

District I  
1625 N. French Dr., Hobbs, NM 88240

State of New Mexico  
Energy Minerals and Natural Resources

Form C-144  
July 21, 2008

District II  
1301 W. Grand Ave., Artesia, NM 88210

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

For temporary pits, closed-loop systems, and below-grade tanks, submit to the appropriate NMOCD District Office.

District III  
1000 Rio Brazos Rd., Aztec, NM 87410

For permanent pits and exceptions submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.

District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

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

11532

- Type of action:
- Permit of a pit, closed-loop system, below-grade tank, or proposed alternative method
  - Closure of a pit, closed-loop system, below-grade tank, or proposed alternative method
  - Modification to an existing permit
  - Closure plan only submitted for an existing permitted or non-permitted pit, closed-loop system, below-grade tank, or proposed alternative method

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

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

1  
Operator: Burlington Resources Oil & Gas Company, LP OGRID#: 14538  
Address: PO Box 4289, Farmington, NM 87499  
Facility or well name: SAN JUAN 30-6 UNIT 97B  
API Number: 30-039-30685 OCD Permit Number: \_\_\_\_\_  
U/L or Qtr/Qtr: J(NW/SE) Section: 27 Township 30N Range: 7W County: RIO ARRIBA  
Center of Proposed Design: Latitude: 36.780524 °N Longitude: 107.554977 °W NAD:  ###  1983  
Surface Owner:  Federal  State  Private  Tribal Trust or Indian Allotment

2  
 **Pit:** Subsection F or G of 19.15.17.11 NMAC  
Temporary:  Drilling  Workover  
 Permanent  Emergency  Cavitation  P&A (AIR Pre-set)  
 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 \_\_\_\_\_

RCVD DEC 6 '13  
OIL CONS. DIV.  
DIST. 3

3  
 **Closed-loop System:** Subsection H of 19.15.17.11 NMAC  
Type of Operation:  P&A  Drilling a new well  Workover or Drilling (Applies to activities which require prior approval of a permit or notice of intent)  
 Drying Pad  Above Ground Steel Tanks  Haul-off Bins  Other \_\_\_\_\_  
 Lined  Unlined Liner type: Thickness \_\_\_\_\_ mil  LLDPE  HDPE  PVD  Other \_\_\_\_\_  
Liner Seams:  Welded  Factory  Other \_\_\_\_\_

4  
 **Below-grade tank:** Subsection I of 19.15.17.11 NMAC  
Volume: \_\_\_\_\_ bbl Type of fluid: \_\_\_\_\_  
Tank Construction material: \_\_\_\_\_  
 Secondary containment with leak detection  Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off  
 Visible sidewalls and liner  Visible sidewalls only  Other \_\_\_\_\_  
Liner Type: Thickness \_\_\_\_\_ mil  HDPE  PVC  Other \_\_\_\_\_

5  
 **Alternative Method:**  
Submittal of an exception request is required. Exceptions must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

18 d/b

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**Fencing:** Subsection D of 19.15.17.11 NMAC (*Applies to permanent pit, 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 \_\_\_\_\_

7

**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*)

8

**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 19.15.3.103 NMAC

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**Administrative Approvals 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:

Administrative approval(s): Requests must be submitted to the appropriate division district of the Santa Fe Environmental Bureau office for consideration of approval.  
(Cavitation pit for Pre-set)

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

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**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. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau Office for consideration of approval. Applicant must attach justification for request. Please refer to 19.15.17.10 NMAC for guidance. Siting criteria does not apply to drying pads or above grade-tanks associated with a closed-loop system.*

<b>Ground water is less than 50 feet below the bottom of the temporary pit, permanent pit, or below-grade tank.</b> - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Within 300 feet of a continuously flowing watercourse, or 200 feet of any other watercourse, lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).</b> - Topographic map; Visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.</b> <i>(Applies to temporary, emergency, or cavitation pits and below-grade tanks)</i> - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
<b>Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.</b> <i>(Applied to permanent pits)</i> - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
<b>Within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application.</b> - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site.	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>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</b> - Written confirmation or verification from the municipality; Written approval obtained from the municipality	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Within 500 feet of a wetland.</b> - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Within the area overlying a subsurface mine.</b> - Written confirmation or verification or map from the NM EMNRD - Mining and Mineral Division	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Within an unstable area.</b> - 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
<b>Within a 100-year floodplain</b> - FEMA map	<input type="checkbox"/> Yes <input type="checkbox"/> No

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**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
  - 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 \_\_\_\_\_ or Permit \_\_\_\_\_

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**Closed-loop Systems 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.

- Geologic and Hydrogeologic Data (only for on-site closure) - based upon the requirements of Paragraph (3) of Subsection B of 19.15.17.9
  - Siting Criteria Compliance Demonstrations (only for on-site closure) - 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 \_\_\_\_\_
- Previously Approved Operating and Maintenance Plan      API \_\_\_\_\_

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**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 H2S, 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

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**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  Closed-loop System
- 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
- Alternative Closure Method (Exceptions must be submitted to the Santa Fe Environmental Bureau for consideration)

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**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 F 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 I of 19.15.17.13 NMAC
- Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

**Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:** (19.15.17.13.D NMAC)

*Instructions: Please identify the facility or facilities for the disposal of liquids, drilling fluids and drill cuttings. Use attachment if more than two facilities are required.*

Disposal Facility Name: Envirotech / JFJ Landfarm % IEI Disposal Facility Permit #: NM-01-0011 / NM-01-0010B

Disposal Facility Name: Basin Disposal Facility Disposal Facility Permit #: NM-01-005

Will any of the proposed closed-loop system operations and associated activities occur on or in areas that *will not* be used for future service and  Yes (If yes, please provide the information  No

*Required for impacted areas which will not be used for future service and operations:*

- Soil Backfill and Cover Design Specification - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC
- Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

**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 may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17.10 NMAC for guidance.*

Ground water is less than 50 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Ground water is between 50 and 100 feet below the bottom of the buried waste - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Ground water is more than 100 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
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	<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. - Visual inspection (certification) of the proposed site; Aerial photo; satellite image	<input type="checkbox"/> Yes <input type="checkbox"/> No
Within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1000 horizontal feet 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; 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 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 500 feet of a wetland - 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 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

**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 F of 19.15.17.13 NMAC
- Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements 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 Subsection F of 19.15.17.13 NMAC
- Waste Material Sampling Plan - based upon the appropriate requirements of Subsection F 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 I of 19.15.17.13 NMAC
- Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

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**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: \_\_\_\_\_

#

**OCD Approval:**  Permit Application (including closure plan)  Closure Plan (only)  OCD Conditions (see attachment)

OCD Representative Signature: Janette Kelly Approval Date: 12/12/2013

Title: Compliance Officer OCD Permit Number: \_\_\_\_\_

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**Closure Report (required within 60 days of closure completion):** Subsection K of 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: \_\_\_\_\_ 12/7/2010

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**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.

#

**Closure Report Regarding Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:**

Instructions: Please identify the facility or facilities for where the liquids, drilling fluids and drill cuttings were disposed. Use attachment if more than two facilities were utilized.

Disposal Facility Name: \_\_\_\_\_ Disposal Facility Permit Number: \_\_\_\_\_  
Disposal Facility Name: \_\_\_\_\_ Disposal Facility Permit Number: \_\_\_\_\_

Were the closed-loop system operations and associated activities performed on or in areas that will not be used for future service and operations?

Yes (If yes, please demonstrate compliance to the items below)  No

Required for impacted areas which will not be used for future service and operations:

- Site Reclamation (Photo Documentation)
- Soil Backfilling and Cover Installation
- Re-vegetation Application Rates and Seeding Technique

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**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)
- Plot Plan (for on-site closures and temporary pits)
- Confirmation Sampling Analytical Results (if applicable)
- Waste Material Sampling Analytical Results (if applicable)
- 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: \_\_\_\_\_ 36.780524 Longitude: \_\_\_\_\_ 107.554977 NAD  1927  1983

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**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): Kenny Davis Title: Staff Regulatory Technician  
Signature: [Signature] Date: 12/5/2013  
e-mail address: kenny.r.davis@conocophillips.com Telephone: 505-599-4045

## Burlington Resources Oil & Gas Company, LP Cavitation Pit for Closed-Loop Locations

### Design:

Burlington Resources Oil & Gas Company, LP will use a cavitation pit plan when the surface casing will be pre-set on closed-loop locations. The drill cuttings will be stockpiled on the surface.

### Operations and Maintenance:

The cavitation pit will be operated and maintained as follows:

1. Only Fresh water and air will be used in the drilling of the surface casing.
2. The Cement used will be: Neat Cement with no additives.
3. All of the fluids will be removed within 48hrs after drilling.
4. A representative five point composite sample will be taken of the drill cuttings, after the setting of the surface casing is complete, using sampling tools and all samples will be tested per Subsection B of 19.15.17.13(B)(1)(b). In the event that the testing criteria is not met, all contents will be dug and hauled per Subparagraph (a) of Paragraph (1) of Subsection B of 19.15.17.13 i.e.

Components	Tests Method	Limit (mg/Kg)
Benzene	EPA SW-846 8021B or 8260B	0.2
BTEX	EPA SW-846 8021B or 8260B	50
TPH	EPA SW-846 418.1	2500
GRO/DRO	EPA SW-846 8015M	500
Chlorides	EPA 300.1	500

5. The NMOCD will be notified via email of the test results of the cavitation surface as follows:

Components	Tests Method	Limit (mg/Kg)	Results
Benzene	EPA SW-846 8021B or 8260B	0.2	ND
BTEX	EPA SW-846 8021B or 8260B	50	130 <sup>Mg/Kg</sup>
TPH	EPA SW-846 418.1	2500	91.6
GRO/DRO	EPA SW-846 8015M	500	ND
Chlorides	EPA 300.1	500	100

JK 12/12/2013

### Closure Plan:

1. The NMOCD will be notified of the sample results and the intent to start the closure process 3-7 days prior to the drill cuttings being transported, moved, or distributed on location.
2. In the event the criteria are not met, all solids and liquids will be removed and disposed of at Envirotech (Permit #NM-01-0011) and/or Basin Disposal Facility (Permit #NM-01-005) and/or JFJ Landfarm % Industrial Ecosystem Inc. (Permit # NM-01-0010B).
3. Testing results will be submitted with the Closure Report of the well locations Closed-Loop Permit on Form C-144.

**Burlington Resources is aware that approval of this plan does not relieve Burlington Resources of liability should operations result in pollution of surface water, ground water, or the environment. Nor does approval relieve ConocoPhillips of its responsibility to comply with any other applicable governmental authority's rules and regulations.**

**EPA METHOD 8015 Modified  
Nonhalogenated Volatile Organics  
Total Petroleum Hydrocarbons**

Client:	ConocoPhillips	Project #:	96052-1706
Sample ID:	Back Ground	Date Reported:	04-21-11
Laboratory Number:	57931	Date Sampled:	04-19-11
Chain of Custody No:	11356	Date Received:	04-19-11
Sample Matrix:	Soil	Date Extracted:	04-19-11
Preservative:	Cool	Date Analyzed:	04-20-11
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	ND	0.2
Diesel Range (C10 - C28)	ND	0.1
Total Petroleum Hydrocarbons	ND	

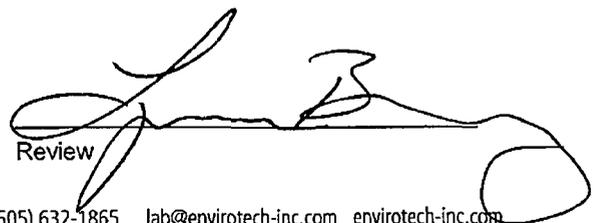
ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **S.J. 30-6 #97B**



\_\_\_\_\_  
Analyst



\_\_\_\_\_  
Review



**EPA METHOD 8015 Modified  
Nonhalogenated Volatile Organics  
Total Petroleum Hydrocarbons**

Client:	ConocoPhillips	Project #:	96052-1706
Sample ID:	Reserve Pit	Date Reported:	04-21-11
Laboratory Number:	57932	Date Sampled:	04-19-11
Chain of Custody No:	11356	Date Received:	04-19-11
Sample Matrix:	Soil	Date Extracted:	04-19-11
Preservative:	Cool	Date Analyzed:	04-20-11
Condition:	Intact	Analysis Requested:	8015 TPH

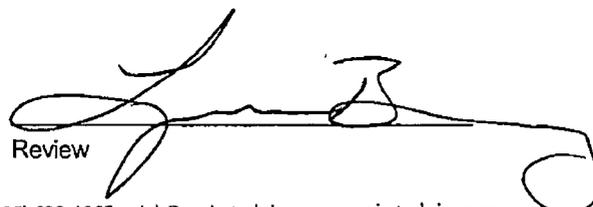
Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	ND	0.2
Diesel Range (C10 - C28)	ND	0.1
Total Petroleum Hydrocarbons	ND	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **S.J. 30-6 #97B**

  
\_\_\_\_\_  
Analyst

  
\_\_\_\_\_  
Review



**EPA Method 8015 Modified  
Nonhalogenated Volatile Organics  
Total Petroleum Hydrocarbons**

**Quality Assurance Report**

Client:	QA/QC	Project #:	N/A
Sample ID:	04-20-11 QA/QC	Date Reported:	04-21-11
Laboratory Number:	57912	Date Sampled:	N/A
Sample Matrix:	Methylene Chloride	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	04-20-11
Condition:	N/A	Analysis Requested:	TPH

	I-Cal Date	I-Cal RF	C-Cal RF	% Difference	Accept Range
Gasoline Range C5 - C10	04-20-11	1.0068E+003	1.0072E+003	0.04%	0 - 15%
Diesel Range C10 - C28	04-20-11	9.9960E+002	1.0000E+003	0.04%	0 - 15%

Blank Conc. (mg/L - mg/Kg)	Concentration	Detection Limit
Gasoline Range C5 - C10	ND	0.2
Diesel Range C10 - C28	ND	0.1

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept Range
Gasoline Range C5 - C10	2,440	2,360	3.3%	0 - 30%
Diesel Range C10 - C28	695	657	5.5%	0 - 30%

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept Range
Gasoline Range C5 - C10	2,440	250	2,570	95.6%	75 - 125%
Diesel Range C10 - C28	695	250	935	98.9%	75 - 125%

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: QA/QC for Samples 57912, 57929-57934

  
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Analyst

  
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Review

Client:	ConocoPhillips	Project #:	96052-1706
Sample ID:	Back Ground	Date Reported:	04-21-11
Laboratory Number:	57931	Date Sampled:	04-19-11
Chain of Custody:	11356	Date Received:	04-19-11
Sample Matrix:	Soil	Date Analyzed:	04-20-11
Preservative:	Cool	Date Extracted:	04-19-11
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	10

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	ND	0.9
Toluene	ND	1.0
Ethylbenzene	ND	1.0
p,m-Xylene	ND	1.2
o-Xylene	ND	0.9
<b>Total BTEX</b>	<b>ND</b>	

ND - Parameter not detected at the stated detection limit.

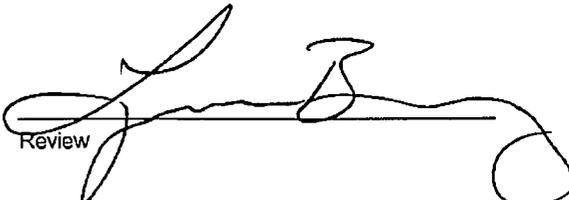
Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	93.5 %
	1,4-difluorobenzene	84.4 %
	Bromochlorobenzene	91.9 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: S.J. 30-6 #97B

  
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Analyst

  
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Review

Client:	ConocoPhillips	Project #:	96052-1706
Sample ID:	Reserve Pit	Date Reported:	04-21-11
Laboratory Number:	57932	Date Sampled:	04-19-11
Chain of Custody:	11356	Date Received:	04-19-11
Sample Matrix:	Soil	Date Analyzed:	04-20-11
Preservative:	Cool	Date Extracted:	04-19-11
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	10

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
	<i>NOT MET</i>	
Benzene	7.1	0.9
Toluene	46.5	1.0
Ethylbenzene	1.4	1.0
p,m-Xylene	66.1	1.2
o-Xylene	9.3	0.9
Total BTEX	130	

ND - Parameter not detected at the stated detection limit.

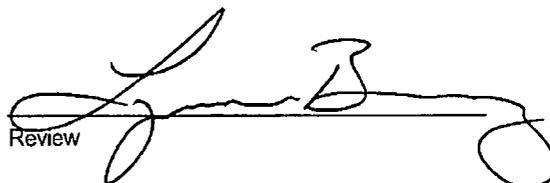
Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	94.2 %
	1,4-difluorobenzene	99.9 %
	Bromochlorobenzene	93.1 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: S.J. 30-6 #97B

  
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Analyst

  
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Review



EPA METHOD 8021  
AROMATIC VOLATILE ORGANICS

Client:	N/A	Project #:	N/A
Sample ID:	0420BBLK QA/QC	Date Reported:	04-21-11
Laboratory Number:	57912	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	04-20-11
Condition:	N/A	Analysis:	BTEX
		Dilution:	10

Calibration and Detection Limits (ug/L)	I-Cal RF	C-Cal RF	%Diff	Blank Conc	Detect Limit
		Accept Range 0 - 15%	0 - 15%		
Benzene	1.3712E+005	1.3739E+005	0.2%	ND	0.1
Toluene	1.5348E+005	1.5378E+005	0.2%	ND	0.1
Ethylbenzene	1.3506E+005	1.3534E+005	0.2%	ND	0.1
p,m-Xylene	3.1385E+005	3.1448E+005	0.2%	ND	0.1
o-Xylene	1.3078E+005	1.3104E+005	0.2%	ND	0.1

Duplicate Conc. (ug/Kg)	Sample	Duplicate	%Diff	Accept Range	Detect Limit
Benzene	ND	ND	0.0%	0 - 30%	0.9
Toluene	ND	ND	0.0%	0 - 30%	1.0
Ethylbenzene	ND	ND	0.0%	0 - 30%	1.0
p,m-Xylene	4.9	3.7	24.5%	0 - 30%	1.2
o-Xylene	1.8	2.0	11.1%	0 - 30%	0.9

Spike Conc. (ug/Kg)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Range
Benzene	ND	500	498	100%	39 - 150
Toluene	ND	500	523	105%	46 - 148
Ethylbenzene	ND	500	516	103%	32 - 160
p,m-Xylene	4.9	1000	1,010	100%	46 - 148
o-Xylene	1.8	500	525	105%	46 - 148

ND - Parameter not detected at the stated detection limit.

Dilution: Spike and spiked sample concentration represent a dilution proportional to sample dilution.

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.  
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: QA/QC for Samples 57912, 57929-57934

Analyst

Review



EPA METHOD 418.1  
TOTAL PETROLEUM HYDROCARBONS

Client:	ConocoPhillips	Project #:	96052-1706
Sample ID:	Back Ground	Date Reported:	04/21/11
Laboratory Number:	57931	Date Sampled:	04/19/11
Chain of Custody No:	11356	Date Received:	04/19/11
Sample Matrix:	Soil	Date Extracted:	04/20/11
Preservative:	Cool	Date Analyzed:	04/20/11
Condition:	Intact	Analysis Needed:	TPH-418.1

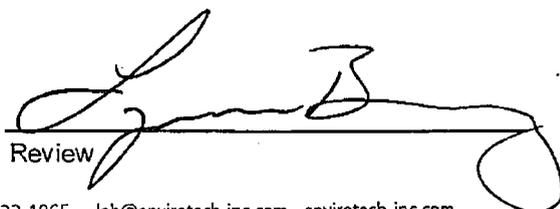
Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	56.0	5.0

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: S.J. 30-6 #97B

  
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Analyst

  
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Review

Client:	ConocoPhillips	Project #:	96052-1706
Sample ID:	Reserve Pit	Date Reported:	04/21/11
Laboratory Number:	57932	Date Sampled:	04/19/11
Chain of Custody No:	11356	Date Received:	04/19/11
Sample Matrix:	Soil	Date Extracted:	04/20/11
Preservative:	Cool	Date Analyzed:	04/20/11
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
<b>Total Petroleum Hydrocarbons</b>	<b>91.6</b>	<b>5.0</b>

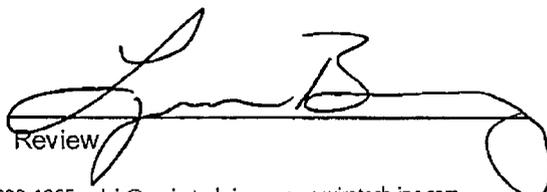
ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **S.J. 30-6 #97B**



Analyst



Review



**EPA METHOD 418.1  
TOTAL PETROLEUM HYDROCARBONS  
QUALITY ASSURANCE REPORT**

Client:	QA/QC	Project #:	N/A
Sample ID:	QA/QC	Date Reported:	04/21/11
Laboratory Number:	04-20-TPH.QA/QC 57929	Date Sampled:	N/A
Sample Matrix:	Freon-113	Date Analyzed:	04/20/11
Preservative:	N/A	Date Extracted:	04/20/11
Condition:	N/A	Analysis Needed:	TPH

Calibration	I-Cal Date	C-Cal Date	I-Cal RF	C-Cal RF	% Difference	Accept. Range
	04/15/11	04/20/11	1,590	1,520	4.4%	+/- 10%

Blank Conc. (mg/Kg)	Concentration	Detection Limit
TPH	ND	5.0

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range
TPH	94.1	92.8	1.4%	+/- 30%

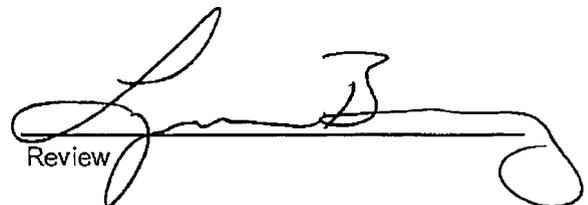
Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept Range
TPH	94.1	2,000	1,910	91.2%	80 - 120%

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: QA/QC for Samples 57929-57937

  
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Analyst

  
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Review



Client:	ConocoPhillips	Project #:	96052-1706
Sample ID:	Back Ground	Date Reported:	04/21/11
Lab ID#:	57931	Date Sampled:	04/19/11
Sample Matrix:	Soil	Date Received:	04/19/11
Preservative:	Cool	Date Analyzed:	04/21/11
Condition:	Intact	Chain of Custody:	11356

Parameter	Concentration (mg/Kg)
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<b>Total Chloride</b>	<b>40</b>
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Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.  
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **S.J. 30-6 #97B**

Analyst

Review



Client:	ConocoPhillips	Project #:	96052-1706
Sample ID:	Reserve Pit	Date Reported:	04/21/11
Lab ID#:	57932	Date Sampled:	04/19/11
Sample Matrix:	Soil	Date Received:	04/19/11
Preservative:	Cool	Date Analyzed:	04/21/11
Condition:	Intact	Chain of Custody:	11356

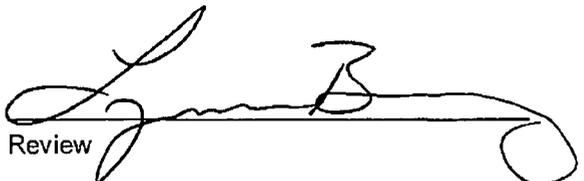
Parameter	Concentration (mg/Kg)
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<b>Total Chloride</b>	<b>100</b>
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Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.  
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **S.J. 30-6 #97B**

  
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