

District I
1625 N. French Dr., Hobbs, NM 88240
District II
301 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.

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 Operating Co, LLC OGRID #: 120782
Address: PO Box 640 / 721 S Main Aztec, NM 87410
Facility or well name: Rosa SWD Unit No. 2
API Number: 30-039-30812 OCD Permit Number: _____
U/L or Qtr/Qtr F Section 25 Township 31N Range 5W County: Rio Arriba
Center of Proposed Design: Latitude 36.886951N / 36.88824N Longitude -107.311156W / -107.44499W NAD: ☐ 1927 ☒ 1983
Surface Owner: ☒ Federal ☐ State ☐ Private ☐ Tribal Trust or Indian Allotment

☒ **Pit:** Subsection F or G of 19.15.17.11 NMAC

Temporary: ☒ Drilling ☐ Workover

☐ Permanent ☐ Emergency ☐ Cavitation ☐ P&A

☒ Lined ☐ Unlined Liner type: Thickness 20 mil ☒ LLDPE ☐ HDPE ☐ PVC ☐ Other _____

☒ String-Reinforced

Liner Seams: ☒ Welded ☒ Factory ☐ Other _____ Volume: 35,000 bbl Dimensions: L 100' x W 100' x D 20'

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: _____ bbl Type of fluid: _____

Tank Construction material: _____

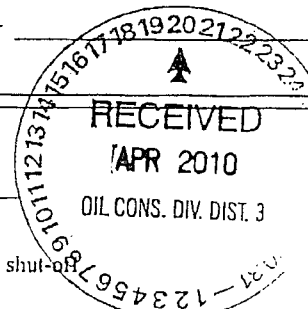
☐ Secondary containment with leak detection ☐ Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off

☐ Visible sidewalls and liner ☐ Visible sidewalls only ☐ Other _____

Liner type: Thickness _____ mil ☐ HDPE ☐ PVC ☐ Other _____

☐ **Alternative Method:**

Submittal of an exception request is required. Exceptions must be submitted to the Santa Fe Environmental :



Before the OCC
Case 14521
Williams Production Co., LLC
OCD Exhibit 8

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 As per USFS /BLM 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 (**Temporary Pit**)

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 H₂S, Prevention Plan
☐ Emergency Response Plan
☐ Oil Field Waste Stream Characterization
☐ Monitoring and Inspection Plan
☐ Erosion Control Plan
☐ Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

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: _____ Temporary Pit on Rosa 634B Location _____ 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. EH & S Specialist

Signature: [Signature] Date: 4/20/2010

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)

OCD Representative Signature: _____ Approval Date: _____

Title: _____ OCD Permit Number: _____

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

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

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

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

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

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

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: _____

Williams Production Co., LLC
Rosa SWD #2 (API: 30-039-30812)
Drilling and Completion
Closed-Loop & Temporary Pit System

In accordance with Rule 19.15.17 NMAC, the following plans describes the Design and Construction (D&C); the Maintenance and Operation (O&M) and Closure of a closed-loop and temporary pit system to be used for the drilling and completion of the Rosa Unit SWD #2 by Williams Production Co, LLC (WPX).

The Closed-loop portion of this system will be located immediately adjacent to the drilling/completion rig for solids and fluid handling and to prevent impacts to the immediate environment surrounding the wellsite. The temporary pit portion of the system will be needed to provide additional fluids storage for pressure control, hole stability and solids management. The temporary pit will be located at a less environmentally sensitive new drill well location (Rosa Unit #634B: API 30-039-30937) within 10 miles west of the SWD #2 wellsite.

Design and Construction Plans

Closed-Loop Design & Construction Plan:

The Closed-Loops System will consist of one or more temporary above-ground tank(s) suitable for holding the cuttings and fluids for rig operations and the planned Drilling/Completion activities. The tank(s) will be of sufficient volume to maintain a safe free-board during rig operations and prior to disposal of the liquids and solids. Additional design considerations include:

1. The Closed-loop System used by WPX will not entail a drying pad, below-grade tank or sump.
2. Fencing is not required for an above-ground closed-loop system.
3. It will be signed in compliance with 19.15.3.103 NMAC
4. A temporary pit will be used to store surplus liquids and handle the large volume of cutting anticipated while drilling the disposal well.
5. Haul-off bins or similar containers will be used to temporarily hold dewatered solid prior to disposal in the temporary pit.
6. Tanks will be placed on the active and disturbed areas of the SWD well location and within the existing ROW footprint.

Temporary Design & Construction Plan:

General Requirements:

1. WPX will be designed and constructed the temporary pit to contain surplus liquids and recovered solids associated with the drilling and completion of the referenced SWD well which will prevent contamination of fresh water resources and protect public health and the environment.
2. Prior to excavation of the pit, topsoil will be stripped and stockpiled within the construction zone of the wellsite and within the ROW for later use during restoration.
3. WPX will post a well sign, not less than 12" by 24", on the well site prior to construction of the temporary pit. This sign will list the operator on record, the location of the well site by unit letter/section/township/range, and emergency telephone number(s).
4. WPX shall construct all new fences utilizing 48" steel mesh field-fence (hogwire) on the bottom with a single strand of barbed wire on top. T-posts will be installed every 12 feet and corners shall be anchored utilizing a secondary T-post or similar bracing. The temporary pit will be fenced at all times excluding drilling/completion operations, at which time the "front" side of the fence will be temporarily removed for operational purposes.

5. WPX shall construction the temporary pit so that the foundation and interior slopes are firm and free of rocks, debris, sharp edges or irregularities to meet manufacturers' specifications and potential liner failure.
6. WPX shall construct the pit so that the slopes are no steeper than two horizontal to one vertical. Where steeper slopes are required due to surface owner and right-of-way restriction, an engineer's certification of stability will be provided
7. The pit walls will be walked down by a crawler type tractor following construction and prior to liner installation.
8. The temporary pit will be lined with a 20-mil, string reinforced, LLDPE liner, complying with EPA SW-846 method 9090A requirements.
9. Geotextile will be installed beneath the liner when rocks, debris, sharp objects or irregularities cannot be avoided.
10. The liner will be anchored in the bottom of a compacted earth-filled trench consistent with manufacturer's specifications and at least 18 inches deep.
11. WPX will minimize liner seams and orient them up and down, not across slope faces. Factory seams will be used whenever possible. Field seams will be overlapped per manufacturers' specifications. WPX will minimize the number of field seams in corners and irregularly shaped areas.
12. The liner shall be protected from any fluid force or mechanical damage through the use of mud pit slides (secondary liner placed over the primary liner), and/or a manifold system.
13. The pit shall be protected from run-on by construction of diversion ditches around the location or around the perimeter of the pit as necessary.
14. The volume of the pit shall not exceed 10 acre-feet (77,580 bbl), including freeboard.
15. No temporary blow pit will be needed for the drilling and completion of the reference SWD.

Maintenance & Operating Plan

Closed-Loop Plan:

The Closed-Loops System will be operated and maintained: to contain liquids and solids, to aid in the prevention of contamination of fresh water sources, in order to protect public health and the environment. The following steps will be followed to attain this goal:

1. The liquids will be transferred to and from the temporary above-ground rig tanks using vacuum trucks. Liquid levels will be maintained to provide required free-board and prevent overtopping. Surplus liquids will be stored in the Temporary Pit and transferred to and from the Closed-Loop system as needed to effective drill and complete the well.
2. Solids in the Closed-Loop tanks will be vacuumed out and transferred to the Temporary pit on a periodic basis to ensure sufficient liquid volumes for effective drilling/completion and to prevent over topping.
3. No hazardous waste, miscellaneous solid waste or debris will be discharged into or stored in the tank(s). Only fluids or cutting intrinsic to, used or generated by rig operations will be placed or stored in the tank(s).
4. The Division District office will be notified within 48 hours of the discovery of compromised integrity of the Closed-Loop System. Upon discovery of the compromised tank, repairs will be enacted immediately.
5. All of the above operations will be inspected and a log will be signed and dated. During rig operations the inspection will be daily.

Temporary Pit Plan:

1. WPX will operate and maintain the temporary pit to contain liquids and solids associated with the drilling and completion of the referenced SWD well which will prevent contamination of fresh water resources and protect public health and the environment.
2. WPX will to the extent practical conserve drilling fluids for reuse by transferring liquids to other pits ahead of the rig. Any excess fluids that are not needed for

- well control during drilling or completion will be disposed by evaporation or transport to Basin Disposal, Inc in Bloomfield, New Mexico (Permit # NM-01-005).
3. WPX shall maintain at least two (2) feet of vertical freeboard for the temporary pit.
 4. WPX shall remove all free liquids from the temporary pit within 30 days from the date the drilling or completion rig is released.
 5. Only fluids and solids generated during the drilling/completion process and from the reference closed-loop system will be discharged into the temporary pit. Other miscellaneous solid waste or debris will not be allowed.
 6. WPX will not discharge or store any hazardous waste as defined under RCRA 40CFR 261 and 19.15.1.7.W(3) NMAC in the temporary pit or associated Closed-Loop system.
 7. If any pit liner's integrity is compromised, or if any penetration of the liner occurs:
 - a. Above the liquid's surface, WPX shall repair the damage or replace the liner as necessary. WPX will notify the NMOCD Aztec District Office by phone or email within 48-hours of discovery.
 - b. Leak below the liquid's surface, WPX shall suspend operations, remove all liquids above the damaged liner within 48 hours, and repair the damage or replace the liner. 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).
 - c. 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.
 8. The liner shall be protected from any fluid force or mechanical damage through the use of mud pit slides (secondary liner placed over the primary liner), and/or a manifold system.
 9. Diversion ditches, around the location or around the perimeter of the pit, shall be maintained as protection from run-on.
 10. WPX shall immediately remove any visible layer of oil from the surface of a temporary pit following cessation of drilling/completion operations. Oil absorbent booms will be utilized to contain and remove oil. An oil absorbent boom will stored on-site until the pit is covered.
 11. WPX will inspect the temporary pit as follows to ensure compliance with this plan:
 - a. Daily during drilling or workover operations. Inspections will be included with the IADC reports.
 - b. Weekly as long as liquids remain in the pit. Electronic copies of the inspections will be kept at the WPX San Juan Basin office.
 - c. Copies of the inspections will be filed with the NMOCD Aztec District office upon pit closure.

Closure Plan

Closed-Loop Plan:

The Closed-Loops System will be closed in accordance with 19.15.17.13. This will be done by:

1. WPX will vacuum removed any residual cutting and sludge from all temporary above-ground tanks and transporting cuttings to the Temporary Pit following rig operations.
2. WPX will to the extent practical conserve drilling fluids for reuse by transferring liquids to other permitted pits ahead of the rig. Any excess fluids that are not needed for well control during drilling or completion will be disposed by evaporation or transport to Basin Disposal, Inc in Bloomfield, New Mexico (Permit # NM-01-005).
3. Removal of the tank(s) from the well location as part of the rig move.
4. At time of well abandonment, the site will be reclaimed and re-vegetated to pre-existing conditions when possible, or as stipulated by the surface management agency (i.e. USFS) in the APD conditions of approval.

Temporary Pit In-place Closure Plan

In accordance with Rule 19.15.17.13 NMAC, the following plan describes the in-place closure requirements of the temporary pit to be used with the reference SWD well. Since the pit location is in a non-sensitive area with groundwater > 100 feet below the pit bottom the closure criteria for non-sensitive areas will be followed.

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:

- Details on Capping and Covering, where applicable
- Plot Plan (Pit Diagram)
- Inspection reports
- Sampling Results
- Division Form C-105: WELL COMPLETION OR RECOMPLETION REPORT AND LOG

Closure Procedure:

1. All free standing liquids will be removed from the pit at the start of the closure process. To the extent practical WPX will attempt to conserve drilling fluids for reuse by transferring liquids to other permitted pits ahead of the rig. Any excess fluids that are not needed for well control during drilling or completion will be disposed by evaporation or transport to Basin Disposal, Inc in Bloomfield, New Mexico (Permit # NM-01-005).
2. The method of closure for the temporary pit will be in-place burial on-site closure as all the criteria in 19.15.17.13.B are met.
3. The surface owner shall be notified of WPX's proposed closure plan using a means that provides proof of notice and consistent with the BLM-NMOCD MOU.
4. Within six months of the "rig-off" status occurring WPX will ensure that the temporary pit is covered, recontoured and reseeded in progress consistent with the USFS and/or BLM APD conditions of approval.
5. 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: Operators Name (WPX), Well Name and API Number, and Location (USTR)
6. The pit liner shall be removed above "mud level" after stabilization. Removal of the liner will consist of manually or mechanically cutting the liner at the mud level and removing all remaining liner. Care will be taken to remove "all" of the liner (i.e. anchored material). All excessive liner will be disposed of at a licensed disposal facility (probably San Juan Regional Landfill operated by Waste Management under NMED Permit SWM-052426).
7. Solidification of the remaining pit contents shall be achieved by mixing non-waste containing, earthen material. The solidification process will be accomplished use a combination of natural drying and mechanical mixing. Pit contents will be mixed with non-waste, earthen material to a consistency that is deemed safe and stable. The mixing ratio shall not exceed 3 parts non-waste to 1 part pit contents.
8. A five-point composite sample will be taken of the pit using sampling tools and all samples tested per 19.15.17.13(B)(1)(b) NMAC. In the event that the criteria are not met (See Table 1), all contents will be handled per 19.15.17.13(B)(1)(a) (i.e. dig and haul to a Division-approved facility). Approval to haul will be requested of the Aztec District office prior to initiation.

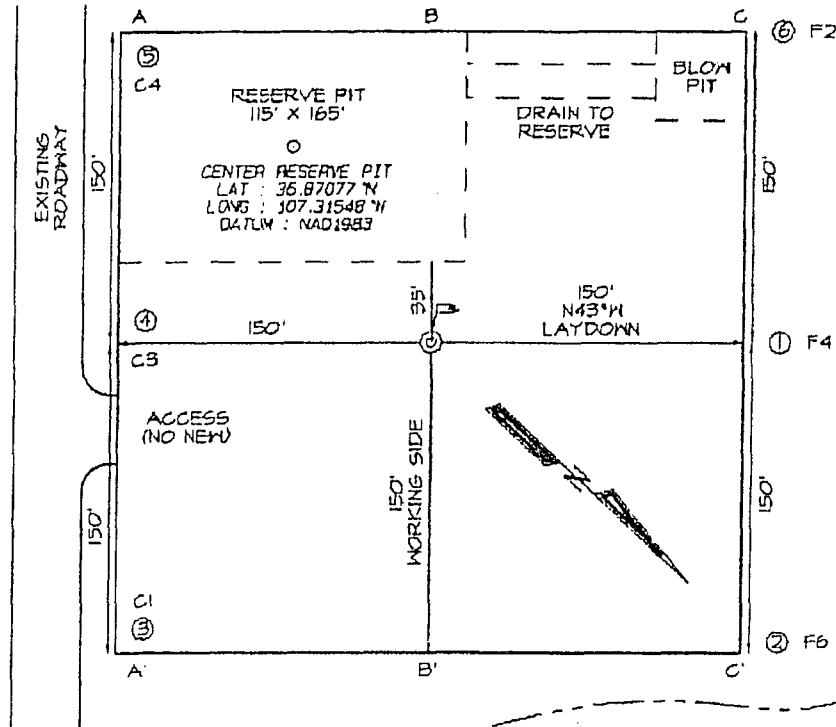
Table 1: Closure Criteria for Temporary Pits in Non-sensitive Areas

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 418.1 modified	2500
GRO/DRO	EPA SW-846 Method 8015M (GRO/DRO)	500
Chlorides	EPA SW-846 Method 300.1	1000

9. Upon completion of solidification and testing, the pit area will be backfilled with non-waste earthen material compacted to native conditions to enable effective revegetation for successful evapotranspiration. A minimum of four feet of cover including replacement of one foot of suitable material to establish vegetation, or the background thickness of topsoil, whichever is greater.
10. Following cover, the site will be recontoured to meet the Surface Management Agency APD conditions of approval requirements. Re-contouring will attempt to match fit, shape, line form, and texture of the surrounding geography. Re-shaping will include drainage control, prevent ponding, and minimize erosion. Natural drainages will be unimpeded and stormwater Best Management Practices (BMPs) will be used to aid in soil stabilization and protection surface water quality.
11. Notification will be sent to the Aztec District office when the reclaimed area is seeded.
12. WPX shall 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 USFS or BLM as the Surface Management Agency and as part of the APD are Division-approved methods unless notified by the Division of their unacceptability.*
13. The temporary pit will be located with a steel marker, no less than four inches in diameter, cemented in a hole three feet deep in the center of the on site burial upon the abandonment of all wells on the pad. The marker will be flush with the ground to allow access of the active well pad and for safety concerns. The marker will include a threaded collar to be used for future abandonment. The top of the marker will contain a welded steel 12" square plate that indicates the on site burial of the temporary pit. The plate will be easily removable and a four-foot tall riser will be threaded into the top of the collar marker and welded around the base with the operations information at the time of all wells on the pad abandoned. The information will include Operator Name, Lease Name, Well Name, and number, USTR, and an indicator that the marker is an onsite pit burial location

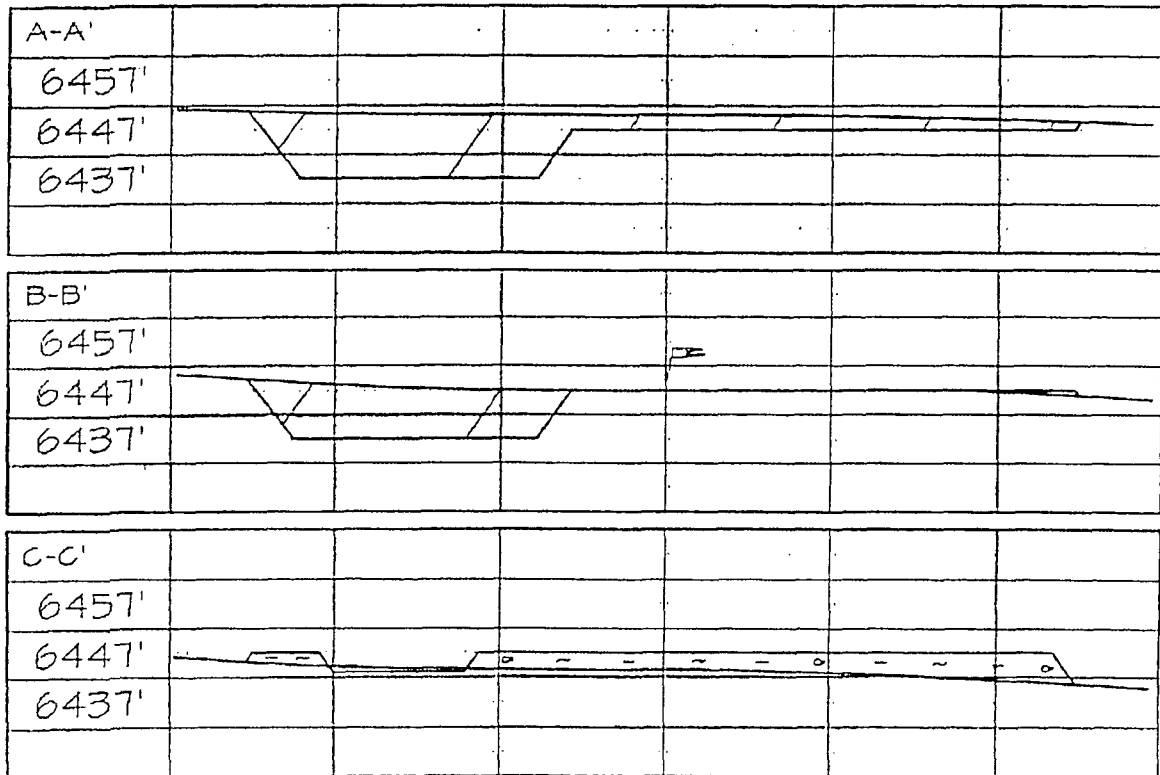
Location of Closed-Loop System

WILLIAMS PRODUCTION COMPANY ROSA UNIT SWD #2
2460' FNL & 2095' FWL, SECTION 25, T31N, R5W, NMPM
RIO ARriba COUNTY, NEW MEXICO ELEVATION: 6447'



LATITUDE: 36.87108°N
LONGITUDE: 107.31541°W
 DATUM: NAD1983

Steel T-Pipes have been set to define the Edge of Disturbance limits which are 50' offset from the edge of the existing roadway.



FILENAME: 210251T

SHEET 2 OF 3

HCS SURVEYS, INC.

DRAWN BY: EDO

CHECKED BY: JCE

Rosa SWD Unit Mo. 2 (Rev. 4-20-2010)

**Hydrogeological Report
Williams Production Company, LLC
Rosa Unit SWD #2 Temporary Pit
Regional Hydrological Context**

Referenced Well Location:

The referenced well and pit is located on Bureau of Land Management land within Farmington Field Office (FFO) management jurisdiction in Rio Arriba County, New Mexico. This site is positioned in the northeastern portion of the San Juan Basin, an asymmetrical syncline that extends from northwestern New Mexico into southwestern Colorado (Carson National Forest FEIS, 2008). Elevation of the referenced well is approximately 6256 feet MSL.

General Regional Groundwater Description:

As a portion of the San Juan Basin, the FFO administrative area is underlain by sandstone aquifers of the Colorado Plateau. The primary aquifer of potential concern at this location is the Uinta-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 Uinta-Animas aquifer generally increases toward the central part of the Basin. In this region, 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 its 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 proposed pit is located on a mid-elevation, north-facing slope toward Laguna Seca Draw/Navajo Reservoir junction (0.17 miles to the north).

1st Water Bearing Formation:
Formation Thickness:
Underlying Formation:
Depth to Groundwater:

San Jose, Tertiary
Approximately 1,900 ft.
Nacimiento, Tertiary
Depth to groundwater is estimated at greater than 100 feet bgs. Within a one-mile radius of this location, there are no IWATERS wells with recorded water depth information. However, cathodic data associated with the Rosa Unit Nos. 12B (approximately 1,696 feet from pit), 18 (approximately 110 feet from pit) and 201 (approximately 612 feet from pit) show depth to moisture between 110 and 300 feet (see Siting Criteria Map I for details).

References:

Allen, Erin. Undated. Colorado Plateau Aquifers.

<http://academic.emporio.edu/schulmem/hydro/TERM%20PROJECTS/2007/Allen/Aquifer.html>.

New Mexico Office of the State Engineer. 2010. IWATERS Database search. March, 2010.

United States Department of Agriculture, Forest Service. 2008. Final 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. Ground Water 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
Water Column/Average Depth to Water

No records found.

PLSS Search:

Section(s): 22

Township: 31N

Range: 08W

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

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Page 1 of 1

WATER COLUMN/ AVERAGE
DEPTH TO WATER



New Mexico Office of the State Engineer Water Column/Average Depth to Water

No records found.

PLSS Search:

Section(s): 23

Township: 31N

Range: 00W

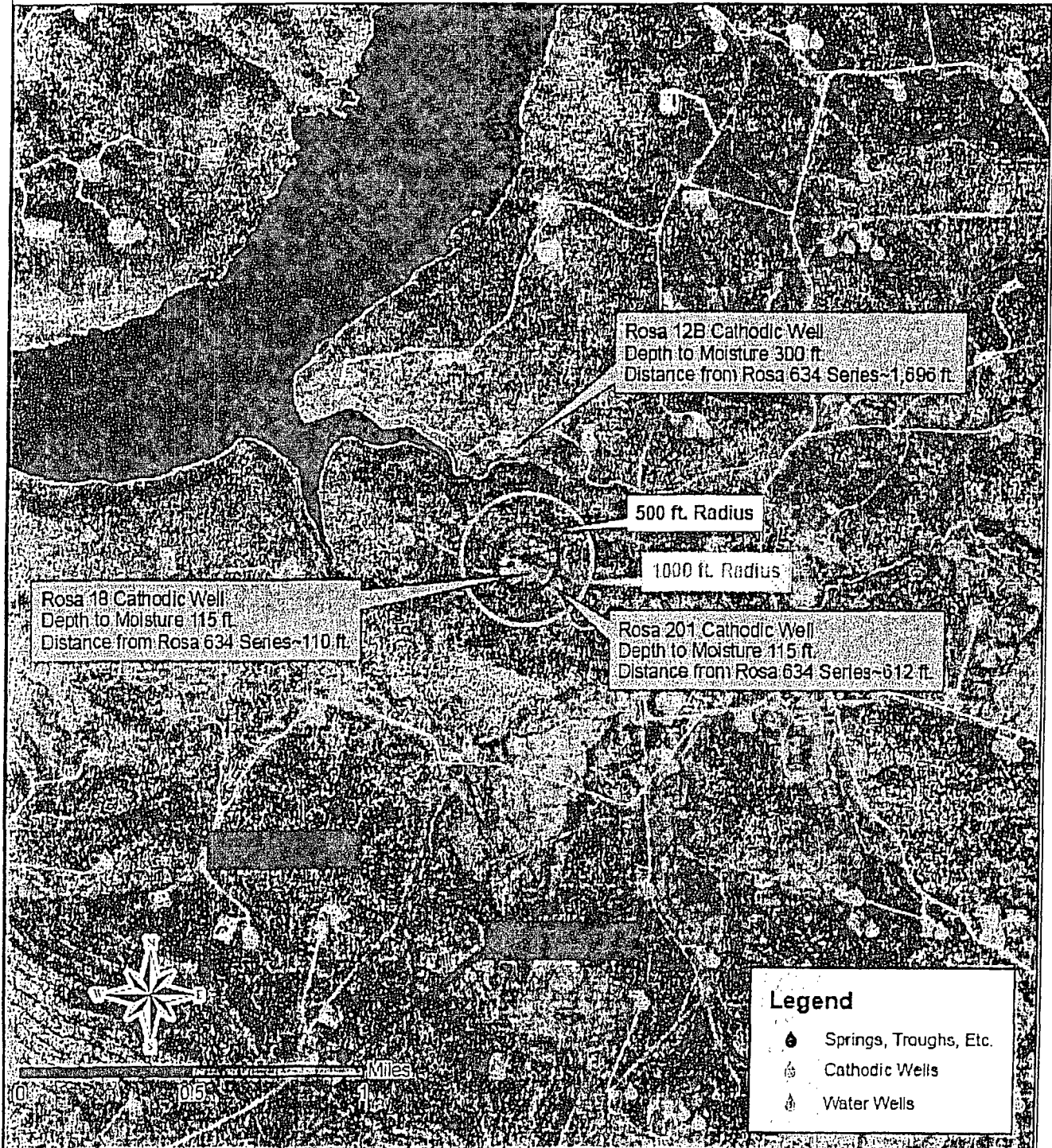
The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

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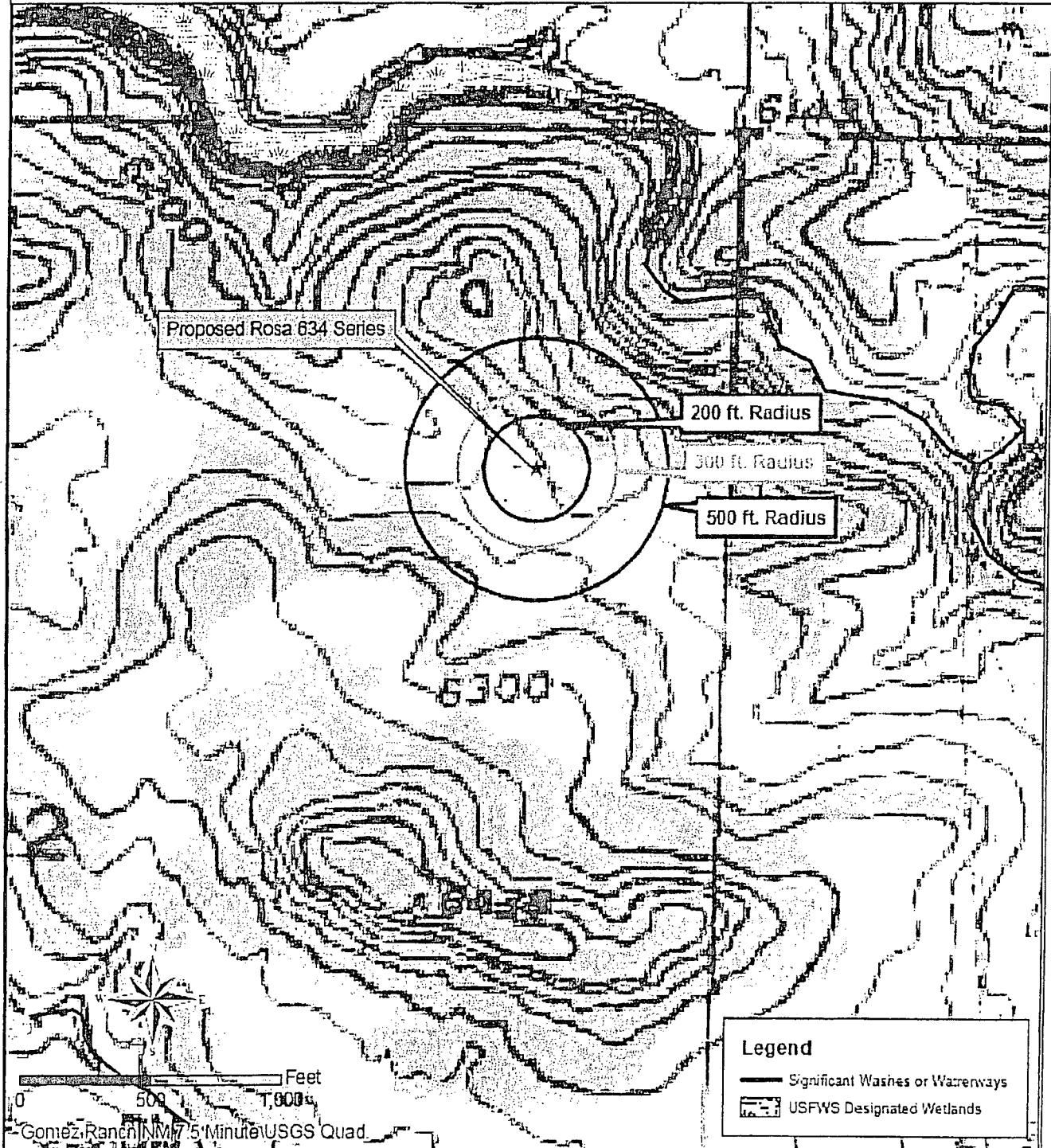
Page 1 of 1

WATER COLUMN/ AVERAGE
DEPTH TO WATER

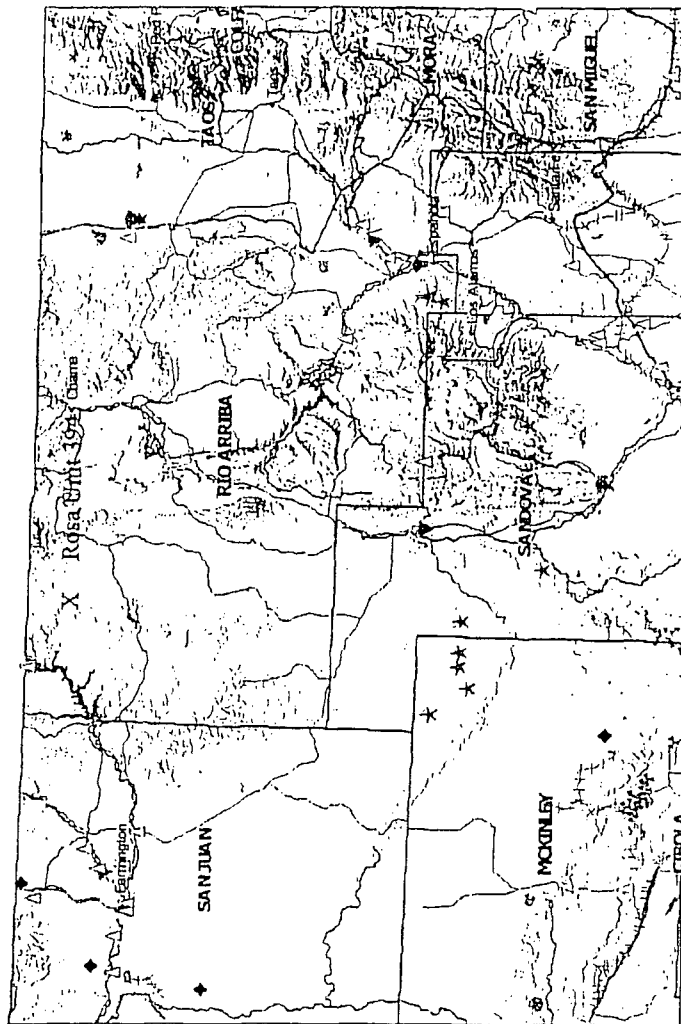
Siting Criteria Map I
 Water Wells, Cathodic Wells, & Springs
 Williams Production Company, LLC
 Proposed Rosa Unit # 634 Series
 T31N, R06W, Section 22 NMPM
 Rio Arriba County, New Mexico



Siting Criteria Map II
Topographic Features
Williams Production Company, LLC
Rosa Unit No. 634 Series
T31N, R06W, Section 22 NMPM
Rio Arriba County, New Mexico



MMQonline Public Version



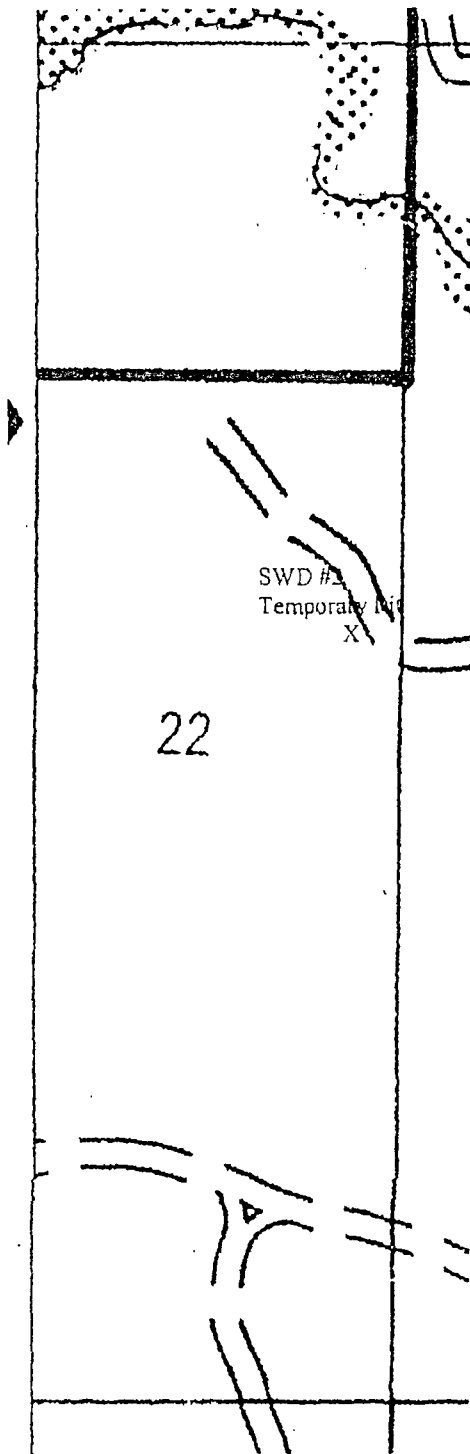
Mines, Mills & Quarries Commodity Groups	
▲	Aggregate & Stone Mines
◆	Coal Mines
★	Industrial Minerals Mines
▼	Industrial Minerals Mills
▣	Metal Mines and Mill Concentrate
▤	Potash Mines & Refineries
⊥	Smelters & Refinery Ops.
✱	Uranium Mines
⊙	Uranium Mills
Population	

FEMA Map – 100-Year Floodplain:

According to FEMA records, this site is not located in a 100-year floodplain (see attached FEMA map).

Siting Criteria Compliance Demonstrations:

The location of the Rosa SWD #2 temporary pit is not located in an unstable area. The location is not situated over a mine or a steep slope. Excavated pit material will not be located within 300 feet of a continuously flowing water course or within 200 feet of any other significant water course, lakebed, sinkhole, or playa lake (see Siting Criteria Map II). The site is not within 500 feet of any reported riparian areas or wetlands (see attached USFWS wetland map); 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 proposed 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 proposed pit is not within 300 feet of any permanent residence, school, hospital, institution, or church.



Lane, Myke

From: Lane, Myke
Sent: Tuesday, April 20, 2010 10:50 AM
To: 'John Reidinger'; Bill Liess (bliess@nm.blm.gov)
Cc: Powell, Brandon, EMNRD
Subject: Notice of Closure Plan - Rosa SWD #2 Closed-Loop - Temporary Pit System
Attachments: C144 Rosa SWD #2 Prelim Temp(CLP-Temp @ RU634B).doc

This correspondence is to notify the USFS-Jicarilla Ranger District and BLM-Farmington Field Office that Williams Production is planning to use a closed-loop/temporary pit system for the drilling/completion of the referenced well and subsequent closure plan.

The Closed-loop (CLP) portion of this system will be located immediately adjacent to the drilling/completion rig for solids and fluid handling and to prevent impacts to the immediate environment surrounding the wellsite. The temporary pit portion of the system will be needed to provide additional fluids storage for pressure control, hole stability and solids management. The temporary pit will be located at a less environmentally sensitive new drill well location (Rosa Unit #634B: API 30-039-30937) within 10 miles west of the SWD #2 wellsite.

The closure plan following discontinued use of the pit system will include:

- The CLP portion will be removed from the wellsite, liquids/fluids will be reused at another drilling site or disposed of at a NMOCD approved facility, and all solids and drilling/completion waste will be transported offsite to the temporary pit site.
- The temporary pit will be closed in-place following NMOCD Pit Rule 19.15.17.13 NMAC.

This notice is to comply with the NMOCD Pit Rule 19.15.17 NMAC requirement to notify surface owners of the operator's intended closure method. If site conditions do not allow Williams to close in-place, we will provide your office with prior notice should the USFS or BLM have any concerns.

A copy of the Pit Application (without this notice) is attached. Please contact us if there are any questions or additional information is required.

Michael K. (Myke) Lane, PE
EH&S Team Leader - San Juan Basin Operations
721 S. Main/PO Box 640, Aztec, NM 87410
(505) 634-4219(off); -4205(fax); 330-3198(cell)

"The problems we face cannot be resolved at the same level of thinking as that which gave rise to them!"---shared with me by Brent Hale