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

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

116202

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.

OIL CONS. DIV DIST. 3
JAN 12 2018

1.
Operator: WPX Energy Production, LLC OGRID #: 120782
Address: PO Box 640/721 S Main Aztec, NM 87410
Facility or well name: Rosa Unit #147B
API Number: 30-039-26960 OCD Permit Number:
U/L or Qtr/Qtr B Section 33 Township 31N Range 5W County: Rio Arriba
Center of Proposed Design: Latitude N 36.860492 Longitude W107.366107 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
Volume: 120 bbl Type of fluid: Produced Water
Tank Construction material: Fiberglass Tank w/Banded 30-mil HDPE Secondary Liner
☐ 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 _____

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_____

30

6.

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

☒ Screen ☐ Netting ☐ Other_____

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

7.

Signs: Subsection C of 19.15.17.11 NMAC

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

☐ Signed in compliance with 19.15.16.8 NMAC

8.

Variances and Exceptions:

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

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

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

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

9.

Siting Criteria (regarding permitting): 19.15.17.10 NMAC

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

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

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

10.

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

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

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

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

11.

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

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

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

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

12.
Permanent Pits Permit Application Checklist: Subsection B of 19.15.17.9 NMAC
Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

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

13.
Proposed Closure: 19.15.17.13 NMAC
Instructions: Please complete the applicable boxes, Boxes 14 through 18, in regards to the proposed closure plan.

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

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

14.
Waste Excavation and Removal Closure Plan Checklist: (19.15.17.13 NMAC) ***Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.***

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

15.
Siting Criteria (regarding on-site closure methods only): 19.15.17.10 NMAC
Instructions: Each siting criteria requires a demonstration of compliance in the closure plan. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria require justifications and/or demonstrations of equivalency. Please refer to 19.15.17.10 NMAC for guidance.

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

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

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

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

17.
Operator Application Certification:

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

Name (Print): _____ Title: _____

Signature: _____ Date: _____

e-mail address: _____ Telephone: _____

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

OCD Representative Signature: _____ **Approval Date:** 1/26/2018

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:** November 30, 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 _____ Longitude _____ 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): Deborah Watson Title: Environmental Specialist

Signature: Deborah Watson Date: January 12, 2018

e-mail address: deborah.watson@wpxenergy.com Telephone: 505-333-1880

WPX Energy Production Co., LLC
San Juan Basin: New Mexico Assets
Below-Grade Tank Removal Closure Report
Rosa Unit #147B (API #30-039-26960)
Unit Letter B, Section 33, T31N, R05W
Rio Arriba County, NM

In accordance with Rule 19.15.17.13 NMAC, the following plan describes the general closure requirements of below-grade tanks (BGT) on WPX Energy Production Co, LLC (WPX) locations in the San Juan Basin of New Mexico. This is WPX's standard closure procedure for all BGTs regulated under Rule 19.15.17 NMAC and operated by WPX. For those closures which do not conform to this standard closure plan, a separate well/pit specific closure plan will be developed and utilized.

Mr. Randolph Bayliss, NMOCD, approved the WPX BGT closure plan on November 15, 2017. (See Enclosed Form C-144)

Closure Notice:

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

   Approved Variance: If the surface owner is of public entity (i.e.: BLM) WPX Energy Production, LLC will notify by email the intent to close the BGT in place of a certified mail letter. WPX Energy Production, LLC will request a read receipt of the email which will be equal and/ or equivalent notification as certified mail.

WPX notified FS, prior to BGT closure. The notification email is attached.

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

WPX sent notification to the District III Office via email on November 15, 2017. The notification is attached. The District III Office was advised of time and date of closure. Vanessa Fields, NMOCD was in attendance during BGT closure and sampling on November 30, 2017.

Closure Method:

3. All liquids will be removed from the BGT following cessation of operation. Produced water will be disposed at an NMOCD approved facility depending on the proximity of the BGT site. Facilities may include: Rosa Unit SWD #1 (Order: SWD-916, API: 30-039-27055), Rosa Unit SWD #2 (Order: SWD-1236-0, API: 30-039-30812), Jillson Fed. SWD #001 (Order: R10168/R10168A, API: 30-039-25465), Middle Mesa SWD #001 (Order: SWD-350-0, API: 30-045-27004) and/or Basin Disposal (Permit: NM-01-0005). Solids and sludges will be shoveled and /or vacuumed out for disposal at Envirotech (Permit Number NM-01-0011) or Industrial Ecosystems Inc (Permit Number NM-01-0010B).

Liquids were removed prior to closure of the BGT.

4. WPX will obtain prior approval from NMOCD to dispose, recycle, reuse, or reclaim the BGT and provide documentation of the disposition of the BGT in the closure report. Steel materials will be recycled or reused as approved by the Division. Fiberglass tanks will be empty, cut up or shredded, and EPA cleaned for disposal as solid waste. Liners materials will be cleaned without soils or contaminated material for disposal as solid waste. Fiberglass tanks and liner materials will meet the conditions of 19.15.35 NMAC.

Disposal will be at a licensed disposal facility, such as San Juan Regional Landfill operated by Waste Management under NMED Permit SWM-052426.

The BGT and liner were disposed of in a division-approved manner.

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

All associated equipment was removed from the location.

6. Following removal of the tank and any liner material, WPX will test the soils beneath the BGT as follows:

   a. At a minimum, a five-point composite sample will be taken to include any obvious stained or wet soils or any other evidence of contamination.

   b.

A five-point composite sample (BGT-1) was collected from beneath the BGT following BGT removal on November 22, 2017. No obvious stained soils were observed beneath the BGT.

   c. The laboratory sample shall be analyzed for the constituents listed in Table 1.

   d.

The sample was submitted to Hall Environmental Analysis Laboratory, Albuquerque, NM, for analysis of benzene, BTEX, TPH, and chlorides. The analytical laboratory report is attached.

Table 1: Closure Criteria for BGTs

Components	Testing Methods[1]	Closure Limits [2] (mg/kg)	Results (mg/kg)
Benzene	EPA SW-846 Method 8021B or 8260B	0.2	<0.023
BTEX	EPA SW-846 Method 8021B or 8260B	50	<0.208
Total TPH	EPA SW-846 Method 418.1	100	<19
Chlorides	EPA 300.0	250	<30

[1] Or other test methods approved by the division

[2] Numerical limits or natural background level, whichever is greater (19.15.17.13 NMAC)

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

Sampling results indicate no release occurred from the BGT.

8. Upon completion of the tank removal, the excavation will be backfilled with non-waste earthen material compacted and covered with a minimum of one foot of top soil or background thickness whichever is greater and to existing grade. The surface will be re-contoured to match the native grade and prevent ponding.

The BGT location was backfilled with clean soil and compacted during following BGT removal. The BGT location will be reclaimed when it is no longer needed for production operations.

9. For those portions of the former BGT area no longer required for production activities, WPX will seed the disturbed areas the first favorable growing season after the BGT is covered. Seeding will be accomplished

via drilling on the contour whenever practical, or by other Division-approved methods. WPX will notify the Division when reclamation and re-vegetation is complete.

Reclamation of the BGT shall be considered complete when:

a. Vegetative cover reflects a life form ratio of +/- 50% of pre-disturbance levels

b. Total percent plant cover of at least 70% of pre-disturbance levels (Excluding noxious weeds)

OR

c. Pursuant to 19.15.17.13.H.5d WPX will comply with obligations imposed by other applicable federal or tribal agencies in which their re-vegetation and reclamation requirements provide equal or better protection of fresh water, human health and the environment.

The BGT location was backfilled with clean soil and compacted during following BGT removal. The BGT location will be reclaimed when it is no longer needed for production operations.

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

The BGT location was backfilled with clean soil and compacted during following BGT removal. The BGT location will be reclaimed when it is no longer needed for production operations.

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

- Proof of Closure Notice (surface owner & NMOCD)
- Backfilling & Cover Installation
- Confirmation Sampling Analytical Results
- Disposal Facility Name(s) and Permit Number(s)
- Application Rate & Seeding techniques
- Photo Documentation of Reclamation

Attachments:

C-144 Closure Approval
Surface Owner Notification (email)
NMOCD Notification (email)
Laboratory Analytical Report (#1712093)
Photograph log

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

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

Form C-144
July 21, 2008

For temporary pits, closed-loop systems, and below-grade tanks, submit to the appropriate NMOCD District Office.
For permanent pits and exceptions submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.

1180

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

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: Williams Production Co, LLC OGRID #: 120782
Address: PO Box 640/721 So. Main, Aztec, NM 87410
Facility or well name: Rosa Unit #147B
API Number: 30-039-26960 OCD Permit Number:
U/L or Qtr/Qtr B Section 33 Township 31N Range 05W County: Rio Arriba
Center of Proposed Design: Latitude 36.86079 Longitude -107.36640 NAD: ☐1927 ☒ 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
☐ 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 SEP 12 '08
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 ☐ PVC ☐ Other _____
Liner Seams: ☐ Welded ☐ Factory ☐ Other _____

4.
☒ **Below-grade tank:** Subsection I of 19.15.17.11 NMAC
Volume: 120 bbl Type of fluid: Produced Water
Tank Construction material: Fiberglass w/banded plastic liner
☒ 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 20 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.

6.

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 Per BLM APD Specifications

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

9.

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 or the Santa Fe Environmental Bureau office for consideration of approval.

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

10.

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.**

Ground water is less than 50 feet below the bottom of the temporary pit, permanent pit, or below-grade tank. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☒ No
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. *(Applies to temporary, emergency, or cavitation pits and below-grade tanks)* - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☒ No ☐ NA
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. *(Applies to permanent pits)* - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☒ No ☐ NA
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. - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☒ No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☒ No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	☐ Yes ☒ No
Within a 100-year floodplain. - FEMA map	☐ Yes ☒ No

11.
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: _____

12.
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 Number: _____

☐ Previously Approved Operating and Maintenance Plan API Number: _____ *(Applies only to closed-loop system that use above ground steel tanks or haul-off bins and propose to implement waste removal for closure)*

13.
Permanent Pits Permit Application Checklist: Subsection B of 19.15.17.9 NMAC
Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

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

14.
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 Burial
- ☐ Alternative Closure Method (Exceptions must be submitted to the Santa Fe Environmental Bureau for consideration)

15.
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

16.
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 indentify 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: _____ Disposal Facility Permit Number: _____

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

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 operations?
☐ Yes (If yes, please provide the information below) ☐ No

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

17.
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	☐ Yes ☐ No ☐ NA
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	☐ Yes ☐ No ☐ NA
Ground water is more than 100 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☐ No ☐ NA
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☐ No
Within 500 horizontal feet of a 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. - NM Office of the State Engineer - iWATERS database; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☐ No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☐ No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	☐ Yes ☐ No
Within a 100-year floodplain. - FEMA map	☐ Yes ☐ No

18.
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

19.
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): Michael K. Lane Title: Sr. Environmental Specialist

Signature: Date: 9/10/09

e-mail address: myke.lane@williams.com Telephone: 505-634-4219

20.
OCD Approval: ☐ Permit Application (including closure plan) ☒ Closure Plan (only) ☐ OCD Conditions (see attachment) 15Nov17

OCD Representative Signature: Approval Date: 10/20/09

Title: Envir Spec Hydrologist **OCD Permit Number:** na

21.
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:**

22.
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.

23.
Closure Report Regarding Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:

Instructions: Please indentify 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

24.
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 (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 Longitude NAD: ☐ 1927 ☐ 1983

25.
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): Title:

Signature: Date:

e-mail address: Telephone:

Hydrogeological Report
Williams Production Company, LLC
Rosa Unit #147B
Regional Hydrological Context

Referenced Well Location:
The referenced well and pit is located in Carson National Forest's Jicarilla Ranger District in Rio Arriba County, New Mexico. This site is positioned in the northeastern portion of the San Juan Basin, an asymetrical syncline that extends from northwestern New Mexico into southwestern Colorado (Carson National Forest DEIS, 2007). Elevation of the referenced well is approximately 6513 feet MSL.

General Regional Groundwater Description:
As a portion of the San Juan Basin, the Jicarilla District is underlain by sandstone aquifers of the Colorado Plateau. The primary aquifer of potential concern at this location is the Unita-Animas Aquifer, composed primarily of Lower Tertiary rocks in the San Juan Basin. The aquifer consists of the San Jose Formation; the underlying Animas formation and its lateral equivalent, the Nacimiento formation; and the Ojo Alamo Sandstone. The thickness of the Unita-Animas aquifer generally increases toward the central part of the basin. In the northeastern part of the San Juan Basin, the maximum thickness of the aquifer is approximately 3500 feet (USGS, 2001). This aquifer contains fresh to moderately saline water.

Groundwater generally flows toward the San Juan River and it tributaries, where it becomes alluvial groundwater or is discharged to stream flow. Additional information regarding the Hydrogeologic setting can be found in the provided references.

Site Specific Information:

Surface Hydrology:	The pit is located in the lower elevations of the western slope of Laguna Seca Mesa. The nearest drainage, an ephemeral tributary of Laguna Seca Draw, is located approximately 300 feet from the pit.
1st Water Bearing Formation:	San Jose, Tertiary
Formation Thickness:	Approximately 1,900 ft.
Underlying Formation:	Nacimiento, Tertiary
Depth to Groundwater:	Depth to groundwater is estimated at greater than 100 feet bgs. Within a one-mile radius of this location, there were no iWATERS wells with recorded water depth information. However, cathodic data associated with Rosa Unit 268 (approximately 100 feet from the pit) shows a depth to moisture of 210 feet (see Siting Criteria Map I for details).

References:

Allen, Erin. Undated. Colorado Plateau Aquifers. http://academic.emporia.edu/schulmem/hydro/TERM%20PROJECTS/2007/Allen/Aquifer.html.

New Mexico Energy, Minerals and Natural Resources Department, Division of Mining and Minerals. Database. 2008. Internet accessed August 2008.

New Mexico Office of the State Engineer. August 2008. iWaters database. Internet accessed August 2008.

New Mexico WQCC. 2005. State of New Mexico Water Quality Act and the Water Control Commission Regulations.

United States Department of Agriculture, Forest Service. 2007. Draft Environmental Impact Statement for Surface Management of Gas Leasing and Development. Jicarilla Ranger District, Carson National Forest, Rio Arriba County, New Mexico.

United States Department of the Interior. Bureau of Land Management. 2003. Final Farmington Resource Management Plan and Final Environmental Impact Statement. Farmington Field Office, Farmington, New Mexico.

United States Geological Survey. 2001. Groundwater Atlas of the United States: Arizona, Colorado, New Mexico and Utah. USGS Publication HA 730-C; http://capp.water.usgs.gov.

New Mexico Office of the State Engineer
POD Reports and Downloads

Township: 31N Range: 05W Sections:

NAD27 X: Y: Zone: Search Radius:

County: Basin: Number: Suffix:

Owner Name: (First) (Last) Non-Domestic Domestic All

POD / Surface Data Report Avg Depth to Water Report Water Column Report

WATER COLUMN REPORT 08/26/2008

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are biggest to smallest)

POD Number	Tws	Rng	Sec	q	q	q	Zone	X	Y	Depth Well	Depth Water	Water Column (in feet)

No Records found, try again

New Mexico Office of the State Engineer
POD Reports and Downloads

Township: 30N Range: 05W Sections:

NAD27 X: Y: Zone: Search Radius:

County: Basin: Number: Suffix:

Owner Name: (First) (Last) Non-Domestic Domestic All

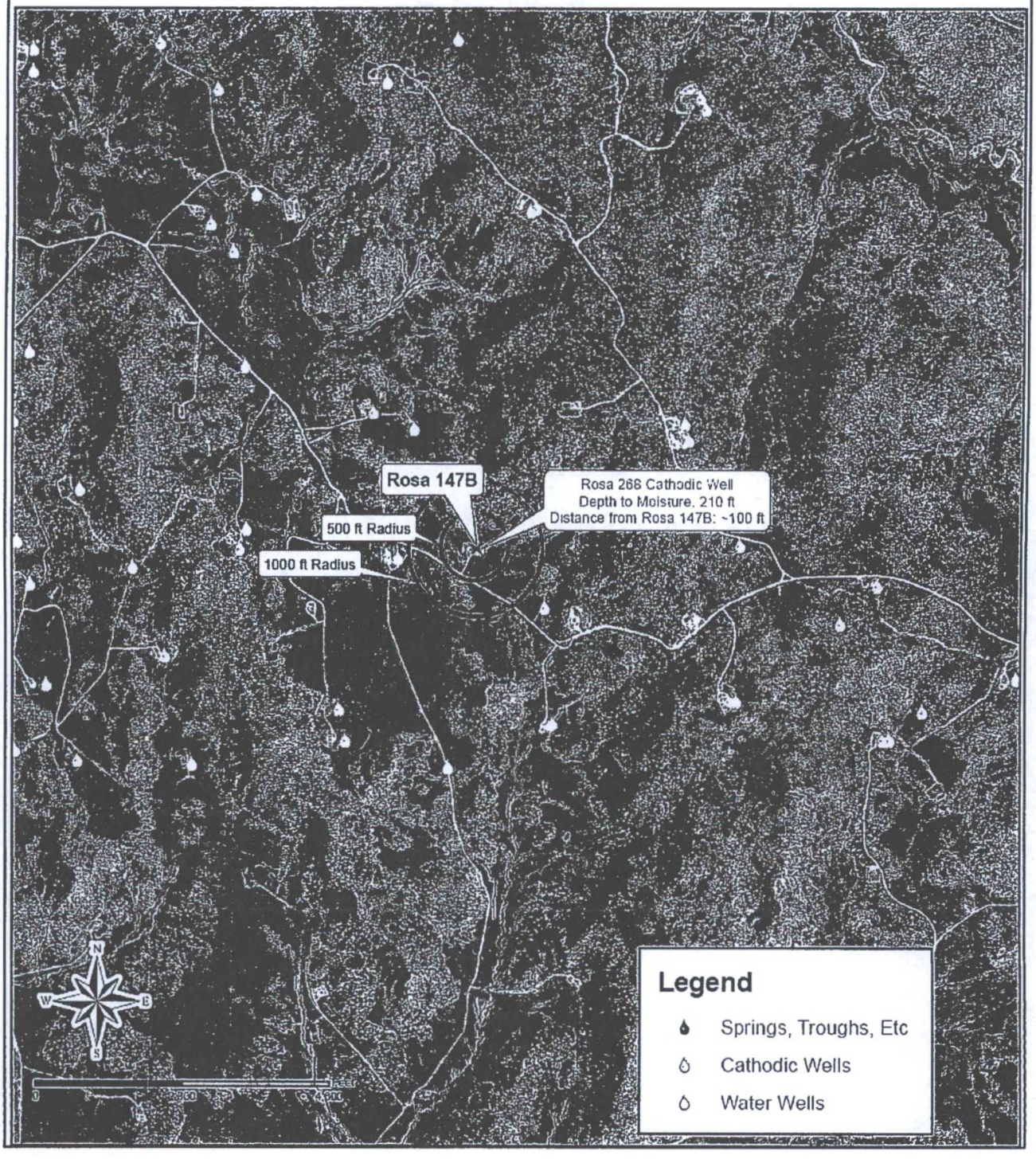
POD / Surface Data Report Avg Depth to Water Report Water Column Report

WATER COLUMN REPORT 09/03/2008

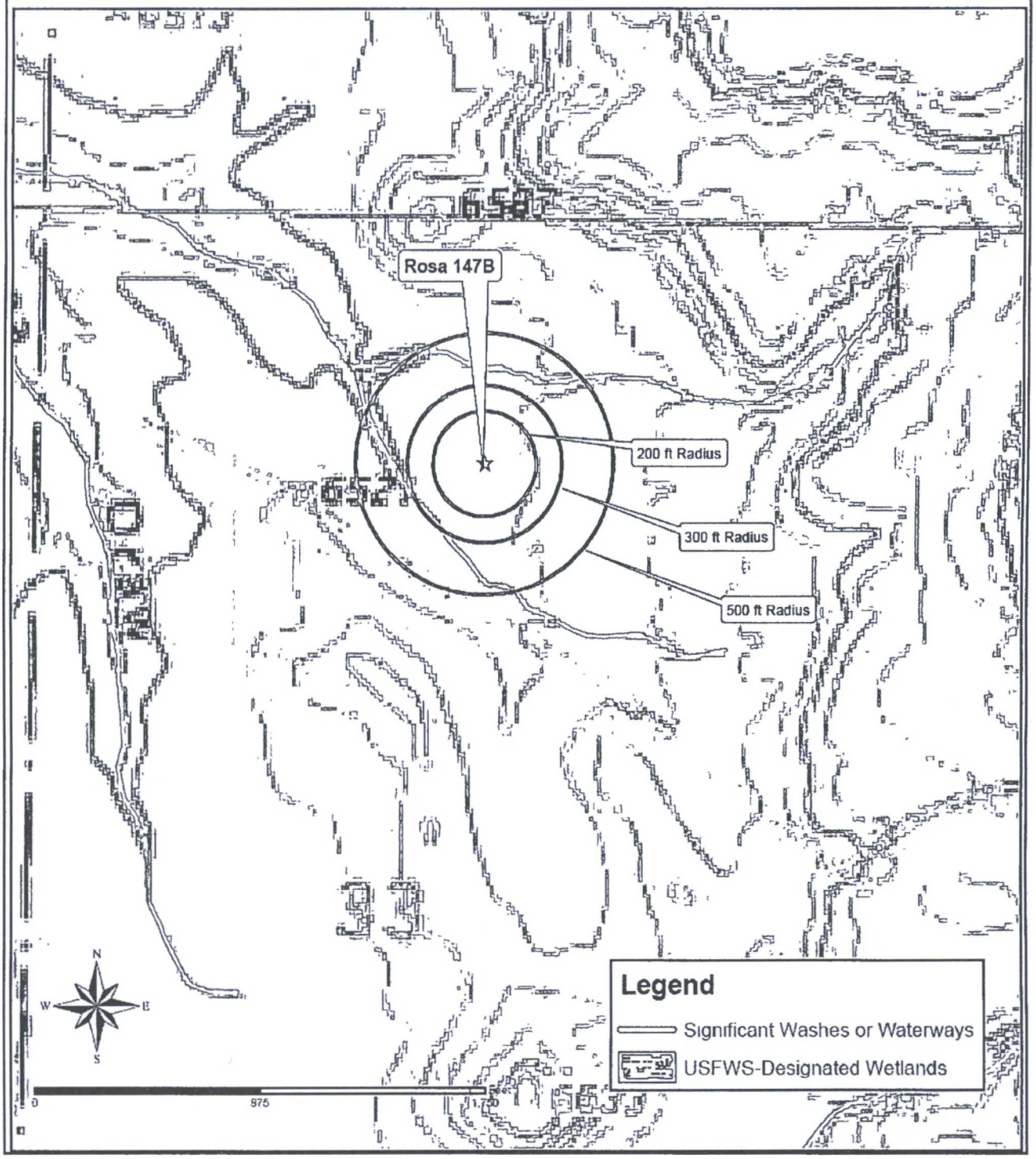
(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are biggest to smallest)

POD Number	Tws	Rng	Sec	q	q	q	Zone	X	Y	Depth Well	Depth Water	Water Column (in feet)
SJ 03556	30N	05W	06	4	2	4				450	250	200
SJ 02771	30N	05W	17	1	1	2				325	137	188

Siting Criteria Map I
Water Wells, Cathodic Wells, & Springs
Williams Exploration and Production Company
Rosa #147B
T31N, R5W, Section 33, NMPM
Rio Arriba County, New Mexico



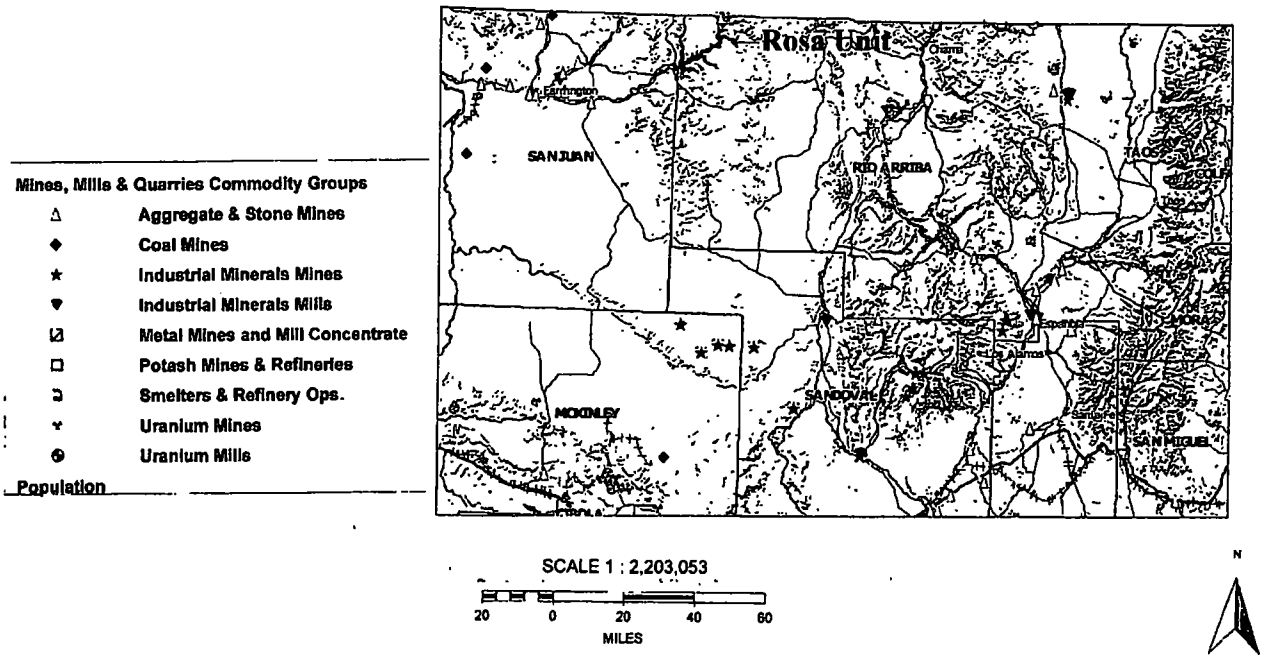
Siting Criteria Map II
Topographic Features
Williams Exploration and Production Company
Rosa #147B
T31N, R5W, Section 33, NMPM
Rio Arriba County, New Mexico



FEMA Map – 100-Year Floodplain:
As this site is located with Carson National Forest, no FEMA maps are available for the location. Based on existing vegetation, the Rosa #147B is not within a 100-year floodplain.

Siting Criteria Compliance Demonstrations:
The Rosa Unit #147B pit is not located in an unstable area. The location is not situated over a mine or a steep slope (see attached New Mexico Mines, Mills, and Quarries Map). Excavated pit material will not be located within 300 feet of a continuously flowing water course; within 200 feet of any other significant water course, lakebed, sinkhole, or playa lake; or within 500 feet of any reported riparian areas or wetlands (see Siting Criteria Map II). The pit is not within 500 feet of any private, domestic fresh water well or spring or within 1000 feet of any other fresh water well or spring (see Siting Criteria Map I). The pit will not be within any incorporated municipal boundaries or defined municipal freshwater well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. The location of the pit is not within 300 feet of any permanent residence, school, hospital, institution, or church.

MMQonline Public Version



Williams Production Co., LLC
San Juan Basin: New Mexico Assets
Production Pit: Fiberglass Below-Grade Tank

Although these tanks have performed well to protect the public health, welfare and environment, in accordance with Rule 19.15.17.13.A (4) NMAC, Williams will removed all BGTs constructed of fiberglass by June 16, 2013. These tanks do not meet the construction/design standards specified in 19.15.17.11 (1-4). The following plans describes the general design and construction (D&C) and Operations and Maintenance (O&M)of these production pits used on Williams Production Co, LLC (WPX) locations in the San Juan Basin of New Mexico.

Design and Construction Plan

The pit are located as close as possible to the well and associated production/process equipment to minimize surface disturbance. The excavation bottom and sidewalls were compacted prior to installation of the pit. The BGT consisted of single-wall fiberglass tank following appropriate API and industry codes, placed in a 20-mil High-Strength Polyethylene resin (Permeability Rating – 0.041 USPerms), and the liner banded to the tanks. A 2" Sch-40 PVC riser was placed between the tank and liner as a leak-detection inspection port. See the attached Schematic and liner spec sheet. The pit is protected from runon by the construction of a compacted earthen berm. Fencing is constructed to protect livestock/wildlife as specified by the federal Surface Management Agency or, if not federal land/minerals requirements. WPX posts a well sign in accordance with the federal Surface Management Agency and rule 19.15.3.103.

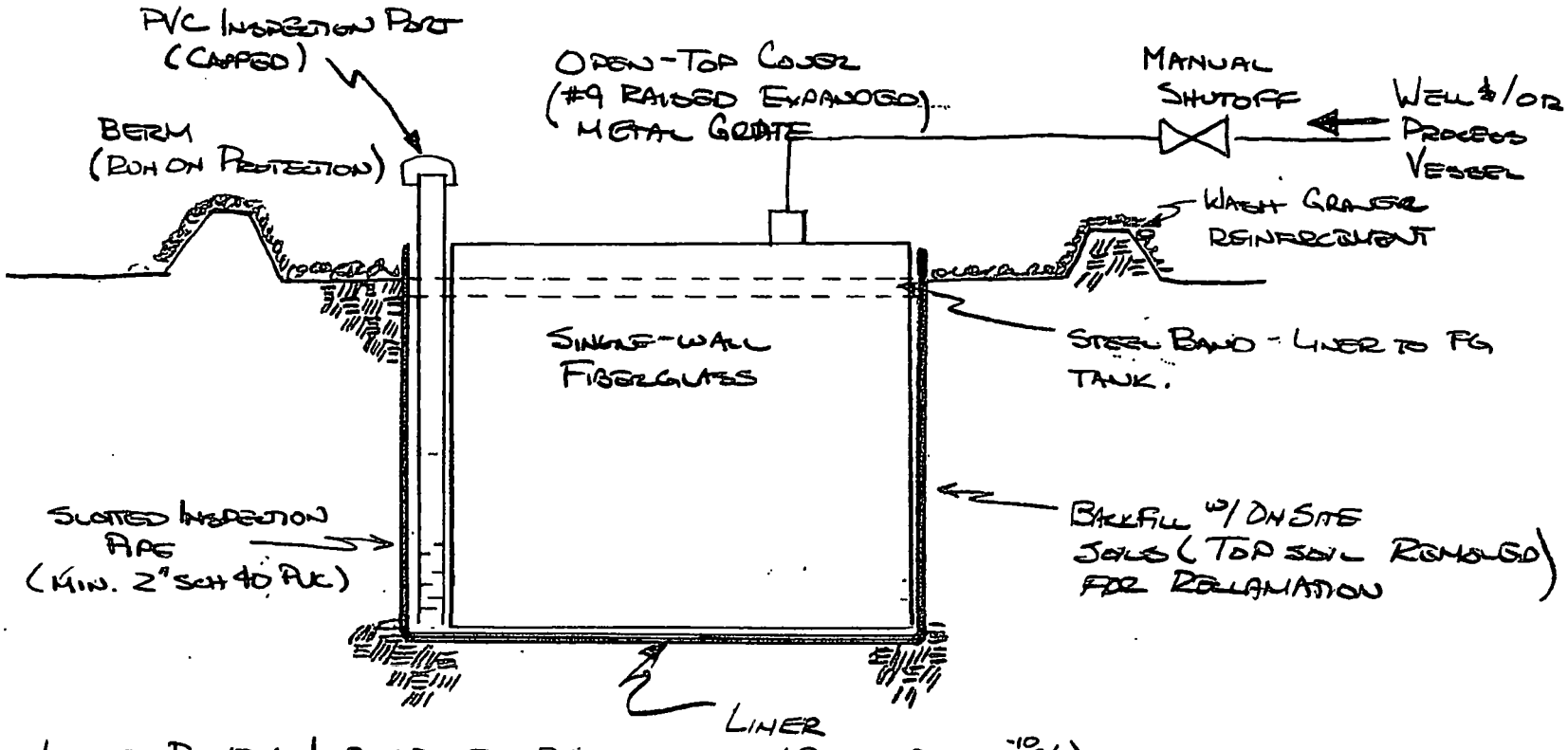
Operations and Maintenance Plan

1. WPX only allows produced liquids meeting the RCRA exemption for O&G wastes to be stored in the SGT. WPX will not discharge or store any hazardous waste as defined under RCRA 40CFR 261 and 19.15.1.7.W(3) NMAC in any temporary pit. Produced water is disposed by evaporation or transport any of the following NMOCD approved facilties depending on the well location: Basin Disposal, Inc in Bloomfield, New Mexico (Permit # NM-01-005), Williams Rosa SWD#1 (Permit # SWD-916), Williams Rosa #94 (Permit # SWD-758), Burlington Resources Jillson SWD#1 (Permit #R10168A), or other NMOCD approved water disposal facilities. WPX maintains sufficient freeboard for to prevent overtopping. Discharges to the pit will be shutoff if the liquid level does not provided sufficient free-board and liquid removal can not be scheduled in a timely manner. Any oil or hydrocarbon collecting on the pit is removed. Saleable condensate is returned to the sales tank. Slop oil from compression is recycled with Safety Kleen, Farmington, NM or Hydropure, Aztec, NM (No Permit Required).
2. If the tank integrity is compromised:
   a. All discharges will be shut off to the pit.
   b. All liquids will be removed as soon as possible but no more that within 24 hours of discovery
   c. WPX will notify and report to NMOCD as follows:
      i. If the release is less than 25 bbls, the Aztec District Office by phone or email within 48-hours of discovery and repair.
      ii. If the release is suspected to be greater than 25 bbls, the Aztec District Office and the Environmental Bureau Chief by phone for immediate verbal notification pursuant to 19.15.3.116.B (1)(d).
   d. Written Spill/Release reports will be submitted on Form C-141 per 19.15.3.116.C NMAC within 15 days to the Aztec District Office.
3. Berms around the perimeter of the pit, shall be maintained as protection from run-on.

4. WPX will inspect the BGT pit monthly. Electronic copies of the inspections will be kept at the WPX San Juan Basin office for a minimum of five years following completion. Copies of the inspections will be available to NMOCD upon request.

EXPLORATION & PRODUCTION
PO BOX 640
AZTEC NM 87410-0640

TYPICAL FIBERGLASS BELOW-GRADE TANK INSTALLATION



NOTES: - LINER RAVEN INDUSTRIES RUFCO 2010B (PERM ~ 3.3×10^{-10} cm/s) 20 MIL
- TANK VOLUME 25-120 bbl
-

HYKE LANE
8/31/08

RUFCO®

2010B, 3010B & 4010B

PROPERTIES	TEST METHOD	RUFCO 2010B		RUFCO 3010B		RUFCO 4010B	
		English	Metric	English	Metric	English	Metric
APPEARANCE		Black		Black		Black	
THICKNESS, NOMINAL		20 mil	0.51 mm	30 mil	0.75 mm	40 mil	1.00 mm
WEIGHT		93 lbs/MSF	453 g/m²	142 lbs/MSF	692 g/m²	189 lbs/MSF	921 g/m²
TENSILE STRENGTH @ BREAK 1" (2.54 cm)	ASTM D6693	75 lbs	334 N	114 lbs	507 N	154 lbs	685 N
ELONGATION AT BREAK	ASTM D6693	800%	800%	800%	800%	800%	800%
TEAR RESISTANCE	ASTM D1004	11 lbf	49 N	16 lbf	71 N	22 lbf	98 N
HYDROSTATIC RESISTANCE	ASTM D751	100 psi	689 kPa	170 psi	1170 kPa	220 psi	1517 kPa
PUNCTURE RESISTANCE	ASTM D4833	30 lbf	133 N	45 lbf	200 N	60 lbf	267 N
VOLATILE LOSS	ASTM D1203	< 1%	< 1%	< 1%	< 1%	< 1%	< 1%
DIMENSIONAL STABILITY	ASTM D1204	< 2%	< 2%	< 2%	< 2%	< 2%	< 2%
MAXIMUM USE TEMPERATURE		180°F	82°C	180°F	82°C	180°F	82°C
MINIMUM USE TEMPERATURE		-70°F	-57°C	-70°F	-57°C	-70°F	-57°C
PERMEABILITY		3.3×10^{-10} cm/sec					
PERM RATING	ASTM E96 Method A	0.041 U.S. Perms	0.027 Metric Perms	0.031 U.S. Perms	0.020 Metric Perms	0.024 U.S. Perms	0.015 Metric Perms
FACTORY SEAM REQUIREMENTS							
BONDED SEAM STRENGTH	ASTM D4545*	33 lbf/in.	58 N/cm	55 lbf/in.	96N/cm	70 lbf/in.	122N/cm
SEAM PEEL ADHESION	ASTM D1204*	28 lbf/in.	49N/cm	40 lbf/in.	70N/cm	55 lbf/in.	96N/cm

*Raven Industries performs seam testing at 12" per minute.

$1 \text{ perm} = 8.03 \times 10^{-9}$ cm/sec

RUFCO 2010B, 3010B and 4010B contain a very high-strength polyethylene resin blended with our in-house trim and start-up material. RUFCO 2010B, 3010B and 4010B are offered as an alternative to our virgin resin films for non-critical applications. They may contain minor cosmetic gels, small surface particles and a lower minimum thickness tolerance.

RAVEN INDUSTRIES

RAVEN INDUSTRIES, INC. / Engineered Films Division
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ISO 9001:2000 CERTIFIED MANAGEMENT SYSTEM

www.ravengeo.com

7/08 EFD 1078

Williams Production Co., LLC
San Juan Basin: New Mexico Assets
Production Pit: Below-Grade Tank
Closure Plan

In accordance with Rule 19.15.17.13 NMAC, the following plan describes the general closure requirements of below-grade tanks (BGT) on Williams Production Co, LLC (WPX) locations in the San Juan Basin of New Mexico. This is WPX's standard procedure for all out-of-service BGTs used to store produced liquids during production operations at gas wells operated by WPX.

For those closures which do not conform to this standard closure plan, a separate well/pit specific closure plan will be developed and utilized. All closure activities will include proper documentation and will be submitted to OCD within 60 days of the pit closure on a Closure Report using Division Form C-144. The Report will include the following:

- Plot Plan (Pit Diagram)
- Available Inspection reports
- Sampling Results
- Waste disposal documentation

General Plan Requirements:

1. All piping will be rerouted to an alternative produced water storage/disposal location (e.g. surface tanks, temporary frac tank, ...). The well will be temporarily shutin until the rerouting is completed.

2. All produced water will be removed from the BGT following discharge-pipe rerouting. Produced water will be disposed of by injection at one of the Williams Production Rosa Unit Salt Water Disposal wells: Rosa SWD #1 (API: 30-039-27055) I-23-31N-06W Permit - SWD-916 or Rosa Unit #94 (API: 30-039-23035) K-16-31N-05W, Permit - SWD-758.

3. Notice of Closure will be given to the landowner or SMA, and the Aztec District office between 72 hours and one week of the scheduled closure via email or phone. The notification of closure will include the following:
   a. Operators Name (WPX)
   b. Well Name and API Number
   c. Location (USTR)

4. The BGT and all associated materials will be removed, and recycled, reused, or disposed. of in a Division-approved facility. All materials that can not be recycled or reused will be treated a solid waste and will be disposed of at a licensed disposal facility (probably San Juan Regional Landfill operated by Waste Management under NMED Permit SWM-052426).

5. Following removal of the tank and any liner material, a five-point composite sample will be taken of the excavation and tested per 19.15.17.13(B)(1)(b) NMAC. In the event that the criteria are not met (See Table 1), a release will be reported following Rule 116 and impacted soils will be excavated and hauled to Envirotech Landfarm near Bloomfield, NM (NMOCD Permit NM-01-0011). Approval to haul will be requested of the Aztec District office prior to initiation.

Table 1: Closure Criteria for BGTs

Components	Testing Methods	Closure Limits (mg/Kg)
Benzene	EPA SW-846 Method 8021B or 8260B	0.2
BTEX	EPA SW-846 Method 8021B or 8260B	50
TPH	EPA SW-846 Method 8015 M(Full Range)* or Method 418.1	100
Chlorides	EPA SW-846 Method 300.1	250

* Preferred method

6. Upon completion of the tank removal and any necessary soil remediation, the excavation will be backfilled with non-waste earthen material compacted to native and covered with a minimum of one foot of top soil. The surface will be recontoured to match the native grade.

7. For those portions of the former pit area no longer required for production activities, WPX will seed the disturbed areas the first growing season after the pit is covered. Seeding will be accomplished via drilling on the contour whenever practical, or by other Division-approved methods. Vegetative cover will equal 70% of the native perennial vegetative cover (un-impacted) consisting of at least three native plant species, including at least one grass, but not including noxious weeds, and maintained that cover through two successive growing seasons. Repeat seeding or planting will be continued until successful vegetative growth occurs. *Note: WPX assumes the seeding stipulations including mix and seeding methods specified by the Surface Management Agency (BLM, BOR, USFS, Tribal, etc.) or Land owner as part of a surface use agreement or APD are Division-approved methods unless notified by the Division of their unacceptability.*

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

From:	Watson, Debbie
To:	Fields, Vanessa, EMNRD; Smith, Cory, EMNRD; Miller, Jon J -FS
Cc:	Bradshaw, Rob; Watson, Debbie
Subject:	Notification BGT Closure Rosa Unit #147B
Date:	Monday, November 27, 2017 5:06:44 AM

WPX will be closing the BGT at the Rosa Unit #147B on Thursday, November 30, 2017.

Operator: WPX Energy Production, LLC
Well Name and API Number: Rosa Unit #147B (30-039-26960)
Well Head Location: N36.8607216, W107.36640
BGT Location: N36.86079, W107.39251
Surface Owner: Federal
Location: Unit Letter B, Section 33, Township 31N, Range 5W, Rio Arriba County, NM
BGT Removal and sampling: Thursday, November 30, 2017

Note: WPX will be closing multiple BGTs on Thursday, November 30, 2017. Sampling will begin at the **Rosa Unit #163A** at **9:00 AM**. After sampling has been completed at the Rosa Unit #163A, sampling will continue in the following order:
Rosa Unit #166
Rosa Unit #023B
Rosa Unit #147B
Rosa Unit #077A
Rosa Unit # 024C
Rosa Unit #188A

Please contact me with any questions.

Thank you,

Debbie

Deborah Watson
Environmental Specialist
PO Box 640 | Aztec, NM 87410
office 505.333.1880 | cell 505.386.9693 | fax 505.333.1805
deborah.watson@wpxenergy.com

From:	postmaster@usda.gov
To:	Miller, Jon J -FS
Subject:	Delivered: Notification BGT Closure Rosa Unit #147B
Date:	Monday, November 27, 2017 5:07:01 AM
Attachments:	Notification BGT Closure Rosa Unit #147B.msg

Your message has been delivered to the following recipients:
Miller, Jon J -FS (jjmiller@fs.fed.us) <mailto:jjmiller@fs.fed.us>
Subject: Notification BGT Closure Rosa Unit #147B

From:	Microsoft Outlook
To:	Fields, Vanessa, EMNRD; Smith, Cory, EMNRD
Subject:	Relayed: Notification BGT Closure Rosa Unit #147B
Date:	Monday, November 27, 2017 5:06:48 AM
Attachments:	Notification BGT Closure Rosa Unit #147B.msg

Delivery to these recipients or groups is complete, but no delivery notification was sent by the destination server:
Fields, Vanessa, EMNRD (Vanessa.Fields@state.nm.us) <mailto:Vanessa.Fields@state.nm.us>
Smith, Cory, EMNRD (Cory.Smith@state.nm.us) <mailto:Cory.Smith@state.nm.us>
Subject: Notification BGT Closure Rosa Unit #147B

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

December 12, 2017

Debbie Watson

WPX Energy
721 S Main Ave
Aztec, NM 87410
TEL: (505) 333-1880
FAX

RE: Rosa Unit 147B OrderNo.: 1712093

Dear Debbie Watson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 12/2/2017 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1712093**
Date Reported: **12/12/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: WPX Energy
Project: Rosa Unit 147B
Lab ID: 1712093-001 **Matrix:** SOIL

Client Sample ID: BGT1
Collection Date: 11/30/2017 11:30:00 AM
Received Date: 12/2/2017 8:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst: **MAB**	
Petroleum Hydrocarbons, TR	ND	19		mg/Kg	1	12/6/2017	35317
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	ND	30		mg/Kg	20	12/8/2017 4:48:35 PM	35404
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	12/7/2017 12:28:56 AM	35334
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/7/2017 12:28:56 AM	35334
Surr: DNOP	85.8	70-130		%Rec	1	12/7/2017 12:28:56 AM	35334
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/6/2017 6:13:37 PM	35320
Surr: BFB	113	15-316		%Rec	1	12/6/2017 6:13:37 PM	35320
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	12/6/2017 6:13:37 PM	35320
Toluene	ND	0.046		mg/Kg	1	12/6/2017 6:13:37 PM	35320
Ethylbenzene	ND	0.046		mg/Kg	1	12/6/2017 6:13:37 PM	35320
Xylenes, Total	ND	0.093		mg/Kg	1	12/6/2017 6:13:37 PM	35320
Surr: 4-Bromofluorobenzene	107	80-120		%Rec	1	12/6/2017 6:13:37 PM	35320

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative 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#: **1712093**

12-Dec-17

Client: WPX Energy

Project: Rosa Unit 147B

Sample ID	MB-35404	SampType:	mblk	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBS	Batch ID:	35404	RunNo:	47637					
Prep Date:	12/8/2017	Analysis Date:	12/8/2017	SeqNo:	1523421	Units:	mg/Kg			

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

Sample ID	LCS-35404	SampType:	lcs	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSS	Batch ID:	35404	RunNo:	47637					
Prep Date:	12/8/2017	Analysis Date:	12/8/2017	SeqNo:	1523422	Units:	mg/Kg			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.1	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 Quanitative 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#: **1712093**

12-Dec-17

Client: WPX Energy

Project: Rosa Unit 147B

Sample ID **MB-35317**	SampType: **MBLK**	TestCode: **EPA Method 418.1: TPH**
Client ID: **PBS**	Batch ID: **35317**	RunNo: **47545**
Prep Date: **12/5/2017**	Analysis Date: **12/6/2017**	SeqNo: **1518432** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	ND	20								

Sample ID **LCS-35317**	SampType: **LCS**	TestCode: **EPA Method 418.1: TPH**
Client ID: **LCSS**	Batch ID: **35317**	RunNo: **47545**
Prep Date: **12/5/2017**	Analysis Date: **12/6/2017**	SeqNo: **1518433** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	93	20	100.0	0	93.4	80.5	126			

Sample ID **LCSD-35317**	SampType: **LCSD**	TestCode: **EPA Method 418.1: TPH**
Client ID: **LCSS02**	Batch ID: **35317**	RunNo: **47545**
Prep Date: **12/5/2017**	Analysis Date: **12/6/2017**	SeqNo: **1518434** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	93	20	100.0	0	93.4	80.5	126	0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative 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#: **1712093**

12-Dec-17

Client: WPX Energy

Project: Rosa Unit 147B

Sample ID **LCS-35299**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **35299**	RunNo: **47518**
Prep Date: **12/4/2017**	Analysis Date: **12/5/2017**	SeqNo: **1517358** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.6		5.000		92.8	70	130			

Sample ID **MB-35299**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **35299**	RunNo: **47518**
Prep Date: **12/4/2017**	Analysis Date: **12/5/2017**	SeqNo: **1517360** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		108	70	130			

Sample ID **LCS-35334**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **35334**	RunNo: **47491**
Prep Date: **12/5/2017**	Analysis Date: **12/6/2017**	SeqNo: **1520256** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	89.3	73.2	114			
Surr: DNOP	3.6		5.000		71.7	70	130			

Sample ID **MB-35334**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **35334**	RunNo: **47491**
Prep Date: **12/5/2017**	Analysis Date: **12/6/2017**	SeqNo: **1520258** Units: **mg/Kg**

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	7.8		10.00		78.0	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative 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#: **1712093**

12-Dec-17

Client: WPX Energy

Project: Rosa Unit 147B

Sample ID **MB-35320**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **35320**	RunNo: **47565**
Prep Date: **12/5/2017**	Analysis Date: **12/6/2017**	SeqNo: **1519555** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1100		1000		111	15	316			

Sample ID **LCS-35320**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **35320**	RunNo: **47565**
Prep Date: **12/5/2017**	Analysis Date: **12/6/2017**	SeqNo: **1519556** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	107	75.9	131			
Surr: BFB	1200		1000		124	15	316			

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 Quanitative 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#: **1712093**

12-Dec-17

Client: WPX Energy

Project: Rosa Unit 147B

Sample ID **MB-35320**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **35320**	RunNo: **47565**
Prep Date: **12/5/2017**	Analysis Date: **12/6/2017**	SeqNo: **1519593** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		106	80	120			

Sample ID **LCS-35320**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **35320**	RunNo: **47565**
Prep Date: **12/5/2017**	Analysis Date: **12/6/2017**	SeqNo: **1519594** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	109	77.3	128			
Toluene	1.1	0.050	1.000	0	108	79.2	125			
Ethylbenzene	1.0	0.050	1.000	0	104	80.7	127			
Xylenes, Total	3.1	0.10	3.000	0	102	81.6	129			
Surr: 4-Bromofluorobenzene	1.1		1.000		110	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative 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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **WPX ENERGY** Work Order Number: **1712093** RcptNo: **1**

Received By: **Ashley Gallegos** **12/2/2017 8:30:00 AM**

Completed By: **Ashley Gallegos** **12/2/2017 10:31:54 AM**

Reviewed By: DDS 12/04/17

Chain of Custody

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

Log In

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

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

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

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

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

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.9	Good	Yes			

Chain-of-Custody Record

Client: WPX Energy Production, LLC

Mailing Address: 721 S Main
Aztec, NM 87410

Phone #: 505-333-1880

email or Fax#: deborah.watson@wpxenergy.com

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

Accreditation:
☐ NELAP ☐ Other_____
☐ EDD (Type) _____

Turn-Around Time:
X Standard ☐ Rush_____

Project Name:
Rosa Unit #147B

Project #:

Project Manager:
Deborah Watson

Sampler:
On Ice: ☐ Yes ☐ No
Sample Temperature: [illegible]

HALL ENVIRONMENTAL ANALYSIS LABORATORY
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Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (MRO/GRO/DRO)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (Chloride)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
11/30/17	1130	soil	BGT 1	1-4 oz glass	cold	-001	X		X	X				X								

Date:	Time:	Relinquished by:	Received by:	Date	Time	Remarks:
12/1	9:32	[signature]	[signature]	12/1/17	932	
12/1/17	1928	[signature]	[signature]	12/02/17	0830 0853	

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

WPX Energy Production, LLC
Rosa Unit #147B BGT Closure Report
Photograph Log

WPX Energy Production, LLC	
Rosa Unit #147B	
33-31N-05W Rio Arriba County, New Mexico	
Photograph #1	