016

Mr. Robert Spearman
ConocoPhillips
San Juan Business Unit
5525 Highway 64
Farmington, New Mexico 87401

**Re: Richardson #9**
**Below Grade Tank Closure Sampling Report**

Dear Mr. Spearman:

This report summarizes the below grade tank (BGT) closure sampling activities conducted by Rule Engineering, LLC (Rule) at the ConocoPhillips Richardson #9 located in Unit Letter C, Section 15, Township 31N, Range 12W in San Juan County, New Mexico. Activities included collection and analysis of a 5-point composite soil confirmation sample from beneath the BGT on July 7, 2016. A topographic map of the location is included as Figure 1 and an aerial site map is included as Figure 2.

**BGT Summary**
**Site Name** – Richardson #9
**Location** – Unit Letter C, Section 15, Township 31N, Range 12W
**API Number** – 30-045-10813
**Wellhead Latitude/Longitude** – N36.90381 and W108.08718
**BGT Latitude/Longitude** – N36.90371 and W108.08699
**Land Jurisdiction** – Bureau of Land Management
**Size of BGT** – 120 barrels
**Date of BGT Closure Soil Sampling** – July 7, 2016

**BGT Closure Standards**
As outlined in 19.15.17.13 New Mexico Administrative Code (NMAC), BGT closure standards for the Richardson #9 are as follows: 10 milligrams per kilogram (mg/kg) benzene, 50 mg/kg total benzene, toluene, ethylbenzene, and total xylenes (BTEX), 2,500 mg/kg total petroleum hydrocarbons (TPH) per United States Environmental Protection Agency (USPEA) Method 418.1, 1,000 mg/kg combined gasoline range organics (GRO) and diesel range organics (DRO) per USEPA Method 8015M, and 20,000 mg/kg chlorides.

**Field Activities**
On July 7, 2016, following removal of the BGT tank, Rule personnel conducted a visual inspection for surface/subsurface indications of a release. No evidence of a release was observed. Rule personnel then collected five soil samples (S-1 through S-5) from 0.5 feet beneath the floor of the BGT excavation. Figure 2 provides the

location of the soil samples collected from below the BGT. The field work summary sheet is attached.

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

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

The portion of SC-1 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 8015D, and chlorides per USEPA Method 300.0.

**Field and Analytical Results**
Field sampling results for soil confirmation sample SC-1 indicated a VOC concentration of 0.0 ppm and a TPH concentration below the reporting limit of 20 mg/kg. Field chloride concentration was reported at 60 mg/kg.

Laboratory analytical results for sample SC-1 reported benzene and total BTEX concentrations below the laboratory reporting limits of 0.023 mg/kg and 0.207 mg/kg, respectively. Laboratory analytical results for SC-1 reported the TPH concentrations of below the laboratory reporting limit of 19 mg/kg per USEPA Method 418.1, below the laboratory reporting limit of 4.6 mg/kg as GRO per USEPA Method 8015D, and below the laboratory reporting limit of 9.8 mg/kg DRO by USEPA Method 8015D. The laboratory analytical result for SC-1 for chloride concentration was 11 mg/kg. Field and laboratory results for SC-1 are summarized in Table 1, and the analytical laboratory report is attached.

**Conclusions**
On July 7, 2016, BGT closure sampling activities were conducted at the ConocoPhillips Richardson #9. Field and laboratory results for confirmation sample SC-1 were reported below the BGT closure standards for benzene, total BTEX, TPH, and chlorides as outlined in 19.15.17.13 NMAC. Based on field sampling and

laboratory analytical results, no release occurred from the BGT and 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

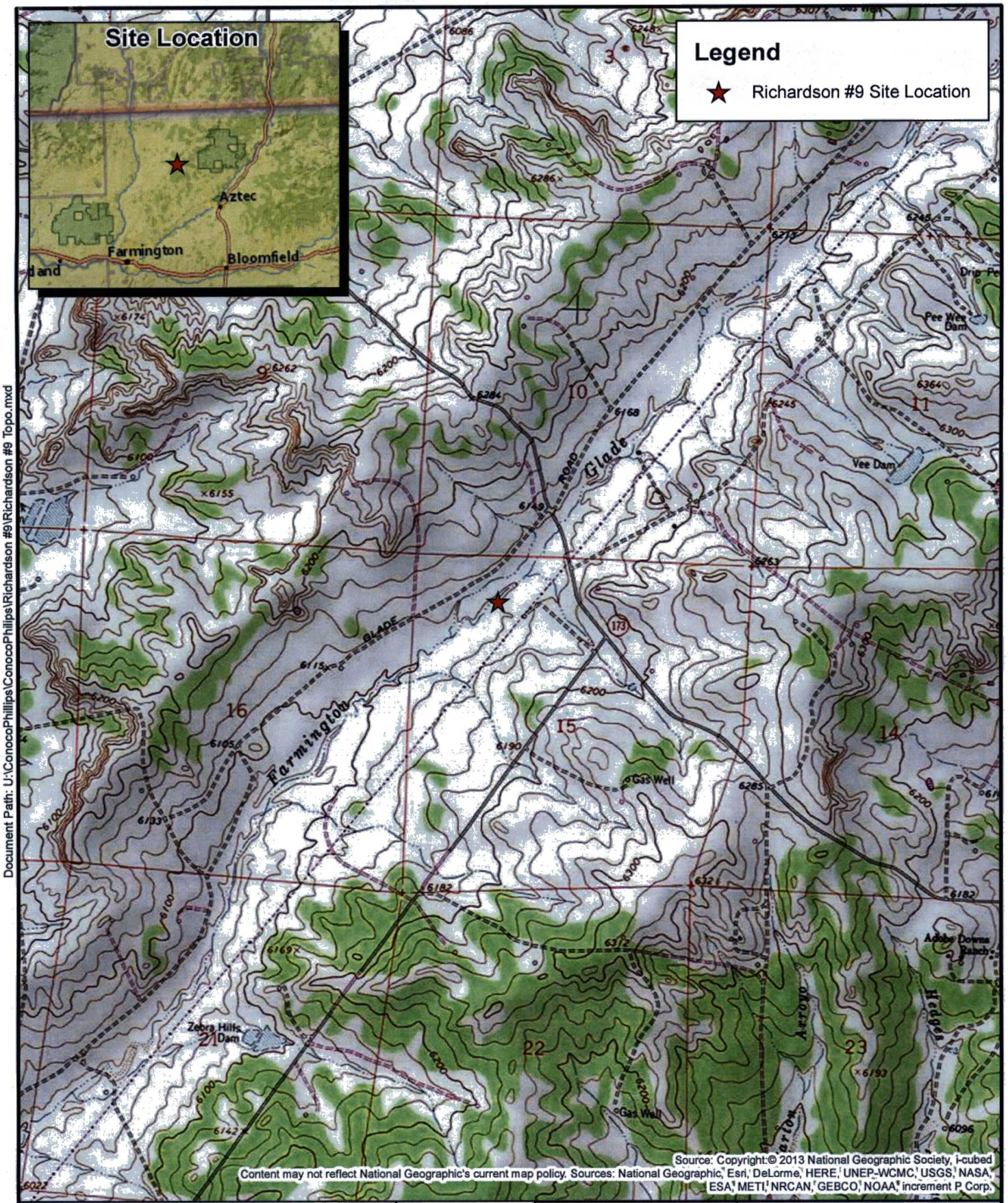
Heather M. Woods, P.G.
Area Manager/Geologist

**Attachments:**
Table 1. BGT Soil Sampling Results
Figure 1. Topographic Map
Figure 2. Aerial Site Map
Field Work Summary Sheet
Analytical Laboratory Report

**Table 1. BGT Soil Sampling Results**
**ConocoPhillips**
**Richardson #9**
**San Juan County, New Mexico**

| Sample ID | Date | Sample Type | Sample Depth (ft below BGT liner) | Field Sampling Results | | | Laboratory Analytical Results | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | VOCs (PID) (ppm) | TPH - 418.1 (mg/kg) | Chloride** (mg/kg) | Benzene (mg/kg) | Total BTEX (mg/kg) | TPH - 418.1 (mg/kg) | TPH - GRO (mg/kg) | TPH - DRO (mg/kg) | Chloride*** (mg/kg) |
| **BGT Closure Standards*** | | | | -- | 2,500 | 20,000 | 10 | 50 | 2,500 | 1,000 | | 20,000 |
| SC-1 | 7/7/16 | Composite | 0.5 | 0.0 | <20.0 | 60 | <0.023 | <0.207 | <19 | <4.6 | <9.8 | 11 |

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
**Per Hach chloride low-range test kit
***Per USEPA Method 300.0 chlorides




Document Path: U:\ConocoPhillips\ConocoPhillips\Richardson #9\Richardson #9 Topo.mxd

Rule Engineering, LLC
Solutions to Regulations for Industry

0 0.2 0.4 0.8 Miles

Adobe Downs Ranch Quadrangle
1:24,000

ConocoPhillips

C-S15-T31N-R12W
N36.90371, W108.08699
San Juan County, NM
API: 30-045-10813

**Figure 1**
**Topographic Site Map**
Richardson #9


Document Path: U:\ConocoPhillips\ConocoPhillips\Richardson #9\Richardson #9 Aerial.mxd

Rule Engineering, LLC
Solutions to Regulations for Industry

0 3.75 7.5 15 22.5 30 Feet

1 inch = 15 feet

N

ConocoPhillips

C-S15-T31N-R12W
N36.90371, W108.08699
San Juan County, NM
API: 30-045-10813

**Figure 2**
**Aerial Site Map**
Richardson #9

**Rule Engineering Field Work Summary Sheet**

| | |
|---|---|
| Date: | 7/7/16 |
| Staff: | Justin Valdez |

| | |
|---|---|
| Company: | ConocoPhillips |
| Location: | Richardson #9 |
| API: | 30-045-10813 |
| Legals: | C-S15-T31N-R12W |
| County: | San Juan |
| Land Jurisdiction: | Bureau of Land Management |

Wellhead GPS: 36.90381, -108.08718

BGT GPS: 36.90371, -108.08699

**Siting Information based on BGT Location:** Site Rank 10

Groundwater: Estimated to be greater than 100 feet below grade surface, based on elevation differential and local cathodic well reports.

Surface Water: The wash of Farmington Glade is located approximately 260 feet northwest of the BGT location.

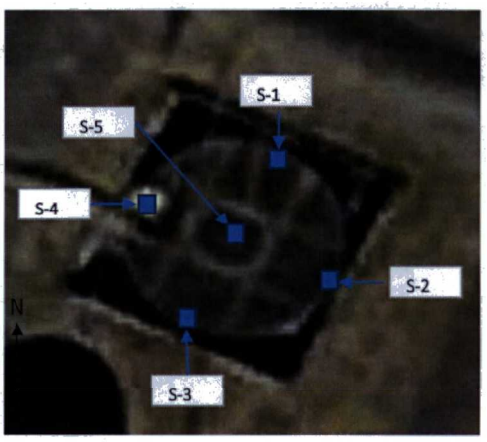
Wellhead Protection: No water wells identified within 1,000 ft of location.

| | |
|---|---|
| Objective: | Closure sampling for BGT |
| Tank Size: | 120 barrels, removed during closure activities |
| Liner: | No liner was observed during closure activities |
| Observations: | No staining or excess moisture was observed below the tank. |
| Notes: | A NMOCD representative was onsite during collection of the confirmation sample. |

**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 | 10:47 | See below | 0.0 | 10:52 | <20.0 | 11:30 | 60 | 11:21 |

SC-1 is a 5-point composite of S-1 through S-5, collected 0.5 ft below BGT.
Sample SC-1 was laboratory analyzed for TPH (8015 and 418.1), BTEX (8021) and chlorides (300.0).




**Field Sampling Notes:**

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

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

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

Rule Engineering, LLC
Solutions to Regulations for Industry

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 18, 2016

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

RE: Richardson 9 OrderNo.: 1607371

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 1 sample(s) on 7/8/2016 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

**Analytical Report**
Lab Order **1607371**
Date Reported: **7/18/2016**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Rule Engineering LLC
**Project:** Richardson 9
**Lab ID:** 1607371-001 **Matrix:** SOIL

**Client Sample ID:** SC-1
**Collection Date:** 7/7/2016 10:47:00 AM
**Received Date:** 7/8/2016 7:55:00 AM

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 418.1: TPH** | | | | | | Analyst: **TOM** | |
| Petroleum Hydrocarbons, TR | ND | 19 | | mg/Kg | 1 | 7/14/2016 12:00:00 PM | 26378 |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **MRA** | |
| Chloride | 11 | 1.5 | | mg/Kg | 1 | 7/12/2016 2:33:50 PM | 26348 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **TOM** | |
| Diesel Range Organics (DRO) | ND | 9.8 | | mg/Kg | 1 | 7/12/2016 2:35:46 PM | 26331 |
| Surr: DNOP | 91.4 | 70-130 | | %Rec | 1 | 7/12/2016 2:35:46 PM | 26331 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** | |
| Gasoline Range Organics (GRO) | ND | 4.6 | | mg/Kg | 1 | 7/11/2016 3:16:46 PM | 26304 |
| Surr: BFB | 106 | 80-120 | | %Rec | 1 | 7/11/2016 3:16:46 PM | 26304 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** | |
| Benzene | ND | 0.023 | | mg/Kg | 1 | 7/11/2016 3:16:46 PM | 26304 |
| Toluene | ND | 0.046 | | mg/Kg | 1 | 7/11/2016 3:16:46 PM | 26304 |
| Ethylbenzene | ND | 0.046 | | mg/Kg | 1 | 7/11/2016 3:16:46 PM | 26304 |
| Xylenes, Total | ND | 0.092 | | mg/Kg | 1 | 7/11/2016 3:16:46 PM | 26304 |
| Surr: 4-Bromofluorobenzene | 104 | 80-120 | | %Rec | 1 | 7/11/2016 3:16:46 PM | 26304 |

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

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1607371**

***18-Jul-16***

**Client:** Rule Engineering LLC

**Project:** Richardson 9

| Sample ID | **MB-26348** | SampType: | **mblk** | | TestCode: | **EPA Method 300.0: Anions** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **PBS** | Batch ID: | **26348** | | RunNo: | **35639** | | | | |
| Prep Date: | **7/12/2016** | Analysis Date: | **7/12/2016** | | SeqNo: | **1102701** | Units: | **mg/Kg** | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Chloride | ND | 1.5 | | | | | | | | |

| Sample ID | **LCS-26348** | SampType: | **lcs** | | TestCode: | **EPA Method 300.0: Anions** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **LCSS** | Batch ID: | **26348** | | RunNo: | **35639** | | | | |
| Prep Date: | **7/12/2016** | Analysis Date: | **7/12/2016** | | SeqNo: | **1102702** | Units: | **mg/Kg** | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Chloride | 14 | 1.5 | 15.00 | 0 | 95.5 | 90 | 110 | | | |

| Sample ID | **1607371-001AMS** | SampType: | **ms** | | TestCode: | **EPA Method 300.0: Anions** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **SC-1** | Batch ID: | **26348** | | RunNo: | **35639** | | | | |
| Prep Date: | **7/12/2016** | Analysis Date: | **7/12/2016** | | SeqNo: | **1102722** | Units: | **mg/Kg** | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Chloride | 25 | 1.5 | 15.00 | 15.57 | 65.5 | 70.8 | 119 | | | S |

| Sample ID | **1607371-001AMSD** | SampType: | **msd** | | TestCode: | **EPA Method 300.0: Anions** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **SC-1** | Batch ID: | **26348** | | RunNo: | **35639** | | | | |
| Prep Date: | **7/12/2016** | Analysis Date: | **7/12/2016** | | SeqNo: | **1102723** | Units: | **mg/Kg** | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Chloride | 29 | 1.5 | 15.00 | 15.57 | 87.6 | 70.8 | 119 | 12.2 | 20 | |

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1607371**

***18-Jul-16***

**Client:** Rule Engineering LLC

**Project:** Richardson 9

| Sample ID **MB-26378** | SampType: **MBLK** | TestCode: **EPA Method 418.1: TPH** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **26378** | RunNo: **35700** |
| Prep Date: **7/13/2016** | Analysis Date: **7/14/2016** | SeqNo: **1104592** 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-26378** | SampType: **LCS** | TestCode: **EPA Method 418.1: TPH** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **26378** | RunNo: **35700** |
| Prep Date: **7/13/2016** | Analysis Date: **7/14/2016** | SeqNo: **1104593** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Petroleum Hydrocarbons, TR | 93 | 20 | 100.0 | 0 | 93.3 | 80.7 | 121 | | | |

| Sample ID **LCSD-26378** | SampType: **LCSD** | TestCode: **EPA Method 418.1: TPH** |
|---|---|---|
| Client ID: **LCSS02** | Batch ID: **26378** | RunNo: **35700** |
| Prep Date: **7/13/2016** | Analysis Date: **7/14/2016** | SeqNo: **1104594** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Petroleum Hydrocarbons, TR | 96 | 20 | 100.0 | 0 | 95.8 | 80.7 | 121 | 2.67 | 20 | |

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1607371**

***18-Jul-16***

**Client:** Rule Engineering LLC
**Project:** Richardson 9

| Sample ID **1607371-001AMS** | SampType: **MS** | | | TestCode: **EPA Method 8015M/D: Diesel Range Organics** | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: **SC-1** | Batch ID: **26331** | | | RunNo: **35610** | | | | | |
| Prep Date: **7/11/2016** | Analysis Date: **7/12/2016** | | | SeqNo: **1102374** | | Units: **mg/Kg** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Diesel Range Organics (DRO) | 40 | 9.6 | 48.17 | 0 | 82.5 | 33.9 | 141 | | | |
| Surr: DNOP | 4.5 | | 4.817 | | 94.2 | 70 | 130 | | | |

| Sample ID **1607371-001AMSD** | SampType: **MSD** | | | TestCode: **EPA Method 8015M/D: Diesel Range Organics** | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: **SC-1** | Batch ID: **26331** | | | RunNo: **35610** | | | | | |
| Prep Date: **7/11/2016** | Analysis Date: **7/12/2016** | | | SeqNo: **1102375** | | Units: **mg/Kg** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Diesel Range Organics (DRO) | 39 | 10 | 50.10 | 0 | 77.8 | 33.9 | 141 | 1.92 | 20 | |
| Surr: DNOP | 4.6 | | 5.010 | | 91.9 | 70 | 130 | 0 | 0 | |

| Sample ID **LCS-26331** | SampType: **LCS** | | | TestCode: **EPA Method 8015M/D: Diesel Range Organics** | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: **LCSS** | Batch ID: **26331** | | | RunNo: **35611** | | | | | |
| Prep Date: **7/11/2016** | Analysis Date: **7/12/2016** | | | SeqNo: **1102563** | | Units: **mg/Kg** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Diesel Range Organics (DRO) | 50 | 10 | 50.00 | 0 | 100 | 62.6 | 124 | | | |
| Surr: DNOP | 4.7 | | 5.000 | | 93.8 | 70 | 130 | | | |

| Sample ID **MB-26331** | SampType: **MBLK** | | | TestCode: **EPA Method 8015M/D: Diesel Range Organics** | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: **PBS** | Batch ID: **26331** | | | RunNo: **35611** | | | | | |
| Prep Date: **7/11/2016** | Analysis Date: **7/12/2016** | | | SeqNo: **1102564** | | Units: **mg/Kg** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Diesel Range Organics (DRO) | ND | 10 | | | | | | | | |
| Surr: DNOP | 9.0 | | 10.00 | | 90.2 | 70 | 130 | | | |

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1607371**

***18-Jul-16***

**Client:** Rule Engineering LLC

**Project:** Richardson 9

| Sample ID **MB-26304** | SampType: **MBLK** | TestCode: **EPA Method 8015D: Gasoline Range** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **26304** | RunNo: **35554** |
| Prep Date: **7/8/2016** | Analysis Date: **7/11/2016** | SeqNo: **1101250** 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 | 1000 | | 1000 | | 101 | 80 | 120 | | | |

| Sample ID **LCS-26304** | SampType: **LCS** | TestCode: **EPA Method 8015D: Gasoline Range** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **26304** | RunNo: **35554** |
| Prep Date: **7/8/2016** | Analysis Date: **7/11/2016** | SeqNo: **1101251** 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 | 99.5 | 80 | 120 | | | |
| Surr: BFB | 1100 | | 1000 | | 108 | 80 | 120 | | | |

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1607371**

*18-Jul-16*

**Client:** Rule Engineering LLC

**Project:** Richardson 9

| Sample ID **MB-26304** | SampType: **MBLK** | TestCode: **EPA Method 8021B: Volatiles** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **26304** | RunNo: **35554** |
| Prep Date: **7/8/2016** | Analysis Date: **7/11/2016** | SeqNo: **1101270** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 0.025 | | | | | | | | |
| Toluene | ND | 0.050 | | | | | | | | |
| Ethylbenzene | ND | 0.050 | | | | | | | | |
| Xylenes, Total | ND | 0.10 | | | | | | | | |
| Surr: 4-Bromofluorobenzene | 0.99 | | 1.000 | | 98.8 | 80 | 120 | | | |

| Sample ID **LCS-26304** | SampType: **LCS** | TestCode: **EPA Method 8021B: Volatiles** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **26304** | RunNo: **35554** |
| Prep Date: **7/8/2016** | Analysis Date: **7/11/2016** | SeqNo: **1101271** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.95 | 0.025 | 1.000 | 0 | 94.7 | 75.3 | 123 | | | |
| Toluene | 0.96 | 0.050 | 1.000 | 0 | 95.6 | 80 | 124 | | | |
| Ethylbenzene | 1.0 | 0.050 | 1.000 | 0 | 100 | 82.8 | 121 | | | |
| Xylenes, Total | 3.0 | 0.10 | 3.000 | 0 | 99.1 | 83.9 | 122 | | | |
| Surr: 4-Bromofluorobenzene | 1.0 | | 1.000 | | 105 | 80 | 120 | | | |

**Qualifiers:**

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

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: 1607371  RcptNo: 1

Received by/date: 07/08/16

Logged By: Lindsay Mangin  7/8/2016 7:55:00 AM

Completed By: Lindsay Mangin  7/8/2016 12:23:11 PM

Reviewed By: 07/08/16

## Chain of Custody

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

## Log In

| | | | |
|---|---|---|---|
| 4. Was an attempt made to cool the samples? | Yes ☑ | No ☐ | NA ☐ |
| 5. Were all samples received at a temperature of >0° C to 6.0°C | Yes ☑ | No ☐ | NA ☐ |
| 6. Sample(s) in proper container(s)? | Yes ☑ | No ☐ | |
| 7. Sufficient sample volume for indicated test(s)? | Yes ☑ | No ☐ | |
| 8. Are samples (except VOA and ONG) properly preserved? | Yes ☑ | No ☐ | |
| 9. Was preservative added to bottles? | Yes ☐ | No ☑ | NA ☐ |
| 10. VOA vials have zero headspace? | Yes ☐ | No ☐ | No VOA Vials ☑ |
| 11. Were any sample containers received broken? | Yes ☐ | No ☑ | |
| 12. Does paperwork match bottle labels? (Note discrepancies on chain of custody) | Yes ☑ | No ☐ | # of preserved bottles checked for pH: _____ (<2 or >12 unless noted) |
| 13. Are matrices correctly identified on Chain of Custody? | Yes ☑ | No ☐ | Adjusted? _____ |
| 14. Is it clear what analyses were requested? | Yes ☑ | No ☐ | |
| 15. Were all holding times able to be met? (If no, notify customer for authorization.) | Yes ☑ | No ☐ | Checked by: _____ |

## Special Handling (if applicable)

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

Person Notified: _____ Date _____

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

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

| Cooler No | Temp °C | Condition | Seal Intact | Seal No | Seal Date | Signed By |
|---|---|---|---|---|---|---|
| 1 | 1.5 | Good | Yes | | | |

# Chain-of-Custody Record

Client: Rule Engineering, LLC

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

Phone #: 505 793 9486

Email or Fax#: jvalde2@ruleengineering.com

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

Accreditation
☑ NELAP ☐ Other _____

EDD (Type) _____

Turn-Around Time:
☑ Standard ☐ Rush _____

Project Name: Richardson #9

Project #:

Project Manager: Heather Woods

Sampler: Justin Valdez

On Ice: ☑ Yes ☐ No

Sample Temperature: 1.5

**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. 1607371 |
|---|---|---|---|---|---|---|
| 7/6 | 10:47 | Soil | SC-1 | (1) 4oz | Cold | -001 |

Analysis Request

| BTEX + ~~TMB's~~ + ~~TMN~~ (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, NO3, NO2, PO4, SO4) ~~300.0~~ | 8081 Pesticides / 8082 PCB's | 8260B (VOA) | 8270 (Semi-VOA) | | | | | Air Bubbles (Y or N) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | | X | X | | | | X | | | | | | | | |

NFS

| Date | Time | Relinquished by: | Received by: | Date | Time |
|---|---|---|---|---|---|
| 7/7/14 | 1742 | Heather M. Woods | [signature] | 7/7/14 | 1742 |
| 7/8/14 | 1950 | [signature] | [signature] | 07/08/14 | 0755 |

Remarks:
Direct bill to ConocoPhillips
WO: 10389546
Area: 1
Supervisor:

Ordered By: Bobby Spearman
User: KGARCIA

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.

BURLINGTON RESOURCES

ConocoPhillips

RICHARDSON 9
LATITUDE 36$^{0}$ 54' 14"
LONGITUDE 108$^{0}$ 05' 14"
NE/NW, 790' FNL & 1500' FWL
SEC.15 T031N T012W
NMSF-077651
API NO. 30-045-10813
SAN JUAN COUNTY, NM ELEV 6126
EMERGENCY NUMBER (505) 324-5170
NO SMOKING NO TRESPASSING