

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 April 3, 2017

**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

**OIL CONS. DIV DIST. 3**

- 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

**JAN 11 2018**

16196

**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: BP America Production Company OGRID #: 778  
Address: 200 Energy Court, Farmington, NM 87401  
Facility or well name: HARDIE LS 003A  
API Number: 3004522813 OCD Permit Number: \_\_\_\_\_  
U/L or Qtr/Qtr I Section 25 Township 29N Range 08W County: San Juan  
Center of Proposed Design: Latitude 36.69470 Longitude -107.62254 NAD83  
Surface Owner:  Federal  State  Private  Tribal Trust or Indian Allotment

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

3.  
 **Below-grade tank:** Subsection I of 19.15.17.11 NMAC **TANK B**  
Volume: 21 bbl Type of fluid: Produced Water  
Tank Construction material: Steel  
 Secondary containment with leak detection  Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off  
 Visible sidewalls and liner  Visible sidewalls only  Other Single wall/ Double bottom; sidewalls not visible  
Liner type: Thickness \_\_\_\_\_ mil  HDPE  PVC  Other \_\_\_\_\_

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 \_\_\_\_\_

JB

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.*

| <u>General siting</u>   |   |
|---|---|
| <b><u>Ground water is less than 25 feet below the bottom of a low chloride temporary pit or below-grade tank.</u></b><br>- <input type="checkbox"/> NM Office of the State Engineer - iWATERS database search; <input type="checkbox"/> USGS; <input type="checkbox"/> Data obtained from nearby wells  | <input type="checkbox"/> Yes <input type="checkbox"/> No<br><input type="checkbox"/> NA |
| <b><u>Ground water is less than 50 feet below the bottom of a Temporary pit, permanent pit, or Multi-Well Fluid Management pit.</u></b><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 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>(Does not apply to below grade tanks)</b><br>- 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. <b>(Does not apply to below grade tanks)</b><br>- 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. <b>(Does not apply to below grade tanks)</b><br>- 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. <b>(Does not apply to below grade tanks)</b><br>- FEMA map  | <input type="checkbox"/> Yes <input type="checkbox"/> No                                |
| <b><u>Below Grade Tanks</u></b>   |   |
| Within 100 feet of a continuously flowing watercourse, significant watercourse, lake bed, sinkhole, wetland 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 200 horizontal feet of a spring or a fresh water well used for public or livestock consumption;<br>- 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><u>Temporary Pit using Low Chloride Drilling Fluid</u></b> (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.)<br>- Topographic map; Visual inspection (certification) of the proposed site   | <input type="checkbox"/> Yes <input type="checkbox"/> No                                |
| Within 300 feet from a occupied 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 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.<br>NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site | <input type="checkbox"/> Yes <input type="checkbox"/> No                                |

|   |  |
|---|--|
| <p>Within 100 feet of a wetland.</p> <ul style="list-style-type: none"> <li>- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site</li> </ul>   | <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).</p> <ul style="list-style-type: none"> <li>- Topographic map; Visual inspection (certification) of the proposed site</li> </ul>  | <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.</p> <ul style="list-style-type: none"> <li>- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image</li> </ul>  | <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;</p> <ul style="list-style-type: none"> <li>- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site</li> </ul> | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>Within 300 feet of a wetland.</p> <ul style="list-style-type: none"> <li>- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site</li> </ul>   | <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).</p> <ul style="list-style-type: none"> <li>- Topographic map; Visual inspection (certification) of the proposed site</li> </ul>   | <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.</p> <ul style="list-style-type: none"> <li>- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image</li> </ul>   | <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.</p> <ul style="list-style-type: none"> <li>- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site</li> </ul>  | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>Within 500 feet of a wetland.</p> <ul style="list-style-type: none"> <li>- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site</li> </ul>   | <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.<br>- 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.<br>- 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.<br>- 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.<br>- 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: *Janessa* Approval Date: 1/22/2018  
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: 11/15/2017

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 36.69470 Longitude -107.62254 NAD:  1927  1983

22.

**Operator Closure Certification:**

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

Name (Print): Erin Garifalos Title: Field Environmental Coordinator

Signature: *erin garifalos* Date: January 9, 2018

e-mail address: erin.garifalos@bp.com Telephone: (832) 609-7048

BP AMERICA PRODUCTION COMPANY  
SAN JUAN BASIN, NORTHWEST NEW MEXICO

BELOW-GRADE TANK CLOSURE PLAN

**HARDIE LS 003A**

**API No. 3004522813**

**Unit Letter I Section 25 T 29N R 08W**

This plan will address the standard protocols and procedures for closure of below-grade tanks (BGTs) on BP America Production Company (BP) well sites. As stipulated in Paragraph A of 19.15.17.13 NMAC, BP shall close a BGT within the time periods provided in 19.15.17.13 NMAC, or by an earlier date that the New Mexico Oil Conservation Division (NMOCD) requires because of imminent danger to fresh water, public health, safety or the environment. If deviations from this plan are necessary, any specific changes will be included on form C-144 and approved by the NMOCD. BP shall close an existing BGT that does not meet the requirements of Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC or is not included in Paragraph (5) of Subsection I of 19.15.17.11 NMAC within five years after June 16, 2008, if not retrofit with a BGT that complies with the BP NMOCD approved BGT design attached to the BP Design and Construction Plan. BP shall close an existing BGT that does not meet the requirements of Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC, if not previously retrofitted to comply with the BP NMOCD approved BGT Design attached to the BP Design and Construction Plan, prior to any sale or change in operator pursuant to 19.15.9.9 NMAC. BP shall close the permitted BGT within 60 days of cessation of the BGTs operation or as required by the transitional provisions of Subsection B, D, or E of 19.15.17.17 NMAC.

**General Closure Plan**

1. BP shall notify the surface owner by certified mail that it plans to close a BGT. Evidence of mailing of the notice to the address of the surface owner shown in the county tax records demonstrates compliance with this requirement.

**Notice is attached.**

2. BP shall notify the division District III office verbally or by other means at least 72 hours, but not more than one (1) week, prior to any closure operation. The notice shall include the operator's name, and the location to be closed by unit letter, section, township and range. If the BGT closure is associated with a particular well, then the notice shall also include the well's name, number and API number.

**Notice was provided and is attached.**

3. BP shall remove liquids and sludge from the BGT prior to implementing a closure method and dispose of the liquids and sludge in a NMOCD's division-approved facility. The facilities to be used are:
  - a. BP Crouch Mesa Landfarm, Permit NM-02-003 (Solids)
  - b. JFJ Landfarm, Permit NM-01-010(B) (Solids and Sludge)
  - c. Basin Disposal, Permit NM-01-0005 (Liquids)
  - d. Envirotech Inc Soil Remediation Facility, Permit NM-01-0011 (Solids and Sludge)
  - e. BP Operated E.E. Elliott SWD #1, API 30-045-27799 (Liquids)

- f. BP Operated 13 GCU SWD #1, API 30-045-28601 (Liquids)
- g. BP Operated GCU 259 SWD, API 30-045-20006 (Liquids)
- h. BP Operated GCU 306 SWD, API 30-045-24286 (Liquids)
- i. BP Operated GCU 307 SWD, API 30-045-24248 (Liquids)
- j. BP Operated GCU 328 SWD, API 30-045-24735 (Liquids)
- k. BP Operated Pritchard SWD #1, API 30-045-28351 (Liquids)

**All liquids and sludge in the BGT were removed and sent to one of the above NMOCD approved facilities for disposal.**

- 4. BP shall remove the BGT and dispose of it in a NMOCD approved facility or recycle, reuse, or reclaim it in a manner that the NMOCD approves. If a liner is present and must be disposed of it will be cleaned by scraping any soils or other attached materials on the liner to a de minimus amount and disposed at a permitted solid waste facility, pursuant to Subparagraph (m) of Paragraph (1) of Subsection C of 19.15.35.8 NMAC. Documentation as to the final disposition of the removed BGT will be provided in the final closure report.

**The BGT was transported for recycling.**

- 5. BP shall remove any on-site equipment associated with a BGT unless the equipment is required for well production.

**All equipment associated with the BGT has been removed.**

- 6. BP shall test the soils beneath the BGT to determine whether a release has occurred. BP shall collect at a minimum: a five (5) point composite sample and individual grab samples from any area that is wet, discolored or showing other evidence of a release and analyze for BTEX, TPH and chlorides. The testing methods for those constituents are as follows;

| Constituents | Testing Method<br><b>21 bbl BGT</b>                | Release Verification<br>(mg/Kg) | Sample results |
|--------------|--|---------------------------------|----------------|
| Benzene      | US EPA Method SW-846 8021B or 8260B                | 10                              | <0.019         |
| Total BTEX   | US EPA Method SW-846 8021B or 8260B                | 50                              | <0.075         |
| TPH          | US EPA Method SW-846 418.1 or <u>8015</u> extended | 100                             | <48            |
| Chlorides    | US EPA Method 300.0 or 4500B                       | 620                             | <30            |

**Notes: mg/Kg = milligram per kilogram, BTEX = benzene, toluene, ethylbenzene, and total xylenes, TPH = total petroleum hydrocarbons. Other EPA methods that the division approves may be applied to all constituents listed. Chloride closure standards will be determined by which ever concentration level is greatest.**

**Soil under the BGT was sampled for chloride, TPH and BTEX with all concentrations below the stated limits.**

**The field report and laboratory reports are attached.**

- 7. BP shall notify the division District III office of its results on form C-141. **C-141 is attached.**

8. If it is determined that a release has occurred, then BP will comply with 19.15.30 NMAC and 19.15.29 NMAC, as appropriate.

**Sampling results indicate a release has not occurred. Attached is a laboratory report and C-141.**

9. If the sampling demonstrates that a release has not occurred or that any release does not exceed the concentrations specified above, then BP shall backfill the excavation, with compacted, non-waste containing, earthen material; construct a division-prescribed soil cover, re-contour and re-vegetate the location. The location will be reclaimed if it is not within the active process area

**Sampling results indicate a release has not occurred. Attached is a laboratory report and field report. The location will be reclaimed when the well is plugged and abandoned.**

10. BP shall reclaim the BGT location and all areas associated with the BGT including associated access roads to a safe and stable condition that blends with the surrounding undisturbed area. BP shall substantially restore the impacted surface area to the condition that existed prior to oil and gas operations by placement of the soil cover as provided in Subsection H of 19.15.17.13 NMAC, re-contour the location and associated areas to a contour that approximates the original contour and blends with the surrounding topography and re-vegetate according to Subsection I of 19.15.17.13 NMAC.

**The area has been backfilled. The location will be reclaimed once the well is plugged and abandoned.**

11. The soil cover for closures where the BGT has been removed or remediated to the NMOCD's satisfaction shall consist of the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater. The soil cover will be constructed to the site's existing grade and all practicable efforts will be made to prevent ponding of water and erosion of the cover material.

**The area has been backfilled. The location will be reclaimed once the well is plugged and abandoned.**

12. BP shall seed the disturbed area the first growing season after closure of the BGT. Seeding will be accomplished by drilling on the contour whenever practical or by other division-approved methods. Vegetative cover will be, at a minimum, 70% of the native perennial vegetative cover (un-impacted by overgrazing, fire or other intrusion damaging to native vegetation), consisting of at least three native plant species, including at least one grass, but not including noxious weeds, and maintenance of that cover through two successive growing seasons. During the two growing seasons that prove viability, there shall be no artificial irrigation of the vegetation.

**The area has been backfilled. The location will be reclaimed once the well is plugged and abandoned.**

13. BP shall seed, plant and re-seed pursuant to Paragraph (3) of Subsection I of 19.15.17.13 NMAC, until the location successfully achieves the required vegetative cover.

**The area has been backfilled. The location will be reclaimed once the well is plugged and abandoned.**

14. Pursuant to Paragraph (5) of Subsection I of 19.15.17.13 NMAC, BP shall notify the NMOCD when it has seeded or planted and when it successfully achieves re-vegetation.

**The area has been backfilled. The location will be reclaimed once the well is plugged and abandoned.**

15. Within 60 days of closure completion, BP shall submit a closure report on NMOCD's form C-144, and will include the following;
- a. proof of closure notification (surface owner and NMOCD)
  - b. sampling analytical reports; information required by 19.15.17 NMAC;
  - c. disposal facility name and permit number
  - d. details on back-filling, capping, covering, and where applicable re-vegetation application rates and seeding techniques and
  - e. site reclamation, photo documentation.

**Closure report on C-144 form is included including photos of reclamation completion.**

16. BP shall certify that all information in the report and attachments is accurate, truthful, and compliant with all applicable closure requirements and conditions specified in the approved closure plan.

**Certification section of C-144 has been completed.**

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

Form C-141  
Revised April 3, 2017

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

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

**Release Notification and Corrective Action**

**OPERATOR**

Initial Report  Final Report

|                 |  |               |                  |
|-----------------|--|---------------|------------------|
| Name of Company | BP America Production Company          | Contact       | Erin Garifalos   |
| Address         | 200 Energy Court, Farmington, NM 87401 | Telephone No. | (832) 609-7048   |
| Facility Name   | HARDIE LS 003A                         | Facility Type | Natural Gas Well |
| Surface Owner   | Federal                                | Mineral Owner | Federal          |
|                 |  | API No.       | 3004522813       |

**LOCATION OF RELEASE**

| Unit Letter | Section | Township | Range | Feet from the | North/South Line | Feet from the | East/West Line | County   |
|-------------|---------|----------|-------|---------------|------------------|---------------|----------------|----------|
| I           | 25      | 29N      | 08W   | 1,770         | South            | 990           | East           | San Juan |
|             |         |          |       | Latitude      | 36.69470         | Longitude     | -107.62254     | NAD83    |

**NATURE OF RELEASE**

|  |   |   |         |                             |     |
|--|---|---|---------|-----------------------------|-----|
| Type of Release:   | none  | Volume of Release:                        | unknown | Volume Recovered:           | N/A |
| Source of Release:   | below grade tank - 21 bbl   | Date and Hour of Occurrence:              | n/a     | Date and Hour of Discovery: | n/a |
| Was Immediate Notice Given?  | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input 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.*  |   |   |         |                             |     |
| Describe Cause of Problem and Remedial Action Taken.*<br>Sampling of the soil beneath the BGT was done during removal. Soil analysis resulted for Chlorides, BTEX, and TPH below BGT closure standards. Field reports and laboratory results are attached. |   |   |         |                             |     |
| Describe Area Affected and Cleanup Action Taken.*<br>No action necessary. Final laboratory analysis determined no remedial action is required.   |   |   |         |                             |     |

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>       |                |                                   |
|  | Approved by Environmental Specialist:  |                |                                   |
| Printed Name: Erin Garifalos   | Title: Field Environmental Coordinator | Approval Date: | Expiration Date:                  |
| E-mail Address: erin.garifalos@bp.com  | Conditions of Approval:                |                | Attached <input type="checkbox"/> |
| Date: January 9, 2018  | Phone: (832) 609-7048                  |                |                                   |

\* Attach Additional Sheets If Necessary



**BP America Production Company**  
200 Energy Court  
Farmington, NM 87401

November 10, 2017

Bureau of Land Management  
Whitney Thomas  
6251 College Suite A  
Farmington, NM 87402

**VIA EMAIL**

Re: Notification of plans to close/remove a below grade tank  
Well Name: HARDIE LS 003A  
API #: 3004522813

Dear Mrs. Thomas,

As part of the NM "Pit Rule": 19.15.17.13 Closure Requirements, Paragraph J. BP America Production Company (BP) is required to notify the surface owner of BP's plans to close/remove a below grade tank. BP wishes to inform you of our plans to close/remove the below grade tank on its well pad located on your surface. BP plans to commence this work on or about November 13, 2017. If there aren't any unforeseen problems, the work should be completed within 10 working days.

As a point of clarification, BP will be closing the below grade tank and either operating without one or replacing it with an above ground tank, the well site will continue to operate.

If witnessing of the tank removal is required please contact me for a specific time (832)-609-7048.

Sincerely,

Erin Garifalos

BP America Production Company

**From:** [Buckley, Farrah \(CH2M HILL\)](#)  
**To:** [Smith, Cory, FMNRD](#); [Fields, Vanessa, FMNRD \(Vanessa.Fields@state.nm.us\)](#)  
**Cc:** [jeffcblagg@aol.com](#); [blagg\\_njv@yahoo.com](#); [Garifalos, Erin](#)  
**Subject:** BP Pit Close Notification - HARDIE LS 003A  
**Date:** Friday, November 10, 2017 8:59:29 AM

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**BP America Production Company**  
200 Energy Court  
Farmington, NM 87401  
Phone: (505) 326-9200

SENT VIA E-MAIL TO: [CORY.SMITH@STATE.NM.US](mailto:CORY.SMITH@STATE.NM.US);  
[VANESSA.FIELDS@STATE.NM.US](mailto:VANESSA.FIELDS@STATE.NM.US)

November 10, 2017

New Mexico Oil Conservation Division  
1000 Rio Brazos Road  
Aztec, New Mexico 87410

**RE: Notice of Proposed Below-Grade Tank (BGT) Closure**

HARDIE LS 003A  
API 30-045-22813  
(A) Section 25 – T29N – R08W  
San Juan County, New Mexico

Dear Mr. Cory Smith and Mrs. Vanessa Fields,

In regards to the captioned subject and requirements of the NMOCD pit rule, this letter is notification that BP is planning to close a 21bbl BGT that will no longer be operational at this well site. We anticipate this work to start on or around November 13, 2017 .

Should you have any questions, please feel free to contact BP at our Farmington office.

Sincerely,

*Erin Garifalos*

Field Environmental Coordinator – San Juan

Cell: 832-609-7048

**Farrah Buckley**  
**BGT Project Support**  
**970-946-9199 -cell**

*This email and any attachments are intended only for the addressee(s) listed above and may contain confidential, proprietary, and/or privileged information. If you are not an intended recipient, please immediately advise the sender by return email, delete this email and any attachments, and destroy any copies of same. Any unauthorized review, use, copying disclosure or distribution of this email and any attachments is prohibited.*

|                   |   |   |
|-------------------|---|---|
| CLIENT: <b>BP</b> | <b>BLAGG ENGINEERING, INC.</b><br><b>P.O. BOX 87, BLOOMFIELD, NM 87413</b><br><b>(505) 632-1199</b> | API #: <b>3004522813</b><br>TANK ID (if applicable): <b>B</b> |
|-------------------|---|---|

|  |                              |
|--|------------------------------|
| <b>FIELD REPORT:</b> (circle one): <input checked="" type="checkbox"/> BGT CONFIRMATION / <input type="checkbox"/> RELEASE INVESTIGATION / <input type="checkbox"/> OTHER: | PAGE #: <b>1</b> of <b>1</b> |
|--|------------------------------|

|   |  |
|---|--|
| <b>SITE INFORMATION:</b><br>QUAD/UNIT: <b>I</b> SEC: <b>25</b> TWP: <b>29N</b> RNG: <b>8W</b> PM: <b>NM</b> CNTY: <b>SJ</b> ST: <b>NM</b><br>1/4 -1/4/FOOTAGE: <b>1,770'S / 990'E</b> <b>NE/SE</b> LEASE TYPE: <input checked="" type="checkbox"/> FEDERAL / STATE / FEE / INDIAN<br>LEASE #: <b>SF078416A</b> PROD. FORMATION: <b>MV</b> CONTRACTOR: <b>BP - J. GONZALES</b> | SITE NAME: <b>HARDIE LS # 3A</b><br>DATE STARTED: <b>11/13/17</b><br>DATE FINISHED: _____<br>ENVIRONMENTAL SPECIALIST(S): <b>NJV</b> |
|---|--|

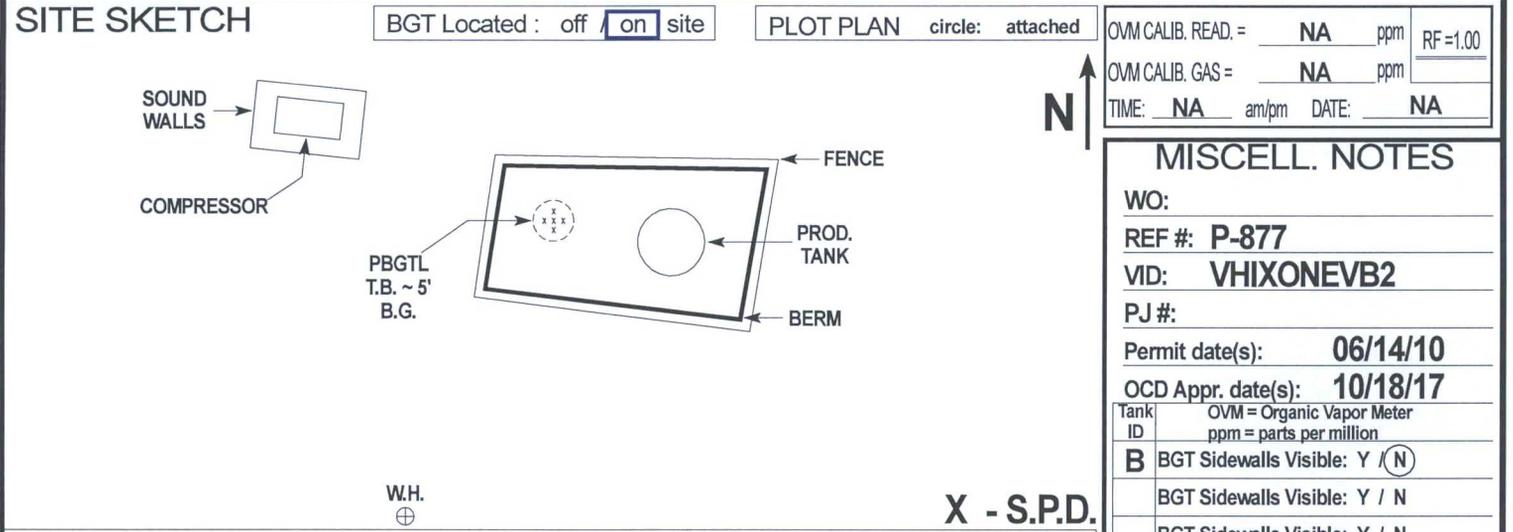
|   |   |  |
|---|---|--|
| <b>REFERENCE POINT:</b><br>1) <b>21 BGT (SW/DB)</b><br>2) _____<br>3) _____<br>4) _____ | WELL HEAD (W.H.) GPS COORD.: <b>36.69452 X 107.62264</b><br>GPS COORD.: <b>36.69470 X 107.62254</b><br>GPS COORD.: _____<br>GPS COORD.: _____ | GL ELEV.: <b>6,304'</b><br>DISTANCE/BEARING FROM W.H.: <b>66', N27E</b><br>DISTANCE/BEARING FROM W.H.: _____<br>DISTANCE/BEARING FROM W.H.: _____<br>DISTANCE/BEARING FROM W.H.: _____ |
|---|---|--|

|  |   |  |
|--|---|--|
| <b>SAMPLING DATA:</b><br>1) SAMPLE ID: <b>5PC - TB @ 5' (21)</b><br>2) SAMPLE ID: _____<br>3) SAMPLE ID: _____<br>4) SAMPLE ID: _____<br>5) SAMPLE ID: _____ | CHAIN OF CUSTODY RECORD(S) # OR LAB USED: <b>HALL</b><br>SAMPLE DATE: <b>11/13/17</b> SAMPLE TIME: <b>1145</b> LAB ANALYSIS: <b>8015B/8021B/300.0 (CI)</b><br>SAMPLE DATE: _____ SAMPLE TIME: _____ LAB ANALYSIS: _____<br>SAMPLE DATE: _____ SAMPLE TIME: _____ LAB ANALYSIS: _____<br>SAMPLE DATE: _____ SAMPLE TIME: _____ LAB ANALYSIS: _____ | OVM READING (ppm)<br><b>NA</b><br>_____<br>_____ |
|--|---|--|

|  |  |
|--|--|
| <b>SOIL DESCRIPTION:</b><br>SOIL TYPE: SAND <input checked="" type="checkbox"/> SILTY SAND / SILT <input checked="" type="checkbox"/> SILTY CLAY / CLAY / GRAVEL / OTHER _____<br>SOIL COLOR: <b>OLIVE GRAY</b><br>COHESION (ALL OTHERS): NON COHESIVE <input checked="" type="checkbox"/> SLIGHTLY COHESIVE / COHESIVE / HIGHLY COHESIVE<br>CONSISTENCY (NON COHESIVE SOILS): LOOSE <input checked="" type="checkbox"/> FIRM / DENSE / VERY DENSE<br>MOISTURE: DRY <input checked="" type="checkbox"/> SLIGHTLY MOIST / MOIST / WET / SATURATED / SUPER SATURATED<br>SAMPLE TYPE: GRAB <input checked="" type="checkbox"/> COMPOSITE - # OF PTS. <b>5</b><br>DISCOLORATION/STAINING OBSERVED: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> EXPLANATION - _____ | PLASTICITY (CLAYS): NON PLASTIC <input checked="" type="checkbox"/> SLIGHTLY PLASTIC / COHESIVE / MEDIUM PLASTIC / HIGHLY PLASTIC<br>DENSITY (COHESIVE CLAYS & SILTS): SOFT / FIRM / STIFF / VERY STIFF / HARD<br>HC ODOR DETECTED: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> EXPLANATION - _____<br>ANY AREAS DISPLAYING WETNESS: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> EXPLANATION - _____ |
|--|--|

|   |  |
|---|--|
| <b>SITE OBSERVATIONS:</b><br>LOST INTEGRITY OF EQUIPMENT: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> EXPLANATION - _____<br>APPARENT EVIDENCE OF A RELEASE OBSERVED AND/OR OCCURRED: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> EXPLANATION: _____<br>EQUIPMENT SET OVER RECLAIMED AREA: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> EXPLANATION - _____<br>OTHER: <b>NMOCOD OR BLM REPS. NOT PRESENT TO WITNESS CONFIRMATION SAMPLING.</b> | EXCAVATION DIMENSION ESTIMATION: <b>NA</b> ft. X <b>NA</b> ft. X <b>NA</b> ft. EXCAVATION ESTIMATION (Cubic Yards): <b>NA</b><br>DEPTH TO GROUNDWATER: <b>&gt;100'</b> NEAREST WATER SOURCE: <b>&gt;1,000'</b> NEAREST SURFACE WATER: <b>&lt;1,000'</b> NMOCOD TPH CLOSURE STD: <b>1,000</b> ppm |
|---|--|

|  |   |
|--|---|
| <b>SITE SKETCH</b><br>BGT Located : off <input checked="" type="checkbox"/> on site<br>PLOT PLAN circle: <b>attached</b> | OVM CALIB. READ. = <b>NA</b> ppm RF=1.00<br>OVM CALIB. GAS = <b>NA</b> ppm<br>TIME: <b>NA</b> am/pm DATE: <b>NA</b> |
|--|---|



|                                    |  |
|------------------------------------|--|
| <b>MISCELL. NOTES</b>              |  |
| WO:                                |  |
| REF #:                             | <b>P-877</b>   |
| VID:                               | <b>VHIXONEVB2</b>  |
| PJ #:                              |  |
| Permit date(s):                    | <b>06/14/10</b>  |
| OCD Appr. date(s):                 | <b>10/18/17</b>  |
| Tank ID                            | OVM = Organic Vapor Meter ppm = parts per million                |
| <b>B</b>                           | BGT Sidewalls Visible: Y / <input checked="" type="checkbox"/> N |
|                                    | BGT Sidewalls Visible: Y / N                                     |
|                                    | BGT Sidewalls Visible: Y / N                                     |
| Magnetic declination: <b>10° E</b> |  |

|   |   |
|---|---|
| NOTES: BGT = BELOW-GRADE TANK; E.D. = EXCAVATION DEPRESSION; B.G. = BELOW GRADE; B = BELOW; T.H. = TEST HOLE; ~ = APPROX.; W.H. = WELL HEAD; T.B. = TANK BOTTOM; PBGTL = PREVIOUS BELOW-GRADE TANK LOCATION; SPD = SAMPLE POINT DESIGNATION; R.W. = RETAINING WALL; NA - NOT APPLICABLE OR NOT AVAILABLE; SW - SINGLE WALL; DW - DOUBLE WALL; SB - SINGLE BOTTOM; DB - DOUBLE BOTTOM. | NOTES: <b>GOOGLE EARTH IMAGERY DATE: 10/5/2016.</b> ONSITE: <b>11/13/17</b> |
|---|---|

**Analytical Report**

Lab Order 1711689

Date Reported: 11/15/2017

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Blagg Engineering

**Client Sample ID:** 5PC-TB@5'(21)

**Project:** Hardie LS 3A

**Collection Date:** 11/13/2017 11:45:00 AM

**Lab ID:** 1711689-001

**Matrix:** MEOH (SOIL)

**Received Date:** 11/14/2017 7:30:00 AM

| Analyses   | Result | PQL    | Qual | Units | DF | Date Analyzed          | Batch               |
|--|--------|--------|------|-------|----|------------------------|---------------------|
| <b>EPA METHOD 300.0: ANIONS</b>                  |        |        |      |       |    |                        |                     |
|  |        |        |      |       |    |                        | Analyst: <b>CJS</b> |
| Chloride   | ND     | 30     |      | mg/Kg | 20 | 11/14/2017 11:21:07 AM | 34980               |
| <b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b> |        |        |      |       |    |                        |                     |
|  |        |        |      |       |    |                        | Analyst: <b>TOM</b> |
| Diesel Range Organics (DRO)                      | ND     | 9.6    |      | mg/Kg | 1  | 11/14/2017 10:08:30 AM | 34978               |
| Motor Oil Range Organics (MRO)                   | ND     | 48     |      | mg/Kg | 1  | 11/14/2017 10:08:30 AM | 34978               |
| Surr: DNOP                                       | 101    | 70-130 |      | %Rec  | 1  | 11/14/2017 10:08:30 AM | 34978               |
| <b>EPA METHOD 8015D: GASOLINE RANGE</b>          |        |        |      |       |    |                        |                     |
|  |        |        |      |       |    |                        | Analyst: <b>NSB</b> |
| Gasoline Range Organics (GRO)                    | ND     | 3.7    |      | mg/Kg | 1  | 11/14/2017 9:48:01 AM  | 34953               |
| Surr: BFB  | 92.6   | 15-316 |      | %Rec  | 1  | 11/14/2017 9:48:01 AM  | 34953               |
| <b>EPA METHOD 8021B: VOLATILES</b>               |        |        |      |       |    |                        |                     |
|  |        |        |      |       |    |                        | Analyst: <b>NSB</b> |
| Benzene  | ND     | 0.019  |      | mg/Kg | 1  | 11/14/2017 9:48:01 AM  | 34953               |
| Toluene  | ND     | 0.037  |      | mg/Kg | 1  | 11/14/2017 9:48:01 AM  | 34953               |
| Ethylbenzene                                     | ND     | 0.037  |      | mg/Kg | 1  | 11/14/2017 9:48:01 AM  | 34953               |
| Xylenes, Total                                   | ND     | 0.075  |      | mg/Kg | 1  | 11/14/2017 9:48:01 AM  | 34953               |
| Surr: 4-Bromofluorobenzene                       | 94.1   | 80-120 |      | %Rec  | 1  | 11/14/2017 9:48:01 AM  | 34953               |

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                                    |
|                    | PQL Practical Quantitative Limit                        | RL Reporting Detection Limit                                |
|                    | S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1711689  
15-Nov-17

**Client:** Blagg Engineering  
**Project:** Hardie LS 3A

|            |                   |                |                   |             |                                 |          |              |      |          |      |
|------------|-------------------|----------------|-------------------|-------------|---------------------------------|----------|--------------|------|----------|------|
| Sample ID  | <b>MB-34980</b>   | SampType:      | <b>mblk</b>       | TestCode:   | <b>EPA Method 300.0: Anions</b> |          |              |      |          |      |
| Client ID: | <b>PBS</b>        | Batch ID:      | <b>34980</b>      | RunNo:      | <b>47103</b>                    |          |              |      |          |      |
| Prep Date: | <b>11/14/2017</b> | Analysis Date: | <b>11/14/2017</b> | SeqNo:      | <b>1503854</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-34980</b>  | SampType:      | <b>ics</b>        | TestCode:   | <b>EPA Method 300.0: Anions</b> |          |              |      |          |      |
| Client ID: | <b>LCSS</b>       | Batch ID:      | <b>34980</b>      | RunNo:      | <b>47103</b>                    |          |              |      |          |      |
| Prep Date: | <b>11/14/2017</b> | Analysis Date: | <b>11/14/2017</b> | SeqNo:      | <b>1503855</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           | 92.2                            | 90       | 110          |      |          |      |

### Qualifiers:

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1711689  
15-Nov-17

**Client:** Blagg Engineering  
**Project:** Hardie LS 3A

| Sample ID                   | <b>LCS-34978</b>  | SampType:      | <b>LCS</b>        | TestCode:   | <b>EPA Method 8015M/D: Diesel Range Organics</b> |          |              |      |          |      |
|-----------------------------|-------------------|----------------|-------------------|-------------|--|----------|--------------|------|----------|------|
| Client ID:                  | <b>LCSS</b>       | Batch ID:      | <b>34978</b>      | RunNo:      | <b>47104</b>                                     |          |              |      |          |      |
| Prep Date:                  | <b>11/14/2017</b> | Analysis Date: | <b>11/14/2017</b> | SeqNo:      | <b>1502905</b>                                   | Units:   | <b>mg/Kg</b> |      |          |      |
| Analyte                     | Result            | PQL            | SPK value         | SPK Ref Val | %REC   | LowLimit | HighLimit    | %RPD | RPDLimit | Qual |
| Diesel Range Organics (DRO) | 45                | 10             | 50.00             | 0           | 89.4   | 73.2     | 114          |      |          |      |
| Surr: DNOP                  | 4.4               |                | 5.000             |             | 87.1   | 70       | 130          |      |          |      |

| Sample ID                      | <b>MB-34978</b>   | SampType:      | <b>MBLK</b>       | TestCode:   | <b>EPA Method 8015M/D: Diesel Range Organics</b> |          |              |      |          |      |
|--------------------------------|-------------------|----------------|-------------------|-------------|--|----------|--------------|------|----------|------|
| Client ID:                     | <b>PBS</b>        | Batch ID:      | <b>34978</b>      | RunNo:      | <b>47104</b>                                     |          |              |      |          |      |
| Prep Date:                     | <b>11/14/2017</b> | Analysis Date: | <b>11/14/2017</b> | SeqNo:      | <b>1502906</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                     | 9.5               |                | 10.00             |             | 94.6   | 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
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1711689  
15-Nov-17

**Client:** Blagg Engineering  
**Project:** Hardie LS 3A

| Sample ID <b>MB-34953</b>     | SampType: <b>MBLK</b>            |     | TestCode: <b>EPA Method 8015D: Gasoline Range</b> |             |                     |          |           |      |          |      |
|-------------------------------|----------------------------------|-----|---|-------------|---------------------|----------|-----------|------|----------|------|
| Client ID: <b>PBS</b>         | Batch ID: <b>34953</b>           |     | RunNo: <b>47109</b>                               |             |                     |          |           |      |          |      |
| Prep Date: <b>11/13/2017</b>  | Analysis Date: <b>11/14/2017</b> |     | SeqNo: <b>1503518</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                     | 980                              |     | 1000  |             | 97.6                | 15       | 316       |      |          |      |

| Sample ID <b>LCS-34953</b>    | SampType: <b>LCS</b>             |     | TestCode: <b>EPA Method 8015D: Gasoline Range</b> |             |                     |          |           |      |          |      |
|-------------------------------|----------------------------------|-----|---|-------------|---------------------|----------|-----------|------|----------|------|
| Client ID: <b>LCSS</b>        | Batch ID: <b>34953</b>           |     | RunNo: <b>47109</b>                               |             |                     |          |           |      |          |      |
| Prep Date: <b>11/13/2017</b>  | Analysis Date: <b>11/14/2017</b> |     | SeqNo: <b>1503519</b>                             |             | Units: <b>mg/Kg</b> |          |           |      |          |      |
| Analyte                       | Result                           | PQL | SPK value   | SPK Ref Val | %REC                | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Gasoline Range Organics (GRO) | 26                               | 5.0 | 25.00   | 0           | 103                 | 75.9     | 131       |      |          |      |
| Surr: BFB                     | 1100                             |     | 1000  |             | 109                 | 15       | 316       |      |          |      |

**Qualifiers:**

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# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1711689  
15-Nov-17

**Client:** Blagg Engineering  
**Project:** Hardie LS 3A

| Sample ID                  | <b>MB-34953</b>   | SampType:      | <b>MBLK</b>       | TestCode:   | <b>EPA Method 8021B: Volatiles</b> |          |              |      |          |      |
|----------------------------|-------------------|----------------|-------------------|-------------|------------------------------------|----------|--------------|------|----------|------|
| Client ID:                 | <b>PBS</b>        | Batch ID:      | <b>34953</b>      | RunNo:      | <b>47109</b>                       |          |              |      |          |      |
| Prep Date:                 | <b>11/13/2017</b> | Analysis Date: | <b>11/14/2017</b> | SeqNo:      | <b>1503543</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 | 0.99              |                | 1.000             |             | 98.6                               | 80       | 120          |      |          |      |

| Sample ID                  | <b>LCS-34953</b>  | SampType:      | <b>LCS</b>        | TestCode:   | <b>EPA Method 8021B: Volatiles</b> |          |              |      |          |      |
|----------------------------|-------------------|----------------|-------------------|-------------|------------------------------------|----------|--------------|------|----------|------|
| Client ID:                 | <b>LCSS</b>       | Batch ID:      | <b>34953</b>      | RunNo:      | <b>47109</b>                       |          |              |      |          |      |
| Prep Date:                 | <b>11/13/2017</b> | Analysis Date: | <b>11/14/2017</b> | SeqNo:      | <b>1503544</b>                     | Units:   | <b>mg/Kg</b> |      |          |      |
| Analyte                    | Result            | PQL            | SPK value         | SPK Ref Val | %REC                               | LowLimit | HighLimit    | %RPD | RPDLimit | Qual |
| Benzene                    | 0.92              | 0.025          | 1.000             | 0           | 92.1                               | 77.3     | 128          |      |          |      |
| Toluene                    | 0.94              | 0.050          | 1.000             | 0           | 93.8                               | 79.2     | 125          |      |          |      |
| Ethylbenzene               | 0.95              | 0.050          | 1.000             | 0           | 95.4                               | 80.7     | 127          |      |          |      |
| Xylenes, Total             | 2.9               | 0.10           | 3.000             | 0           | 96.6                               | 81.6     | 129          |      |          |      |
| Surr: 4-Bromofluorobenzene | 0.99              |                | 1.000             |             | 98.5                               | 80       | 120          |      |          |      |

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
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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: **BLAGG**

Work Order Number: 1711689

RcptNo: 1

Received By: **Isaiah Ortiz**

11/14/2017 7:30:00 AM

*IO*

Completed By: **Erin Melendrez**

11/14/2017 8:07:52 AM

*EM*

Reviewed By: **IDS**

11/14/17

#### 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 DNG) 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 

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

#### Special Handling (if applicable)

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

|                      |  |       |   |
|----------------------|--|-------|---|
| Person Notified:     |  | Date: |   |
| By Whom:             |  | Via:  | <input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> 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         | 4.0     | Good      | Yes         |         |           |           |

