

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

- 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

15929

**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: ConocoPhillips Company OGRID #: 217817  
Address: PO BOX 4289, Farmington, NM 87499  
Facility or well name: LUCERNE D 1 - SOUTH TANK  
API Number: 30-045-07278 OCD Permit Number: \_\_\_\_\_  
U/L or Qtr/Qtr P Section 21 Township 28N Range 11W County: San Juan  
Center of Proposed Design: Latitude 36.64266 °N Longitude -108.00321 °W NAD:  1927  1983  
Surface Owner:  Federal  State  Private  Tribal Trust or Indian Allotment

OIL CONS. DIV DIST. 3  
MAY 18 2017

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 \_\_\_\_\_

\* Closure Report received after Reporting Deadline

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 \_\_\_\_\_

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chw

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. **Variations 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

<p>Within 100 feet of a wetland.          - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p><b><u>Temporary Pit Non-low chloride drilling fluid</u></b></p>	
<p>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</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>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</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>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</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>Within 300 feet of a wetland.          - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p><b><u>Permanent Pit or Multi-Well Fluid Management Pit</u></b></p>	
<p>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</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>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</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>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</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>Within 500 feet of a wetland.          - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site</p>	<input type="checkbox"/> Yes <input type="checkbox"/> 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<sub>2</sub>S, 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   | <input type="checkbox"/> Yes <input type="checkbox"/> No<br><input type="checkbox"/> 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   | <input type="checkbox"/> Yes <input type="checkbox"/> No<br><input type="checkbox"/> 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  | <input type="checkbox"/> Yes <input type="checkbox"/> No<br><input type="checkbox"/> 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                        | <input type="checkbox"/> Yes <input type="checkbox"/> 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  | <input type="checkbox"/> Yes <input type="checkbox"/> 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 | <input type="checkbox"/> Yes <input type="checkbox"/> No                                |
| Written confirmation or verification from the municipality; Written approval obtained from the municipality   | <input type="checkbox"/> Yes <input type="checkbox"/> No                                |
| Within 300 feet of a wetland.<br>US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site   | <input type="checkbox"/> Yes <input type="checkbox"/> No                                |
| Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance   | <input type="checkbox"/> Yes <input type="checkbox"/> No                                |

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

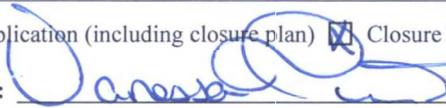
17.  
**Operator Application Certification:**  
I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief.

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: 9/15/2017

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: 1/31/2017

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

**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) Christine Brock Title: Regulatory Specialist

Signature: Christine Brock Date: 5/16/17

e-mail address: christine.brock@cop.com Telephone: (505) 326-9775

**ConocoPhillips Company**  
**San Juan Basin: New Mexico Assets**  
Below Grade Tank Closure Report

**Lease Name:** Lucerne D 1 – South tank  
**API No.:** 30-045-07278

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, COPC 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 Division District 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 Division District Office approved facility.

**All recovered liquids were disposed of at an approved SWD facility or an approved Division District Office 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 Division District Office 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. COPC will obtain prior approval from Division District Office 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 Division District Office. 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, COPC 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 Division District Office and/or COPC determine there is a release, COPC 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, COPC 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 Division District Office approved methods. COPC will notify the Division District Office 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 COPC 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 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 Division District Office Form C-144. The Report will include the following:

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

Brock, Christine

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**From:** Brock, Christine  
**Sent:** Thursday, January 26, 2017 7:55 AM  
**To:** Cory Smith (cory.smith@state.nm.us); Vanessa Field (Vanessa.Fields@state.nm.us); 'Brandon.Powell@state.nm.us'  
**Cc:** Farrell, Juanita R; Jones, Lisa; Payne, Wendy F; Trujillo, Fasho D; Brock, Christine; Busse, Dollie L; Walker, Crystal  
**Subject:** 72 Hour BGT Closure Notification - Lucerne D 1  
**Importance:** High

**Subject: 72 Hour BGT Closure Notification**

**Anticipated Start Date: Tuesday, 1/31/2017 at approximately 10:00 a.m.**

The subject well has 2 below-grade tanks 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:** Lucerne D 1

**API#:** 30045507278

**Location:** Unit P (SESE), Section 21, T28N, R11W

**Footages:** 945' FSL & 870' FEL

**Operator:** ConocoPhillips

**Surface Owner:** BLM (Lease #SF-010063)

**Reason:** P&A'd 12/5/2016

**Christine Brock**  
**Regulatory Specialist**  
**ConocoPhillips Company**  
**505-326-9775**  
**505-320-8485**  
[Christine.Brock@cop.com](mailto:Christine.Brock@cop.com)

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Avenue, Artesia, NM 88210  
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State of New Mexico  
Energy Minerals and Natural Resources  
Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-141  
Revised August 8, 2011

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

**Release Notification and Corrective Action**

**OPERATOR**

Initial Report  Final Report

Name of Company ConocoPhillips Company	Contact Christine Brock
Address 3401 East 30 <sup>th</sup> St, Farmington, NM	Telephone No.(505) 326-9775
Facility Name: Lucerne D 1	Facility Type: Gas Well

Surface Owner BLM	Mineral Owner BLM	API No. 30-045-07278
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**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
P	21	28N	11W	945	South	870	East	

Latitude 36.64266 Longitude -108.00321

**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? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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: 	<u>OIL CONSERVATION DIVISION</u>	
Printed Name: Christine Brock	Approved by Environmental Specialist:	
Title: Regulatory Specialist	Approval Date:	Expiration Date:
E-mail Address: christine.brock@cop.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: 5/16/2017 Phone: (505) 326-9775		

\* Attach Additional Sheets If Necessary

# **Rule** Engineering, LLC

Solutions to Regulations for Industry

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March 28, 2017

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

**Re: Lucerne D #1 – South Below Grade Tank  
Below Grade Tank Closure Sampling Report**

Dear Ms. Hunter:

This report summarizes the below grade tank (BGT) closure sampling activities conducted by Rule Engineering, LLC (Rule) at the ConocoPhillips Lucerne D #1 South BGT located in Unit Letter P, Section 21, Township 28N, Range 11W in San Juan County, New Mexico. Activities included collection and analysis of a 5-point composite soil confirmation sample from beneath the BGT on January 31, 2017. Note that the BGT closure activities were conducted on the same day as BGT closure activities for a second BGT on the same location; details of the activities for the second BGT are included in a separate report. 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** – Lucerne D #1 South Below Grade Tank  
**Location** – Unit Letter P, Section 21, Township 28N, Range 11W  
**API Number** – 30-045-07278  
**Wellhead Latitude/Longitude** – N36.64287 and W108.00327  
**BGT Latitude/Longitude** – N36.64266 and W108.00321  
**Land Jurisdiction** – Bureau of Land Management  
**Size of BGT** – Approximately 25 barrels  
**Date of BGT Closure Soil Sampling** – January 31, 2017

## **BGT Closure Standards**

As outlined in 19.15.17.13 New Mexico Administrative Code (NMAC), BGT closure standards for the Lucerne D #1 South BGT are as follows: 10 milligrams per kilogram (mg/kg) benzene, 50 mg/kg total benzene, toluene, ethylbenzene, and total xylenes (BTEX), 100 mg/kg total petroleum hydrocarbons (TPH), and 600 mg/kg chlorides.

## **Field Activities**

On January 31, 2017, following removal of the BGT and liner, Rule personnel conducted a visual inspection for surface/subsurface indications of a release. No excess moisture or staining were observed in the soils below the tank. 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 BGTS-1. A portion of BGTS-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 U.S. Environmental Protection Agency (USEPA) Method 418.1, utilizing a total hydrocarbon analyzer. Prior to field analysis, the analyzer was calibrated following the manufacturer's procedure which includes calculation of a calibration curve using known concentration standards. Rule's reporting limit for TPH using this method is 20 mg/kg. 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 BGTS-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 8015M/D, and chlorides per USEPA Method 300.0.

### **Field and Analytical Results**

Field sampling results for soil confirmation sample BGTS-1 indicated a VOC concentration of 0.0 ppm and a TPH concentration below the reporting limit of 20 mg/kg. Field chloride concentrations were recorded at 80 mg/kg.

Laboratory analytical results for sample BGTS-1 reported benzene and total BTEX concentrations below the laboratory reporting limits of 0.024 mg/kg and 0.220 mg/kg, respectively. Laboratory analytical results for sample BGTS-1 reported the TPH concentrations below the laboratory reporting limit of 18 mg/kg by USEPA Method 418.1, below the laboratory reporting limit of 4.9 mg/kg as gasoline range organics per USEPA Method 8015D, and below the laboratory reporting limit of 9.8 mg/kg diesel range organics by USEPA Method 8015M/D. The laboratory analytical result for sample BGTS-1 for chloride concentration was reported below the laboratory reporting limit of 1.5 mg/kg. Field and laboratory results for sample BGTS-1 are summarized in Table 1, and the analytical laboratory report is attached.

**Conclusions**

On January 31, 2017, BGT closure sampling activities were conducted at the ConocoPhillips Lucerne D #1 South BGT. Field and laboratory results for confirmation sample BGTS-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, 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**  
**Lucerne D #1 South Below Grade Tank**  
**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)
<b>BGT Closure Standards*</b>				--	100	600	10	50	100	--		600
BGTS-1	1/31/17	Composite	0.5	0.0	<20	80	<0.024	<0.220	<18	<4.9	<9.8	<1.5

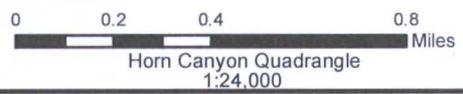
Notes: PID - photo-ionization detector  
 ppm - parts per million  
 mg/kg - milligrams/kilograms  
 VOCs - volatile organic compounds  
 \*19.15.17.13 NMAC  
 \*\*Per Hach chloride low-range test kit  
 \*\*\*Per USEPA Method 300.0 chlorides

BTEX - benzene, toluene, ethylbenzene, and total xylenes  
 TPH - total petroleum hydrocarbons per USEPA Method 418.1  
 GRO - gasoline range organics  
 DRO - diesel range organics



Source: Copyright © 2013 National Geographic Society, i-cubed  
 Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

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



**ConocoPhillips**

P-S21-T28N-R11W  
 N36.64266, W108.00321  
 San Juan County, NM  
 API: 30-045-07278

**Figure 1**  
**Topographic Site Map**  
 Lucerne D #1 South BGT



<p><b>Rule</b> Engineering, LLC Solutions to Regulations for Industry</p> <p>0 5 10 20 30 Feet</p> <p>1 inch = 15 feet</p>	<p><b>ConocoPhillips</b></p>	<p>P-S21-T28N-R11W N36.64266, W108.00321 San Juan County, NM API: 30-045-07278</p>	<p><b>Figure 2</b> <b>Aerial Site Map</b> Lucerne D #1 South BGT</p>
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**Rule Engineering Field Work Summary Sheet**

Company: ConocoPhillips  
 Location: Lucerne D #1 (South BGT)  
 API: 30-045-07278  
 Legals: P-S21-T28N-R11W  
 County: San Juan  
 Land Jurisdiction: Bureau of Land Management

Date:	1/31/17
Staff:	Heather Woods

Wellhead GPS: 36.64287, -108.00327  
 BGT GPS: 36.64266, -108.00321

**Siting Information based on BGT Location:**

Site Rank **10**

Groundwater: Estimated to be greater than 100 feet below grade surface, based on elevation differential between location and local washes, and reported depths to groundwater from local cathodic reports.

Surface Water: An ephemeral wash traverses the area approximately 660 feet southeast of the location.

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

Objective: Closure sampling for BGT  
 Tank Size: Approximately 25 barrels, removed during closure activities  
 Liner: Liner present, removed during closure activities  
 Observations: No staining or excess moisture was observed below the tank.  
 Notes: No NMOCD or BLM representatives were on location during closure activities.

**Field Sampling Information**

Name	Type of Sample	Collection Time	Collection Location	VOCs <sup>1</sup> (ppm)	VOCs time	TPH <sup>2</sup> mg/kg	TPH Time	Chloride <sup>3</sup> mg/kg	Chloride Time
BGTS-1	Composite	11:02	See below	0.0	10:34	<20	11:05	80	11:00

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



**Field Sampling Notes:**

<sup>1</sup> 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.

<sup>2</sup> 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.

<sup>3</sup> 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.



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

February 07, 2017

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

RE: COP Lucerne D #1

OrderNo.: 1702007

Dear Heather Woods:

Hall Environmental Analysis Laboratory received 1 sample(s) on 2/1/2017 for the analyses presented in the following report.

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

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

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

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman".

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

Analytical Report

Lab Order 1702007

Date Reported: 2/7/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Rule Engineering LLC

Client Sample ID: BGTS-1

Project: COP Lucerne D #1

Collection Date: 1/31/2017 11:02:00 AM

Lab ID: 1702007-001

Matrix: SOIL

Received Date: 2/1/2017 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 418.1: TPH</b>							Analyst: <b>MAB</b>
Petroleum Hydrocarbons, TR	ND	18		mg/Kg	1	2/6/2017 12:00:00 PM	30043
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	ND	1.5		mg/Kg	1	2/6/2017 11:41:32 AM	30067
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	2/2/2017 5:54:43 PM	29993
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/2/2017 5:54:43 PM	29993
Surr: DNOP	107	70-130		%Rec	1	2/2/2017 5:54:43 PM	29993
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/2/2017 4:17:53 PM	29991
Surr: BFB	89.2	68.3-144		%Rec	1	2/2/2017 4:17:53 PM	29991
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	2/2/2017 4:17:53 PM	29991
Toluene	ND	0.049		mg/Kg	1	2/2/2017 4:17:53 PM	29991
Ethylbenzene	ND	0.049		mg/Kg	1	2/2/2017 4:17:53 PM	29991
Xylenes, Total	ND	0.098		mg/Kg	1	2/2/2017 4:17:53 PM	29991
Surr: 4-Bromofluorobenzene	91.5	80-120		%Rec	1	2/2/2017 4:17:53 PM	29991

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

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	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#: 1702007  
07-Feb-17

**Client:** Rule Engineering LLC  
**Project:** COP Lucerne D #1

Sample ID	<b>MB-30067</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 300.0: Anions</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>30067</b>	RunNo:	<b>40527</b>					
Prep Date:	<b>2/6/2017</b>	Analysis Date:	<b>2/6/2017</b>	SeqNo:	<b>1270379</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	<b>LCS-30067</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 300.0: Anions</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>30067</b>	RunNo:	<b>40527</b>					
Prep Date:	<b>2/6/2017</b>	Analysis Date:	<b>2/6/2017</b>	SeqNo:	<b>1270380</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.1	90	110			

**Qualifiers:**

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

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

WO#: 1702007  
 07-Feb-17

**Client:** Rule Engineering LLC  
**Project:** COP Lucerne D #1

Sample ID <b>MB-30043</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 418.1: TPH</b>							
Client ID: <b>PBS</b>	Batch ID: <b>30043</b>		RunNo: <b>40537</b>							
Prep Date: <b>2/3/2017</b>	Analysis Date: <b>2/6/2017</b>		SeqNo: <b>1270090</b>	Units: <b>mg/Kg</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	ND	20								

Sample ID <b>LCS-30043</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 418.1: TPH</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>30043</b>		RunNo: <b>40537</b>							
Prep Date: <b>2/3/2017</b>	Analysis Date: <b>2/6/2017</b>		SeqNo: <b>1270091</b>	Units: <b>mg/Kg</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	100	20	100.0	0	99.6	61.7	138			

Sample ID <b>LCSD-30043</b>	SampType: <b>LCSD</b>		TestCode: <b>EPA Method 418.1: TPH</b>							
Client ID: <b>LCSS02</b>	Batch ID: <b>30043</b>		RunNo: <b>40537</b>							
Prep Date: <b>2/3/2017</b>	Analysis Date: <b>2/6/2017</b>		SeqNo: <b>1270092</b>	Units: <b>mg/Kg</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	110	20	100.0	0	106	61.7	138	6.46	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#: 1702007  
 07-Feb-17

**Client:** Rule Engineering LLC  
**Project:** COP Lucerne D #1

Sample ID	<b>LCS-29993</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 8015M/D: Diesel Range Organics</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>29993</b>	RunNo:	<b>40459</b>					
Prep Date:	<b>2/1/2017</b>	Analysis Date:	<b>2/2/2017</b>	SeqNo:	<b>1268814</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.00	0	96.0	63.8	116			
Surr: DNOP	5.2		5.000		104	70	130			

Sample ID	<b>MB-29993</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 8015M/D: Diesel Range Organics</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>29993</b>	RunNo:	<b>40459</b>					
Prep Date:	<b>2/1/2017</b>	Analysis Date:	<b>2/2/2017</b>	SeqNo:	<b>1268815</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	12		10.00		117	70	130			

Sample ID	<b>MB-30057</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 8015M/D: Diesel Range Organics</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>30057</b>	RunNo:	<b>40519</b>					
Prep Date:	<b>2/6/2017</b>	Analysis Date:	<b>2/6/2017</b>	SeqNo:	<b>1269695</b>	Units:	<b>%Rec</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	10		10.00		100	70	130			

Sample ID	<b>LCS-30057</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 8015M/D: Diesel Range Organics</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>30057</b>	RunNo:	<b>40519</b>					
Prep Date:	<b>2/6/2017</b>	Analysis Date:	<b>2/6/2017</b>	SeqNo:	<b>1269900</b>	Units:	<b>%Rec</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.8		5.000		96.1	70	130			

**Qualifiers:**

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

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

WO#: 1702007  
 07-Feb-17

**Client:** Rule Engineering LLC  
**Project:** COP Lucerne D #1

Sample ID <b>MB-29991</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>29991</b>		RunNo: <b>40468</b>							
Prep Date: <b>2/1/2017</b>	Analysis Date: <b>2/2/2017</b>		SeqNo: <b>1268779</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	900		1000		89.7	68.3	144			

Sample ID <b>LCS-29991</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>29991</b>		RunNo: <b>40468</b>							
Prep Date: <b>2/1/2017</b>	Analysis Date: <b>2/2/2017</b>		SeqNo: <b>1268780</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	108	74.6	123			
Surr: BFB	990		1000		99.0	68.3	144			

**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#: 1702007  
07-Feb-17

**Client:** Rule Engineering LLC  
**Project:** COP Lucerne D #1

Sample ID	<b>MB-29991</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 8021B: Volatiles</b>					
Client ID:	<b>PBS</b>	Batch ID:	<b>29991</b>	RunNo:	<b>40468</b>					
Prep Date:	<b>2/1/2017</b>	Analysis Date:	<b>2/2/2017</b>	SeqNo:	<b>1268797</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.93		1.000		92.8	80	120			

Sample ID	<b>LCS-29991</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 8021B: Volatiles</b>					
Client ID:	<b>LCSS</b>	Batch ID:	<b>29991</b>	RunNo:	<b>40468</b>					
Prep Date:	<b>2/1/2017</b>	Analysis Date:	<b>2/2/2017</b>	SeqNo:	<b>1268798</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	106	75.2	115			
Toluene	0.92	0.050	1.000	0	91.6	80.7	112			
Ethylbenzene	0.88	0.050	1.000	0	87.5	78.9	117			
Xylenes, Total	2.6	0.10	3.000	0	87.6	79.2	115			
Surr: 4-Bromofluorobenzene	0.97		1.000		97.1	80	120			

Sample ID	<b>1702007-001AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>EPA Method 8021B: Volatiles</b>					
Client ID:	<b>BGTS-1</b>	Batch ID:	<b>29991</b>	RunNo:	<b>40468</b>					
Prep Date:	<b>2/1/2017</b>	Analysis Date:	<b>2/2/2017</b>	SeqNo:	<b>1268801</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.024	0.9643	0	106	61.5	138			
Toluene	0.88	0.048	0.9643	0	91.5	71.4	127			
Ethylbenzene	0.85	0.048	0.9643	0	87.8	70.9	132			
Xylenes, Total	2.5	0.096	2.893	0	88.0	76.2	123			
Surr: 4-Bromofluorobenzene	0.92		0.9643		95.2	80	120			

Sample ID	<b>1702007-001AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>EPA Method 8021B: Volatiles</b>					
Client ID:	<b>BGTS-1</b>	Batch ID:	<b>29991</b>	RunNo:	<b>40468</b>					
Prep Date:	<b>2/1/2017</b>	Analysis Date:	<b>2/2/2017</b>	SeqNo:	<b>1268802</b>	Units:	<b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.023	0.9217	0	104	61.5	138	6.00	20	
Toluene	0.84	0.046	0.9217	0	91.1	71.4	127	4.94	20	
Ethylbenzene	0.82	0.046	0.9217	0	88.9	70.9	132	3.32	20	
Xylenes, Total	2.5	0.092	2.765	0	89.4	76.2	123	2.98	20	
Surr: 4-Bromofluorobenzene	0.89		0.9217		96.7	80	120	0	0	

**Qualifiers:**

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



Hall Environmental Analysis Laboratory  
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 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: 1702007

RcptNo: 1

Received by/date: aj 2/1/17

Logged By: Andy Jansson 2/1/2017 8:00:00 AM aj

Completed By: Andy Jansson 2/1/17

Reviewed By: aj 02/01/17

**Chain of Custody**

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

**Log In**

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

# of preserved bottles checked for pH: \_\_\_\_\_  
 (<2 or >12 unless noted)  
 Adjusted? \_\_\_\_\_  
 Checked by: \_\_\_\_\_

**Special Handling (if applicable)**

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

Person Notified: \_\_\_\_\_ Date: \_\_\_\_\_  
 By Whom: \_\_\_\_\_ Via:  eMail  Phone  Fax  In Person  
 Regarding: \_\_\_\_\_  
 Client Instructions: \_\_\_\_\_

17. Additional remarks:

**18. Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

# Chain-of-Custody Record

Client: Rule Engineering, LLC

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

Phone #: (505) 716-2787

email or Fax#: hwwoods@ruleengineering.com

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

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

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

Turn-Around Time:  
 Standard       Rush \_\_\_\_\_

Project Name: COP Lucerne D #1

Project #:

Project Manager: Heather Woods

Sampler: Heather Woods  
On Ice       Yes       No

Sample Temperature: 1.00C



## 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	BTEX + MABE + TAPES (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 <sup>-</sup> , NO <sub>2</sub> <sup>-</sup> , PO <sub>4</sub> <sup>-3</sup> , SO <sub>4</sub> <sup>-2</sup> )	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Air Bubbles (Y or N)	
1/31/17	1102	Soil	BGTS-1	(1) 4 Oz 6140	COLEI	1702007 -001	X		X	X				X					
<del>NFS</del>																			

Date: 1/31/17	Time: 1821	Relinquished by: <u>Heath M. Wood</u>	Received by: <u>Heather Woods</u>	Date: 1/31/17	Time: 1821	Remarks: Direct Bill to ConocoPhillips WO: 10390323 Approver: MK SPENC Area: Z      Run: 206 Ordered by: Lisa Hunter
Date: 1/31/17	Time: 1847	Relinquished by: <u>Christine Walk</u>	Received by: <u>[Signature]</u>	Date: 2/1/17	Time: 0800	

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.

