COPY

HOLLAND&HART

Ocean Munds-Dry
omundsdry@hollandhart.com

March 16, 2010

Via Hand Delivery

Mark E. Fesmire, P.E., Director
Oil Conservation Division
New Mexico Energy, Minerals and
Natural Resources Department
1220 South Saint Francis Drive
Santa Fe, New Mexico 87505

RECEIVED OCD
2010 MAR 17 P 3:25

Re: **Application of Williams Production Co., LLC for Approval of a Closed-Loop System for the Rosa SWD Well No. 2 and for the In-Place Burial of Drilling Wastes or an Alternative Closure Method and/or Exception to the Pit Rule, Rio Arriba County, New Mexico.**

Dear Mr. Fesmire:

Enclosed is the application of Williams Production Company, LLC in the above-referenced case as well as a copy of a legal advertisement. Williams requests that this matter be placed on the docket for the April 15, 2010 Examiner hearings.

Sincerely,

Ocean Munds-Dry

Ocean Munds-Dry
for Holland & Hart LLP

cc: OCD Environmental Bureau
OCD District Office - Aztec

STATE OF NEW MEXICO
DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES
OIL CONSERVATION DIVISION

IN THE MATTER OF THE APPLICATION OF WILLIAMS PRODUCTION CO., LLC FOR APPROVAL OF A CLOSED LOOP SYSTEM FOR THE ROSA SWD WELL NO. 2 AND FOR IN-PLACE BURIAL OF DRILLING WASTES AT ANOTHER WELL LOCATION, OR AN ALTERNATIVE CLOSURE METHOD AND/OR EXCEPTION TO THE PIT RULE, RIO ARRIBA COUNTY, NEW MEXICO.

CASE NO. _____

APPLICATION

WILLIAMS PRODUCTION COMPANY, LLC, ("Williams") through its undersigned attorneys, hereby makes application to the Oil Conservation Division for an order approving a closed-loop system for the Rosa SWD Well No. 2 and the in-place burial of drilling and completion wastes at another well location. In the alternative, Williams seeks an alternative closure method and/or exception to the Pit Rule, 19.15.17.1 et seq NMAC ("Rule 17"). In support of this application, Williams states:

1. Williams is a working interest owner and the designated operator of the Rosa Unit. The horizontal limits of said Unit Area are described as follows:

Township 32 North, Range 6 West

Section 32-36: All

Township 31 North, Range 6 West

Sections 1 -3: All
Sections 4, 5, 8-17, 21-26: All

Township 31 North Range 5 West

Sections 3-36: All

Township 31 North Range 4 West

Sections 1-31: All

2. Williams proposes to drill the Rosa SWD Well No. 2 (API No. 30-039-30812) for the disposal of produced water in the Entrada formation at a location 2460 feet from the North line and 2095 feet from the West line of Section 25, Township 31 North, Range 5 West, NMPM, Rio Arriba County, New Mexico. See Exhibit A (APD). This location is within the Rosa Unit on surface owned by the Forest Service. Williams will soon submit its application for authority to inject (C-108).

3. This disposal well is important to Williams' operations in this area of the Rosa Unit. Williams currently only has 1 disposal well in operation in the Rosa Unit: the Rosa SWD Well No. 1. located in Section 23, Township 31 North, Range 6 West, NMPM, Rio Arriba County, New Mexico. If this disposal well could not be used, Williams would be forced to haul its produced water to a third party disposal well at considerable expense.

4. In this area of the Rosa Unit, Williams is only allowed to conduct drilling and construction activities from April 1st to November 1st of each year. Drilling and completing the proposed Rosa SWD Well No. 2 and building the associated facilities must be completed within this time period. Williams will need approximately two months to drill and complete the well and two months to construct the facilities for the well.

5. Williams originally applied to the Aztec district office on Form C-144 for authority to construct and use a temporary pit and then on-site closure at the proposed Rosa SWD Well No. 2 location but authorization was denied when it was determined that groundwater was less than 50 feet below the bottom of the proposed pit. See Exhibit B (C-144).

6. Williams next submitted an application on Form C-144 to the Aztec district office to employ a closed-loop and temporary pit system for the drilling and completion of the Rosa SWD Well No. 2. 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 well site. The temporary pit portion of the system needed to provide additional fluids for pressure control, hole stability and solids/cuttings management was to be located nearby at the Rosa Well No. 394A (API No. 30-039-29708) in Section 24, Township 31 North, Range 5 West, NMPM, Rio Arriba County, New Mexico. This application was also denied by the Aztec district office in consultation with the Environmental Bureau for the reasons listed in Exhibit C (C-144).

7. The Rosa Well No. 394A has been taken off the drilling schedule and therefore Williams seeks to take the waste to an approved temporary pit at another proposed well location nearby – either the Rosa Unit Well No. 634C located in Section 23, Township 31 North, Range 6 West, NMPM or the Rosa Unit Well No. 635B located in Section 21, Township 31 North North, Range 5 West, NMPM .

8. Williams seeks approval from the Division to: (a) utilize a closed-loop system at the Rosa SWD Well No. 2 location; and (b) utilize a temporary pit at another well site for additional fluids storage for pressure control, hole stability and solids/cuttings management. Cuttings in the temporary pit will be buried on-site following completion of the well in accordance with the C-144 application and 19.15.17.13 NMAC.

9. Pursuant to 19.15.17.13.D NMAC, an operator may use one of the following closure methods for closed-loop systems: (1) waste removal; (2) on-site burial; or (3) alternative closure method.

10. Hauling the waste from the proposed Rosa SWD Well No. 2 to a division-approved facility will be extremely costly given its remote location. It will also cause more surface impact to forest lands because of increased truck traffic.

11. Williams proposes therefore to use a closed-loop system at the well site and to bury the waste on-site where the temporary pit is located, constructed and closed in accordance with 19.15.17.13.D(2).

12. This application should be granted because it will protect the public health and environment because it decreases surface impact, places the waste in a non-environmentally sensitive area and is more economic and efficient for Williams' operations in the Rosa Unit.

13. In the alternative, Williams seeks an alternative closure method (pursuant to 19.15.17.13.D(3) and 19.15.17.15(B) NMAC) or a general exception (pursuant to 19.15.17.15(A) NMAC) to the Pit Rule because the proposed alternative closure method will protect fresh water, public health and the environment. Due to timing issues and because the Environmental Bureau has previously reviewed and denied Williams' application, this application for hearing is proper.

14. Exhibit D to this application is a list of affected persons as defined by Division Rules. Williams has given notice to the listed parties in accordance with Division Rules.

15. Approval of this application will protect fresh water, public health and the environment and is in the best interest of conservation, the preventation of waste and the protection of correlative rights.

WHEREFORE, Williams Production Company, LLC requests that this application be set for hearing before an Examiner of the Oil Conservation Division on April 15, 2010 and, after notice and hearing as required by law, that the application be approved.

Respectfully submitted,

HOLLAND & HART LLP

By: Ocean Munds-Dry

Ocean Munds-Dry
William F. Carr
Post Office Box 2208
Santa Fe, New Mexico 87504
Telephone: (505) 988-4421

ATTORNEYS FOR WILLIAMS PRODUCTION CO., LLC

EXHIBIT A
NOTIFICATION LIST

Bureau of Land Management
Farmington Field Office
235 La Plata Highway, Suite A
Farmington, NM 87401

United States Forest Service
Carson National Forest - Jicarilla Ranger Station
664 E. Broadway
Bloomfield, NM 87413

Bureau of Reclamation
555 Broadway NE, Suite 100
Albuquerque, NM 87102-2352

Rio Arriba County Commission
Attn: Gabriel Boyle
Planning and Zoning Department
1122 Industrial Park
Espanola, NM 87532

CASE _____: **Application of Williams Production Co., LLC for Approval Of A Closed Loop System For The Rosa SWD Well No. 2 And For The In-Place Bural Of Drilling Wastes At Another Well Location Or An Alternative Closure Method And/Or Exception To The Pit Rule, Rio Arriba County, New Mexico.** Applicant, in the above-styled cause seeks approval of a closed loop system at the Rosa SWD Well No. 2 (API No. 30-039-30812) located in Section 25, Township 31 North, Range 5 West, NMPM, Rio Arriba County, New Mexico and to haul the waste to an approved temporary pit at a nearby well location for on-site burial. In the alternative, Williams seeks an alternative closure method or an exception to 19.15.17 NMAC. Said area is located approximately 20 miles east of Navajo Dam, New Mexico.

RECEIVED

SEP 09 2009

Bureau of Land Management
Farmington Field Office

Form 3160-3
(September 2001)

FORM APPROVED
OMB No. 1004-0136
Expires January 31, 2004

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No: NMSF-078768

6. If Indian, Allottee or Tribe Name:

1a. Type of Work: ☒ DRILL ☐ REENTER

7. If Unit or CA Agreement, Name and No.: Rosa Unit

☒ Single Zone ☐ Multiple Zone

1b. Type of Well: ☐ Oil Well ☐ Gas Well ☒ Other SWD

8. Lease Name and Well No: Rosa Unit SWD #2

2. Name of Operator: Williams Production Company, LLC

9. API Well No: 30 039 30812

3a. Address	3b. Phone No (include area code)	10. Field and Pool, or Exploratory
P.O. Box 640 Aztec, NM 87410	(505) 634-4208	SWD Entrada

4. Location of Well (Report location clearly and in accordance with any State requirements. *)

At surface: 2460' FNL & 2095' FWL

At proposed prod. zone:

11. Sec., T., R., M., or Blk. and Survey or Area: Section 25, 31N, 5W

14. Distance in miles and direction from nearest town or post office*	12. County or Parish	13. State
approximately 31 miles northeast of Blanco, New Mexico	Rio Arriba	NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drg. unit line, if any)	16. No. of Acres in lease	17. Spacing Unit dedicated to this well
2095'	2,560.0	RCVD DEC 1 '09

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft	19. Proposed Depth	20. BLM/BIA Bond No. on file
1,326' Rosa 344	9,386'	UT0899

OIL CONS. DIV.

21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
6,447' GR	October 1, 2009	1 month

DIST. 3

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, shall be attached to this form:

1. Well plat certified by a registered surveyor.
2. A Drilling Plan
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification.
6. Such other site specific information and/or plans as may be required by the authorized officer.

25. Signature	Name (Printed/Typed)	Date
Heather Riley	Heather Riley	9/9/09

Title: Regulatory Specialist

Approved by (Signature)	Name (Printed/Typed)	Date
/s/ Stephen Mason		11/23/09

Title: AFM

Office: FFO

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on reverse)

Williams plans to drill and complete a saltwater disposal well in the above referenced location. The proper State of New Mexico saltwater disposal well permit will be obtained. MUST HAVE SWD order PRIOR TO SPUD

The surface is under Jurisdiction of the Carson National Forest, Jicarilla Ranger District.

DEC 07 2009

This location has been archaeologically surveyed by La Plata Archaeological Consultants. Copies of their report have been submitted directly to the CNF.

No new access road will be required for this proposed well.

This APD is also serving as an application to obtain a gas pipeline right-of-way. An associated gas pipeline tie of 464.7 feet would be required for this well, to fuel the injection pumps.

NOTIFY AZTEC OCD 24 HRS.
PRIOR TO CASING & CEMENT

This action is subject to technical and procedural review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3165.4

EXHIBIT A

DRILLING OPERATIONS AUTHORIZED ARE SUBJECT TO COMPLIANCE WITH ATTACHED "GENERAL REQUIREMENTS".

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

District II
1301 W Grand Avenue, Artesia, NM 88210

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

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

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised October 12, 2005
Instructions on back
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹API Number	²Pool Code	³Pool Name
30-039-30812	96436	SWD; Entrada

⁴Property Code	⁵Property Name	⁶Well Number
32031	ROSA UNIT SWD	2

⁷OGRID No.	⁸Operator Name	⁹Elevation
120782	WILLIAMS PRODUCTION COMPANY	6447'

¹⁰ Surface Location

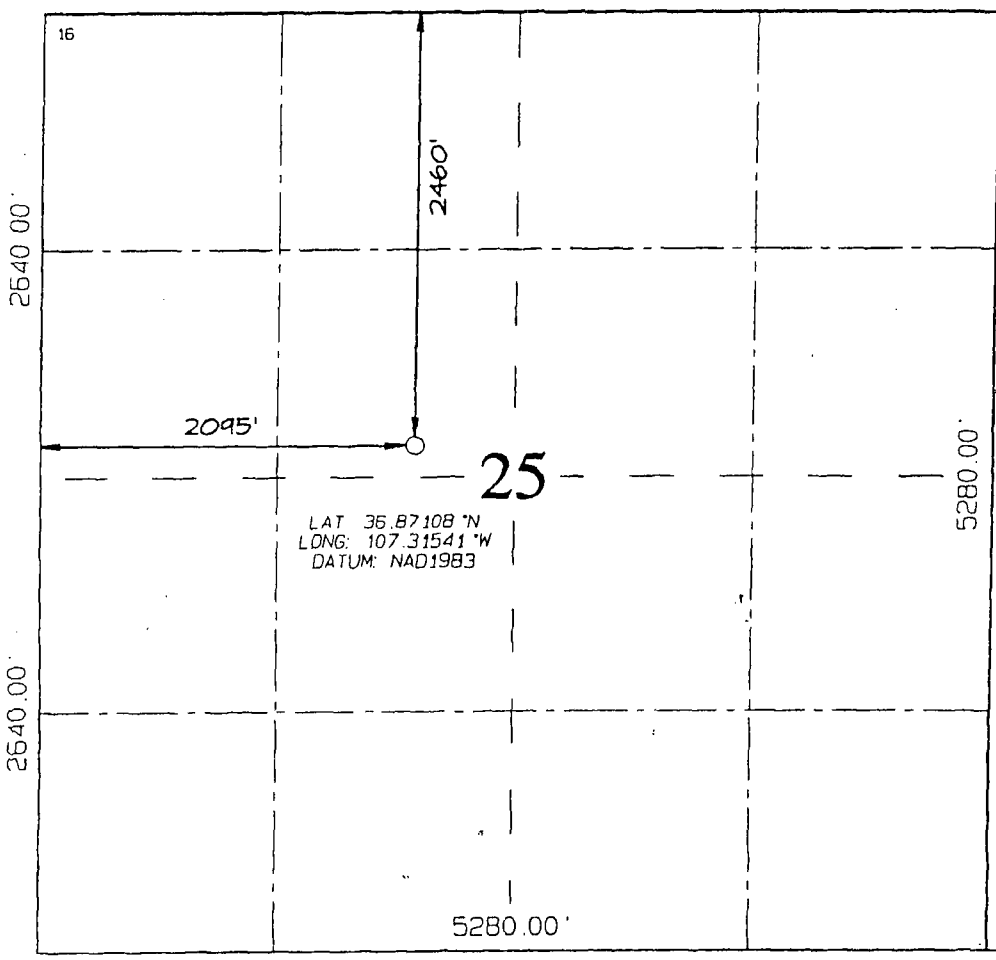
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
F	25	31N	5W		2460	NORTH	2095	WEST	RIO ARRIBA

¹¹ Bottom Hole Location If Different From Surface

UL or lot no	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

¹² Dedicated Acres	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



¹⁷ OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom-hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Heather Riley 9/8/09
Signature Date

Heather R. Ley
Printed Name

¹⁸ SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief

Date of Survey: JUNE 15, 2009

Signature and Seal of Professional Surveyor

JASON C. EDWARDS
NEW MEXICO
15269
REGISTERED PROFESSIONAL SURVEYOR

JASON C. EDWARDS
Certificate Number 15269

WILLIAMS PRODUCTION COMPANY

Operations Plan

(Note: This procedure will be adjusted on site based upon actual conditions)

DATE:	9/2/2009	**FIELD:**	Entrada
WELL NAME:	Rosa SWD#2	**SURFACE:**	USFS
BH LOCATION:	SENW Sec 25-31N-5W Rio Arriba, NM	**MINERALS:**	BLM
ELEVATION:	6,447' GR	**LEASE #**	SF-078768
MEASURED DEPTH:	**9,386'**		

I. I. GEOLOGY: Surface formation - San Jose

A. FORMATION TOPS: (KB)

Name	Depth	Name	Depth
Nacimiento	1,381	Gallup	7,086
Ojo Alamo	2,651	Greenhorn	7,806
Kirtland	2,781	Graneros	7,856
Fruitland	3,096	Dakota	8,001
Pictured Cliffs	3,276	Morrison	8,251
Lewis	3,596	Bluff	8,751
Cliff House Trans	5,211	Summerville	8,921
Cliff House	5,211	Todilto	8,996
Menefee	5,556	Entrada	9,036
Point Lookout	5,731	Chinle	9,311
Mancos	6,021	TD	**9,386**

B. MUD LOGGING PROGRAM: Mudlogger on location from protection liner to TD. Mud logger to pick TD.

C. LOGGING PROGRAM: Schlumberger: induction/density/neutron logs from intermediate casing depth to TD; additional speciality logs from protection liner depth to TD

D. NATURAL GAUGES: Gauge any noticeable increases in gas flow. Record all gauges in Tour book and on morning reports.

II. DRILLING

A. SURFACE HOLE: PU 12 ¼", 17 ½" 26"in. Bit, Drill / ream to ~~+400 ft.~~ 500' (MD). Drill with water and Gel sweeps. RU and run 20 in. Surface Casing, set at ~~400 ft.+~~ 500' (MD). NU 20in. SOW X 21-1/4 in. 2000 psi Braden Head. NU 20in annular preventer. The surface casing will be pressure tested to 1400 psi in conjunction with the BOP test before drilling out cement. Run TOTCO surveys at 200ft. and 400ft.

B. INTERMEDIATE HOLE: Drill out of 20in. csg. with a 17-1/2in. Tri-cone bit. Use LSND Mud System to 13-3/8 in. intermediate casing point. Increase Viscosity of mud system to 40+ to run casing. Treat for lost circulation as necessary. Obtain 100% returns prior to cementing. Notify Engineering of any mud losses. Circulate cement to surface. NU 21-1/4in 2,000 psi X 13-5/8 in. "B" Section. Run TOTCO Surveys each 500 ft.

C. **INTERMEDIATE LINER HOLE:** Drill out of 13-3/8in. csg. with a 12-1/4in. air hammer bit. Use Air Drilling System, to 12-1/4 in. intermediate casing point. Run & set 9-5/8" liner. Circulate cement to 150ft. above TOL. Run TOTCO Surveys each 500 ft.

D. **PRODUCTION HOLE:** Drill out of 9-5/8in. csg with an 8-3/4in tri-cone bit. Use Dispersed Mud System with water loss less than 8 ml/30 min. POOH, run OH logs. Increase Viscosity of mud system to 40+ to run casing. Treat for lost circulation as necessary.

E. **BOP TESTING:** While drill pipe is in use, the pipe rams and the blind rams will be function tested once each trip. The anticipated reservoir is expected to be less than 1300 psi, so the BOPE will be tested to **250 psi (Low) for 5 minutes** and **1500 psi (High) for 10 minutes**. Utilize a BOPE Testing Unit with a recording chart and appropriate test plug for testing. The surface and Intermediate casing will be pressure tested **to 1500 psi for 30 minutes** after the BOPE test before drilling out cement. The drum brakes will be inspected and tested each tour. **All tests, inspections and SPR's will be recorded in the tour book as to time and results.**

II. MATERIALS

A. CASING PROGRAM:

CASING TYPE	OH SIZE (IN)	DEPTH (MD) (FT)	CASING SIZE (IN)	WEIGHT(LB)	GRADE
Surface	26	500	20	94	H-40
Intermediate	17 1/2	3,751	13-3/8	68	HCN-80
Protection Liner	12 1/4	3600-7731	9 5/8	40	N-80
Longstring	8 3/4	9,386	7	26	N-80

B. FLOAT EQUIPMENT:

1. SURFACE CASING: 20in. notched regular pattern guide shoe. Run one (1) standard centralizer on each of the bottom three (3) joints

2. INTERMEDIATE CASING: 13-3/8in. cement nose guide shoe with a self-fill insert float. Place float collar one joint above the shoe. Install one Turbulent centralizer on each of the bottom (3) joints and one standard centralizer every (3) joints to the surface casing.

3. DRILLING LINER: 9-5/8in. Whirler type cement nose guide shoe with a latch collar on top of bottom joint.

4. PRODUCTION CASING: 7" whirler type cement nose guide shoe with a float collar on top of bottom joint. Place marker joint above 5,600'. Place one turbolizer every third joint thru Dakota and Mesa Verde intervals. (**Call this in to BLM for approval. If denied, follow what is in the Operations Plan in the Permit package.**)

B. CEMENTING:

(Note: Volumes may be adjusted onsite due to actual conditions)

1. SURFACE: 10 bbl FW spacer, Slurry: 1270 sx (2286 ft^3) Premium Plus Type III + 2% Cal-Seal 60 + ¼ #/sk Poly-E-Flake + 0.3% Versaset + 2% Econolite + 6% Salt (13.5 lb/gal, 1.800 ft^3/sk) WOC 12 hours. Test csg to 1500psi. Circulate Cement to surface

2. INTERMEDIATE: 20 bbl FW spacer, Lead - 1605 sx (4382 cu.ft.) of "EXTENDACEM" + 5 #/sk pheno-seal + 5% Cal-Seal 60 + 0.5% D-AIR 3000 (Yield = 2.73 cu.ft./sk, Weight = 11.5 #/gal.). Tail - 200 sx (236 cu.ft.) of Premium cement + 0.125 #/sk Poly-E-Flake, (Yield = 1.18 cu.ft./sk, Weight = 15.6#/gal.). Total volume = 4618 cu.ft. Bump Plug to 1,500 psi. Notify engineering if cement is not circulated to surface WOC 12 hours. Run a temperature survey after 8 hours if cement is not circulated.

3. PROTECTION LINER: 20 bbl gelled water spacer, Lead: 1190 sx (1666 ft^3) Fraccem system + 0.6% Halad-9 + 0.1% CFR-3 + 3 #/sk Gilsonite + 0.15% HR-5 + 0.3% D-AIR 3000 (13.1 lb/gal, 1.40 ft^3/sk), Tail: 100 sx (117.9 ft^3) Premium cement + 0.3% Halad-9 (15.6 lb/gal, 1.18 ft^3/sk). Total volume 1784 ft^3. WOC 12 hours circulate cement 100' above Intermediate Shoe minimum

4. PRODUCTION CASING: 10 bbl Gelled Water spacer. Cement: 270 sx (378 ft^3) of "FRACCEM" + 0.8% Halad-9 + 0.1% CFR-3 + 5 #/sk Gilsonite + 0.125 #/sk Poly-E-Flake + 0.1% HR-5 + 0.3% D-AIR 3000. (Yield = 1.40 ft^3/sk, Weight = 13.1 #/gal.). Displace cement at a minimum of 8 BPM. Total volume (378) ft^3. WOC 12 hours. circulate cement at least 100' into Liner,

III. IV COMPLETION

A. CBL

1. Run Cement Bond Log across all intervals to be perforated and find Top of Cement behind all casing strings if cement not circulated to surface..

B. PRESSURE TEST

1. Pressure test 7" casing to 4500 psi max, hold at 1500 psi for 30 minutes.

C. STIMULATION

1. Stimulate Entrada formation interval with approximately 300,000 lbs 20/40 proppant in 30# Borate fluid system.

D. RUNNING TUBING

1. Isolation Packer: Arrow Set 1x, 5-1/2" X 3-1/2" (nickel coated) set at +/- 8906'
2. *Production Tubing:* Run 3-1/2", 9.3#, N-80, plastic line tubing. Land tubing approximately 50' below top Entrada perf.

Brian Alleman
Drilling Engineer I

Well Control Equipment Schematic for 2M Service

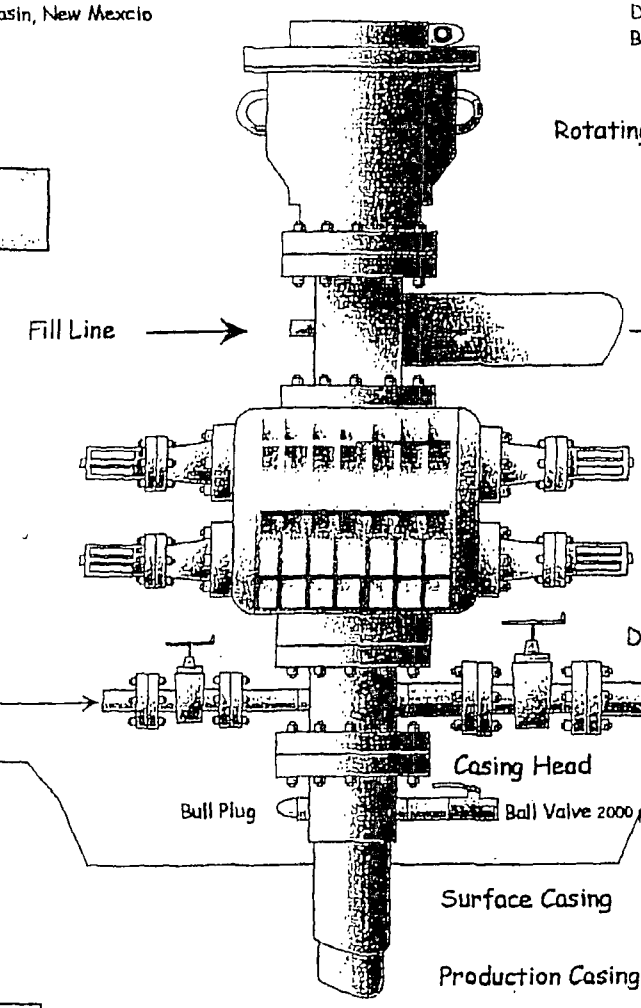
Attachment to Drilling Technical Program

Exhibit #1
Typical BOP setup

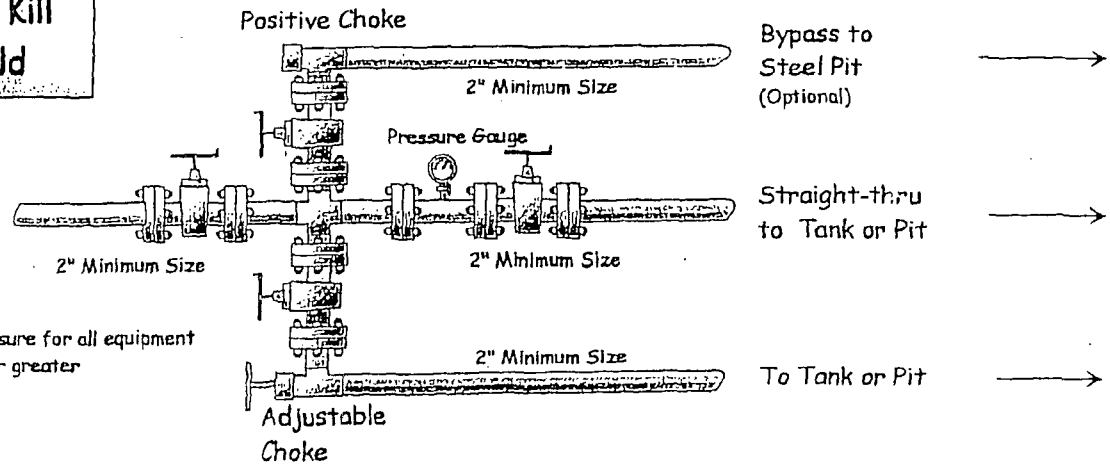
Location: San Juan Basin, New Mexcio

Date: August 20, 2001
By: John Thompson (Walsh E&P)

BOP Stack



Choke & Kill Manifold



Working Pressure for all equipment is 2,000 psi or greater

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.

4284

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 36.87077N Longitude -107.31548W NAD: ☐ 1927 ☒ 1983
Surface Owner: ☒ Federal ☐ State ☐ Private ☐ Tribal Trust or Indian

DENIED
By Brandon Powell
Date 11/30/09 (505) 334-6178 x 15
Due to possible shallow groundwater.

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 20 mil ☒ LLDPE ☐ HDPE ☐ PVC ☐ Other
☒ String-Reinforced
Liner Seams: ☒ Welded ☒ Factory ☐ Other Volume: 30,500 bbl Dimensions: L 165' x W 115 x D 12'

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

RECEIVED
NOV 2009
OIL CONS. DIV. DIST. 3

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.

EXHIBIT
B

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 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. EH & S Specialist

Signature: Date: 11/6/09

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

20.
OCD Approval: ☐ Permit Application (including DENIED By Brandon Powell (505) 334-6178 x 15 onditions (see attachment)

OCD Representative Signature: Date **Approval Date:**

Title: **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 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:

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

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

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

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

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised October 12, 2005
Instructions on back
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1API Number	2Pool Code	3Pool Name

4Property Code	5Property Name	6Well Number
	ROSA UNIT SWD	2

7OGRID No.	8Operator Name	9Elevation
120782	WILLIAMS PRODUCTION COMPANY	6447'

10 Surface Location

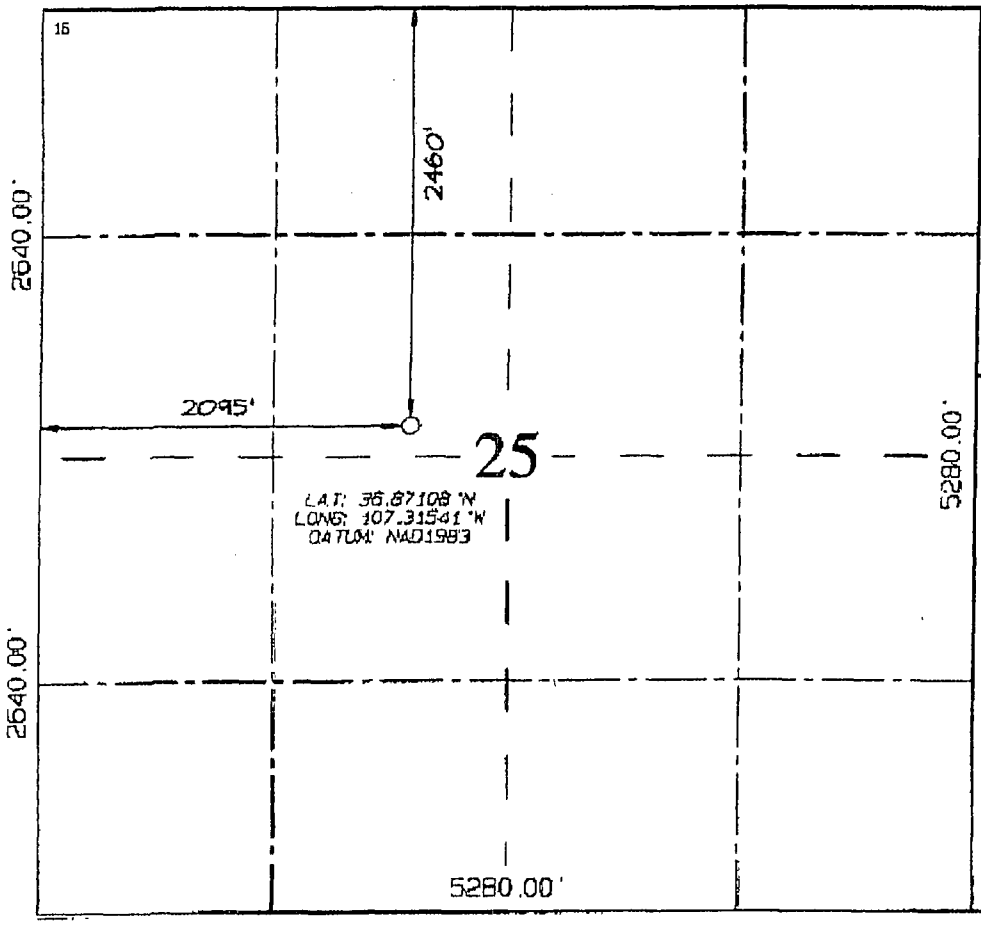
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
F	25	31N	5W		2460	NORTH	2095	WEST	RIO ARRIBA

11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

12 Dedicated Acres	13Joint or Infill	14 Consolidation Code	15Order No.

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom-hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature Date

Printed Name

18 SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Date of Survey: JUNE 15, 2009

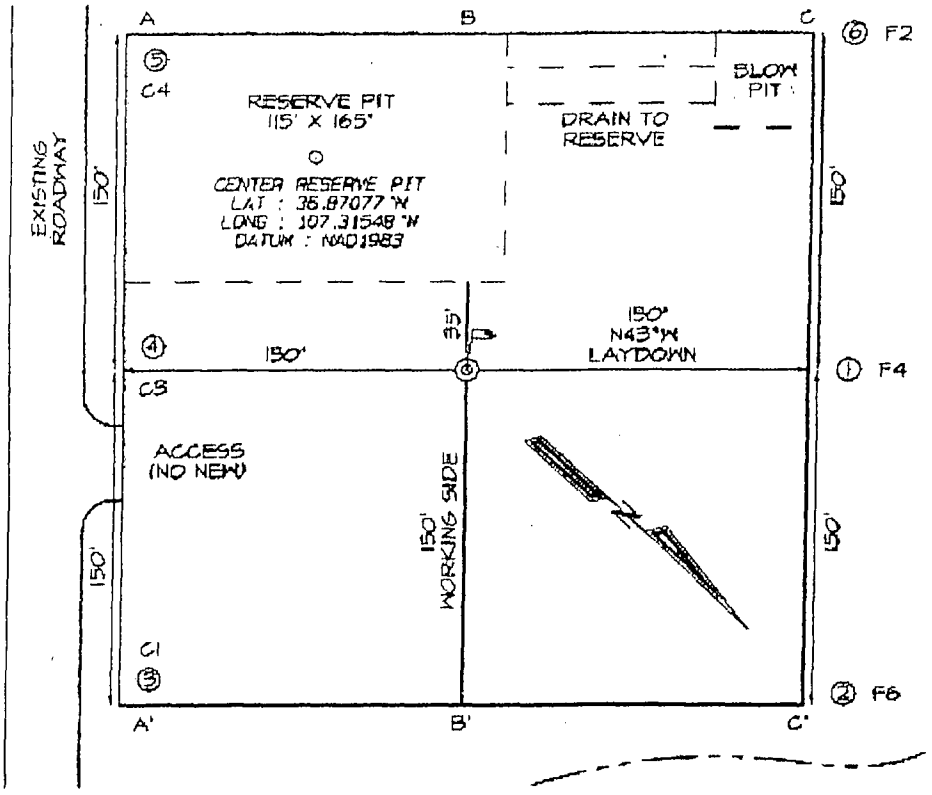
Signature and Seal of Professional Surveyor

JASON C. EDWARDS NEW MEXICO 15269 REGISTERED PROFESSIONAL SURVEYOR

JASON C. EDWARDS

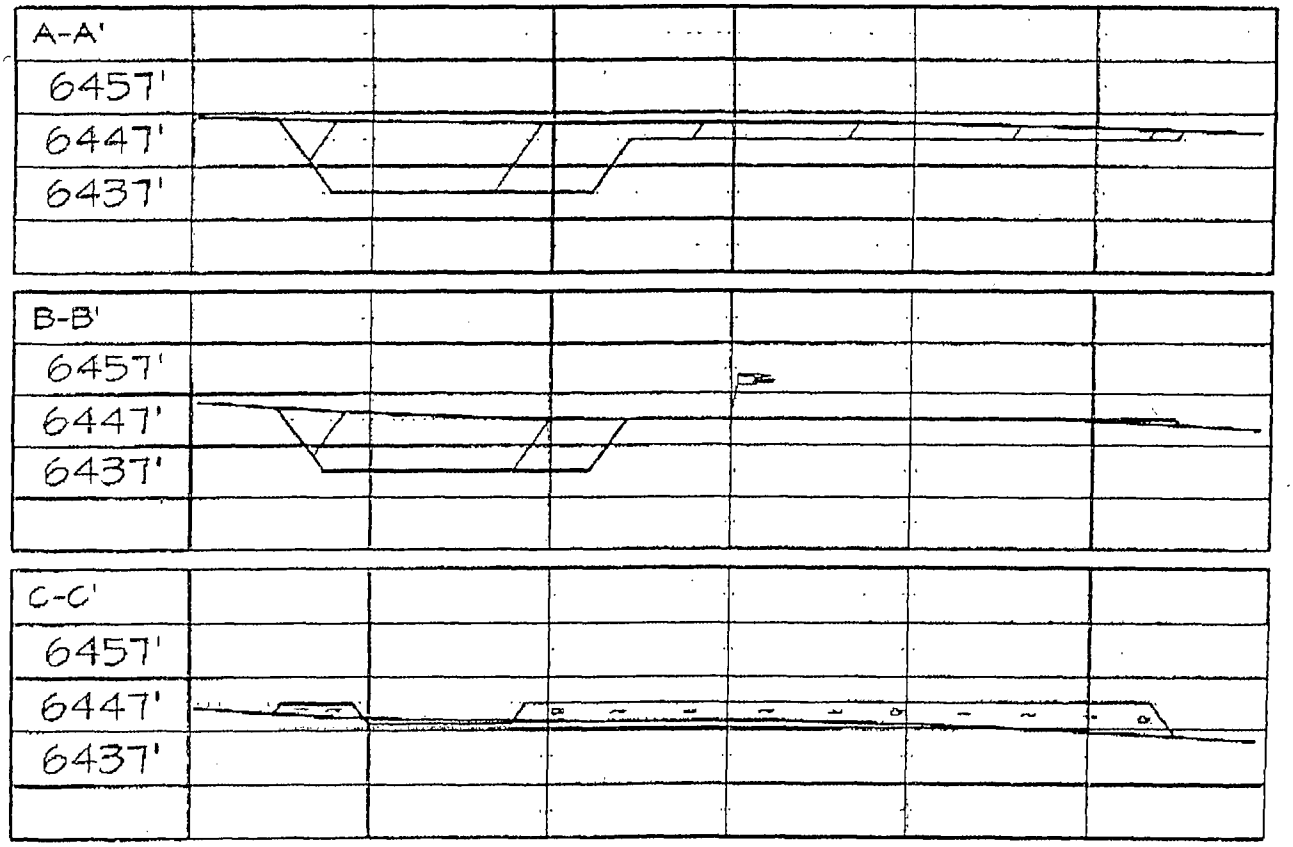
Certificate Number 15269

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-Posts have been set to define the Edge of Disturbance limits which are 50' offset from the edge of the staked wellpad.



FILENAME: 3152SIT	SHEET 2 OF 9	NCS SURVEYS, INC.	DRAWN BY: EDO	CHECKED BY: JCE

New Mexico Office of the State Engineer

Water Column/Average Depth to Water

No records found.

Basin/County Search:

Basin: San Juan County: Rio Arriba

PLSS Search:

Township: 31N Range: 05W

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

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

POD Number	Sub basin	Use	County	Q Q Q 64 16 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
SJ 00049		IND	RA	3	33	31N	04W	298060	4060910*	112	80	32
									Average Depth to Water:		80 feet	
									Minimum Depth:		80 feet	
									Maximum Depth:		80 feet	

Record Count: 1

Basin/County Search:

Basin: San Juan County: Rio Arriba

PLSS Search:

Township: 31N Range: 04W

*UTM location was derived from PLSS - see Help

Hydrogeological Report
Williams Production Company, LLC
Rosa Unit SWD #2

Regional Hydrological Context

Referenced Well Location:
The referenced well and pit is located on US Forest Service land within the Jicarilla Ranger District of the Carson National Forest 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 6447 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 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 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 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 on a lower terrace in Cabresto Canyon where American Canyon joins Cabresto Canyon.
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 the Rosa Unit Nos. 062 (approximately 1,376 feet from pit), and 344 (approximately 1,162 feet from pit) both show depth to moisture between 100 and 150 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. 2009. Internet accessed September 2009.

New Mexico Office of the State Engineer. 2009. iWaters database. Internet accessed September 2009.

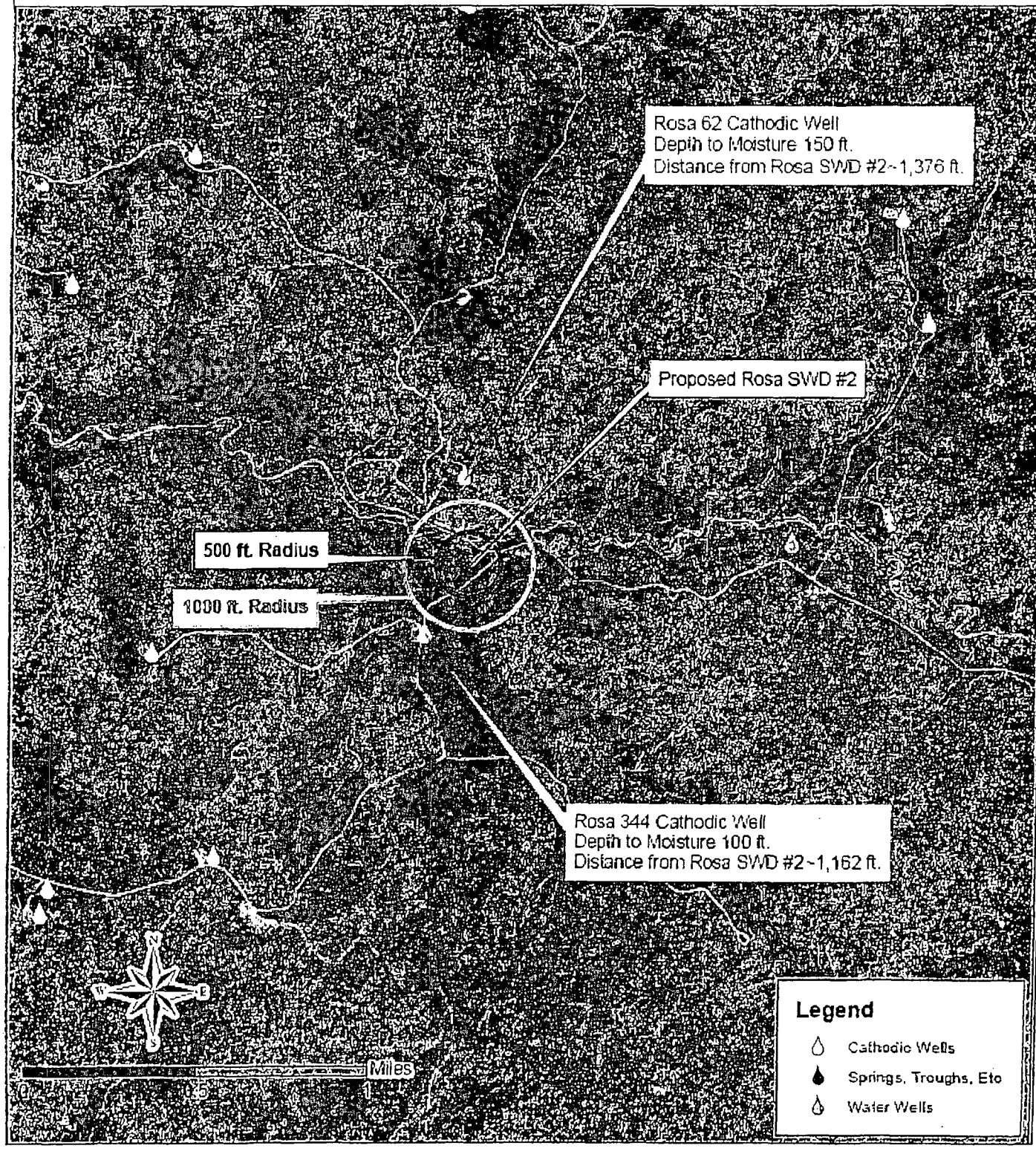
New Mexico WQCC. 2005. State of New Mexico Water Quality Act and the Water Control Commission Regulations.

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.

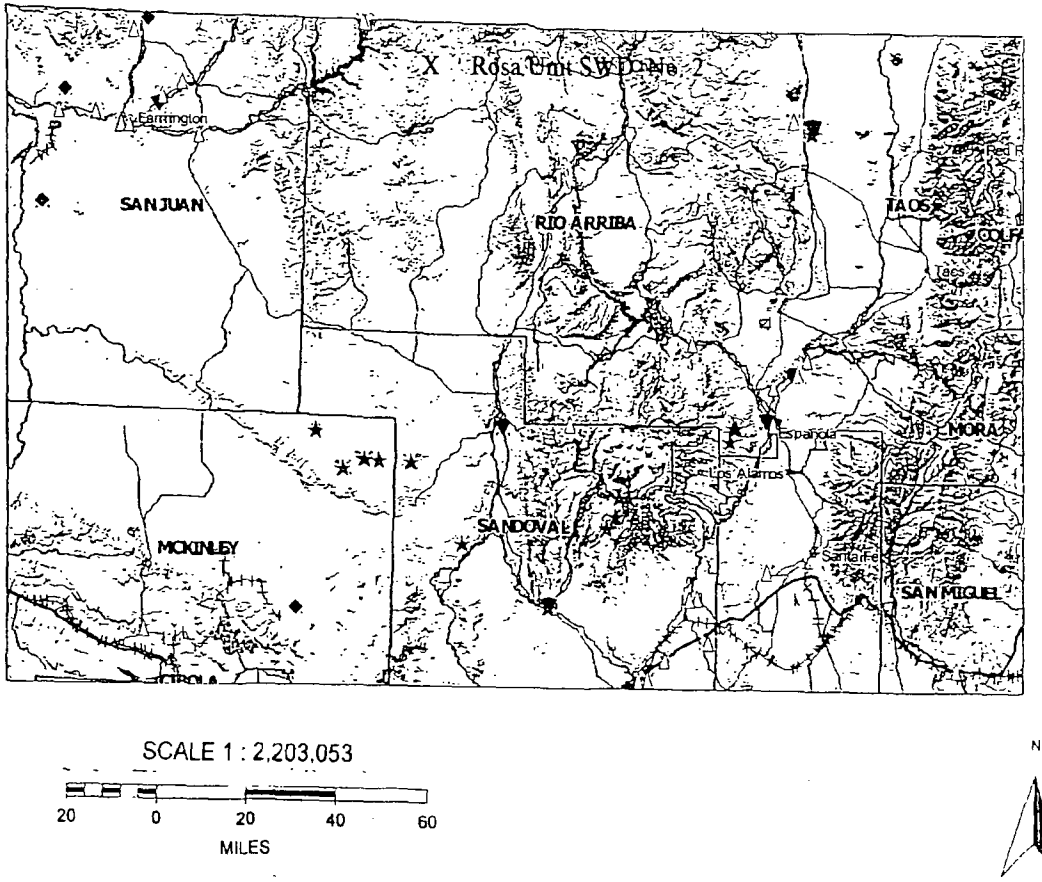
United States Department of the Interior. Bureau of Land Management. 2003. Final Farmington Resource Management Plan and Final Environmental Impact Statement. Farmington Field Office, Farmington, New Mexico.

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.

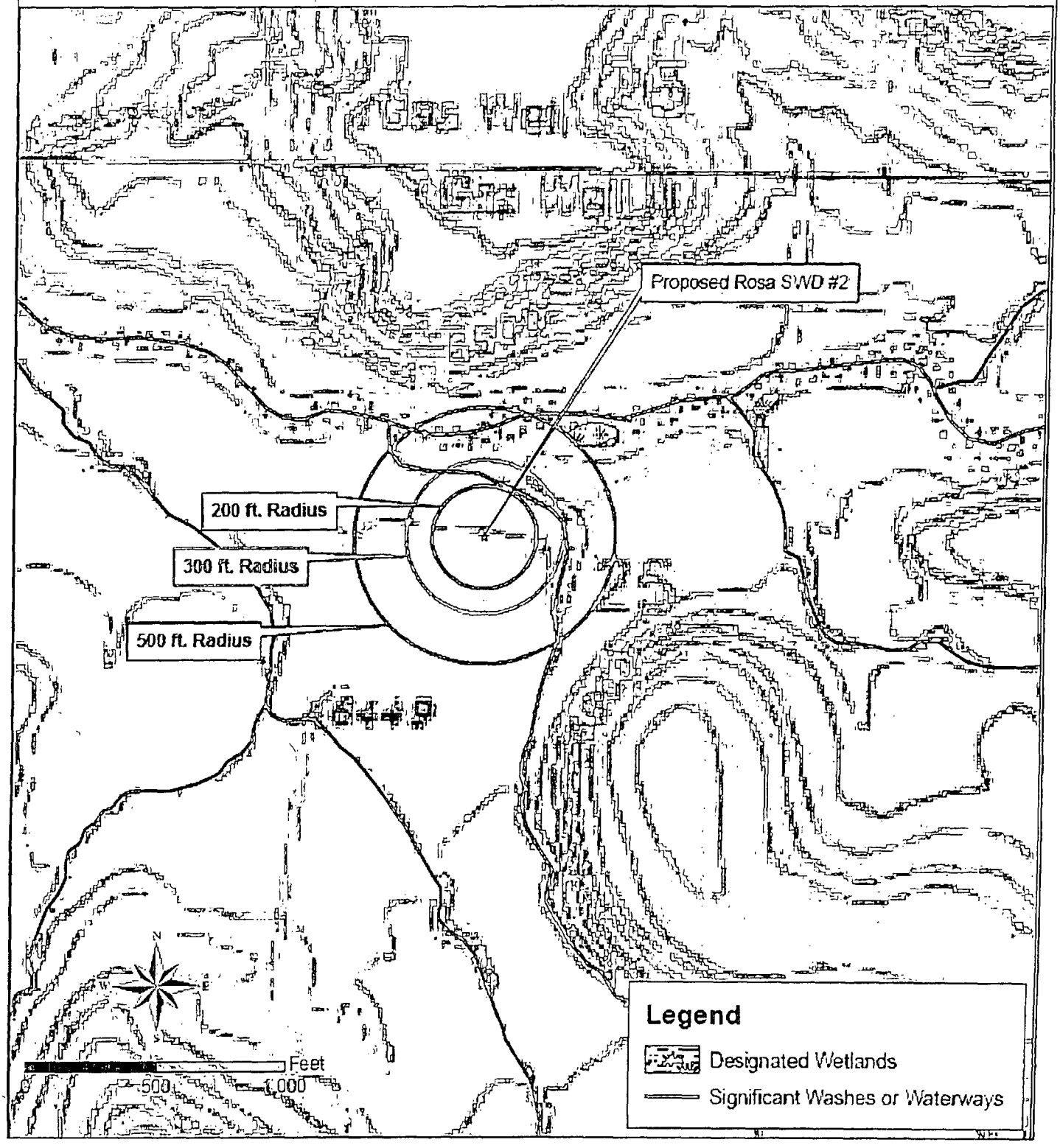
Siting Criteria Map I
Water Wells, Cathodic Wells, & Springs
Williams Production Company, LLC
Proposed Rosa Unit SWD No. 2
T31N, R05W, Section 25 NMPM
Rio Arriba County, New Mexico



MMQonline Public Version



Siting Criteria Map II
Water Wells, Cathodic Wells, & Springs
Williams Production Company, LLC
Proposed Rosa Unit SWD No. 2
T31N, R05W, Section 25 NMPM
Rio Arriba County, New Mexico



FEMA Map – 100-Year Floodplain:

There are no FEMA records on National Forest System lands. However, based on the area topography and vegetation, this site is not located in a 100-year floodplain.

Siting Criteria Compliance Demonstrations:

The Rosa SWD Unit No. 2 well 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. The proposed pit is approximately 200 feet from a designated significant water course (see Siting Criteria Map II). The proposed pit is not within 200 feet from a 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.

Williams Production Co., LLC
San Juan Basin: New Mexico Assets
Temporary Pit In-place Closure Plan
Drilling/Completion and Workover
(Groundwater >100 feet bgs)

In accordance with Rule 19.15.17.13 NMAC, the following plan describes the general in-place closure requirements of temporary pits on Williams Production Co, LLC (WPX) locations in the San Juan Basin of New Mexico. This is WPX's standard procedure for all temporary pits to be utilized for the drilling, completion and/or workovers of oil and gas wells operated by WPX. For those temporary pits 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:

- 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*
- *Copy of Deed Notice filed with the County Clerk (format to meet County requirements)*

General Plan Requirements:

1. All free standing liquids will be removed from the pit at the start of the closure process. Liquids will be removed in a manner that the appropriate District Office approves including; recycled, reused, reclaimed, evaporated, and/or disposed of in a Division-approved facility.

2. The preferred method of closure for all temporary pits will be on-site closure by in-place burial, provided 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 (i.e. certified mail/return receipt requested)

4. Within six months of the "rig-off" status occurring WPX will ensure that the temporary pit is covered, recontoured and reseeding in progress.

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:
   a. Operators Name (WPX)
   b. Well Name and API Number
   c. 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 8015 M(Full Range)* or Method 418.1	2500
GRO/DRO	EPA SW-846 Method 8015M (GRO/DRO)	500
Chlorides	EPA SW-846 Method 300.1	1000

* Preferred method

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 or surface owner 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 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.*

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.

Williams Production Co., LLC
San Juan Basin: New Mexico Assets
Temporary Pit Design and Construction Plan
Drilling/Completion and Workover

In accordance with Rule 19.15.17 NMAC, the following plan describes the general design and construction (D&C)of temporary pits on Williams Production Co, LLC (WPX) locations in the San Juan Basin of New Mexico. This is WPX's standard procedure for all temporary pits to be utilized for the drilling, completion and/or workover of oil and gas wells operated by WPX. For those temporary pits which do not conform to this standard plan, a separate well specific D&C plan will be developed and utilized.

General Plan Requirements:

1. WPX will design and construct a temporary pit to contain liquids and solids associated with drilling, completion and workover of oil and gas wells 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 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. Temporary pits will be fenced at all times excluding drilling/completion and/or workover operations when the rig is present on site, 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-a-way restriction, an engineers certification of stability will be provided with the well pit application.
7. Pit well will be walked down by a crawler type tractor following construction and prior to liner installation.
8. All temporary pits 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 can not be avoided.
10. All liners 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 in as necessary.
14. The volume of the pit shall not exceed 10 acre-feet, including freeboard
15. Temporary blow pits will be constructed to allow gravity flow to discharge into the lined reserve pit.
16. Only the upper portion of the blow pit will be unlined as allowed in the Rule 19.15.17.11.F(11) NMAC.
17. WPX will modify this design if field and/or operating conditions do not effectively allow drainage of the blow pit and freestanding liquids pose a potential concern.

Williams Production Co., LLC
San Juan Basin: New Mexico Assets
Temporary Pit Maintenance & Operating Plan
Drilling/Completion and Workover

In accordance with Rule 19.15.17 NMAC, the following plan describes the general operations and maintenance (O&M)of temporary pits on Williams Production Co, LLC (WPX) locations in the San Juan Basin of New Mexico. This is WPX's standard procedure for all temporary pits to be utilized for the drilling, completion and/or workover of oil and gas wells operated by WPX. For those temporary pits which do not conform to this standard O&M plan, a separate well specific O&M plan will be developed and utilized.

General Plan Requirements:

1. WPX will operate and maintain a temporary pit to contain liquids and solids associated with drilling, completion and workover of oil and gas wells 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 pits ahead of the rigs. All other fluids 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 a temporary pit.
4. WPX shall remove all free liquids from a temporary pit within 30 days from the date the drilling or workover rig is released.
5. Only fluids and solids generated during the drilling/completion/workover process may be discharged into a 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) NMA in any temporary pit.
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/workover 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 pits 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.

12. WPX shall remove all free liquids from a blow/flare (cavitation) pit within 48 hours after completing operations. WPX may request additional time to remove liquids from the Aztec District office if it is not feasible to meet the 48 hour requirement.

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.

4919

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 / 36.87077N Longitude -107.311156W / -107.31548W 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 20 mil ☒ LLDPE ☐ HDPE ☐ PVC ☐ Other
☒ String-Reinforced
Liner Seams: ☒ Welded ☒ Factory ☐ Other Volume: 44,000 bbl Dimensions: L 140' x W 70' x D 25'

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

Denied

The OCD District office reviewed the permit and due to the complexities the District office also contacted the OCD Environmental Bureau regarding the permit. As a result of the discussions the OCD hereby denies Williams permit application. Williams closure plan proposed hauling the drilling cuttings and materials to an off-site location for burial and disposal. Pursuant to 19.15.17.13.D NMAC, approved closure methods for closed-loop systems include transferring waste material and the drying pad liner to a division-approved facility or on-site burial. Pursuant to the on-site closure method provisions of 19.15.17.13.F NMAC, an operator "may use in-place burial (burial in the existing temporary pit) for closure of a temporary pit or bury the contents of a drying pad associated with a closed-loop system in a temporary pit that the operator constructs in accordance with Paragraphs (1) through (6) and (10) of Subsection F of 19.15.17.11 NMAC for closure of a drying pad associated with a closed loop system" on-site. Off-site disposal would require the operator to obtain a surface waste management facility permit (landfill permit) in accordance with 19.15.36 NMAC, unless the waste material is hauled to a division-approved facility.

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JAN 2010
CONS. DIV. DIST. 3

EXHIBIT
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C

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 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: ____Temporary Pit on Rosa 394 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: Date: 1/26/2010

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 Rep **Denied**

Title: The OCD District office reviewed the permit and due to the complexities the District office also contacted the OCD Environmental Bureau regarding the permit. As a result of the discussions the OCD hereby denies Williams permit application. Williams closure plan proposed hauling the drilling cuttings and materials to an off-site location for burial and disposal. Pursuant to 19.15.17.13.D NMAC, approved closure methods for closed-loop systems include transferring waste material and the drying pad liner to a division-approved facility or on-site burial. Pursuant to the on-site closure method provisions of 19.15.17.13.F NMAC, an operator "may use in-place burial (burial in the existing temporary pit) for closure of a temporary pit or bury the contents of a drying pad associated with a closed-loop system in a temporary pit that the operator constructs in accordance with Paragraphs (1) through (6) and (10) of Subsection F of 19.15.17.11 NMAC for closure of a drying pad associated with a closed loop system" on-site. Off-site disposal would require the operator to obtain a surface waste management facility permit (landfill permit) in accordance with 19.15.36 NMAC, unless the waste material is hauled to a division-approved facility.

21.
Closure R
Instructio
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22.
Closure M
☐ 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: _____

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 provided additional fluids storage for pressure control, hole stability and solids management. The temporary pit will be located at a less environmental sensitive new drill well location (Rosa Unit #394: API 30-039-29706) within 1.1 miles north 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 between disposal of the liquids and solids from rig operations. 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 want 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-a-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 tranfered 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 reseeding in progress consistent with the USFS 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.

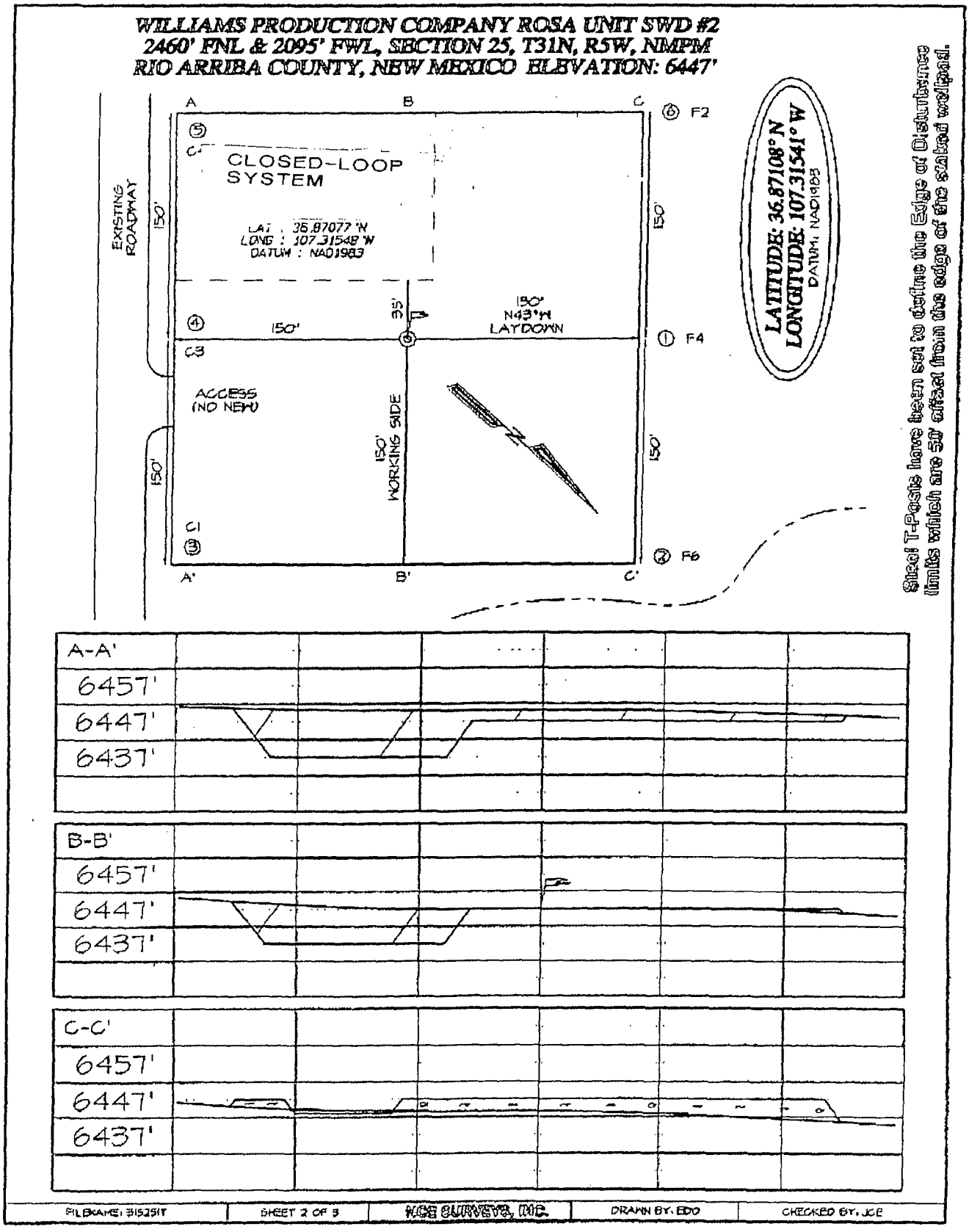
10. Following cover, the site will be recontoured to meet the Surface Management Agency USFS APD conditions of approval requirements. Re-contouring will attempt to match fit, shape, line form, and texture of the surrounding geography. Re-shaping will include drainage control, prevent ponding, and minimize 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 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

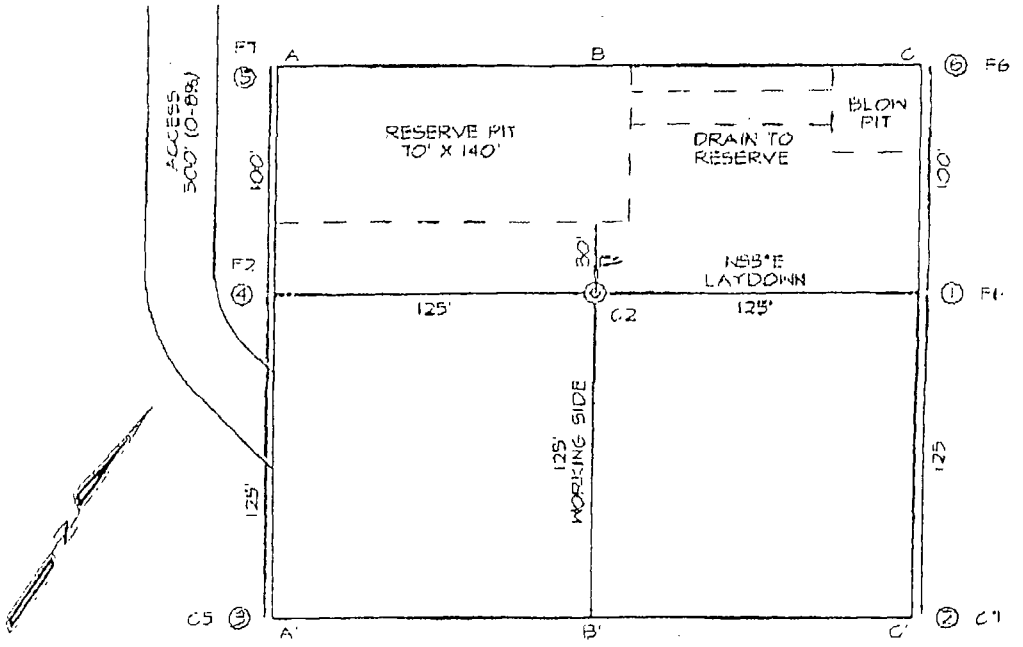
Location of Closed-Loop System

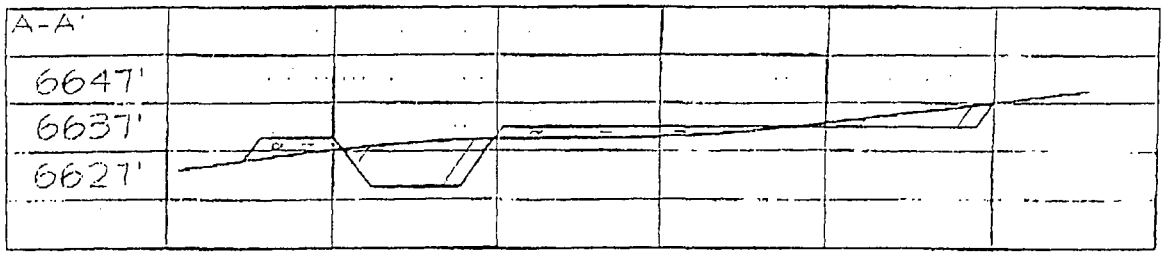


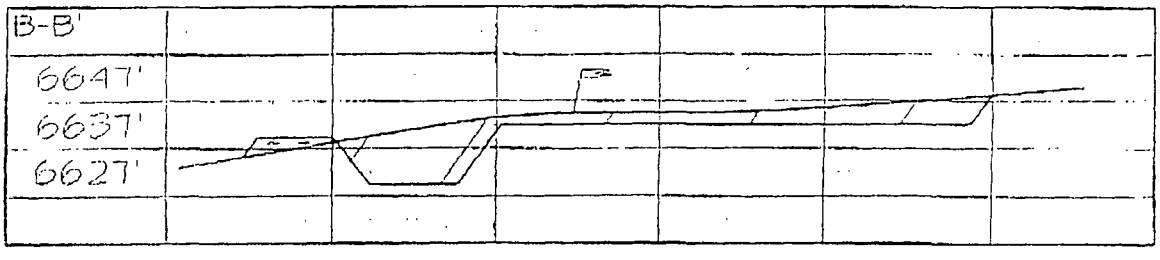
Location of Temporary Pit System

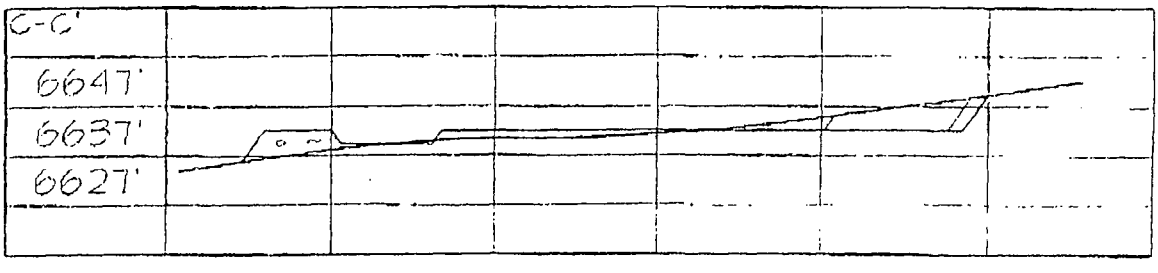
ROSA UNIT SWD #2

WILLIAMS PRODUCTION COMPANY ROSA UNIT #394
1975' FNL & 1980' FEL, SECTION 24, T31N, R5W, NMPM
RIO ARRIBA COUNTY, NEW MEXICO ELEVATION: 6639'









FILENAME: 3152461	SHEET 2 OF 3	NICE SURVEYS, INC.	DRAWN BY: FIXO	CHECKED BY: JCE

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

Referenced Well Location:
The referenced temporary pit is located on Carson National Forest's Jicarilla Ranger District 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 6639 feet MSL.

General Regional Groundwater Description:
As a portion of the San Juan Basin, the Jicarilla Ranger District 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 pit is located on a large level northern bench approximately 40-60 feet above Martinez Canyon. The topography slopes toward a drainage associated with Martinez Canyon. Martinez Canyon is located approximately ½ mile to the north and Cabresto Canyon is located approximately one (1) mile to the south.
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. Comparison to cathodic wells on six gas well locations near the proposed well indicate the groundwater show be greater than 124 to 290 feet. See Table 1 and Siting Criteria Map 1 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. 2010. Internet accessed January 2010.

New Mexico Office of the State Engineer. 2010. iWaters database. Internet accessed January 2010.

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

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.

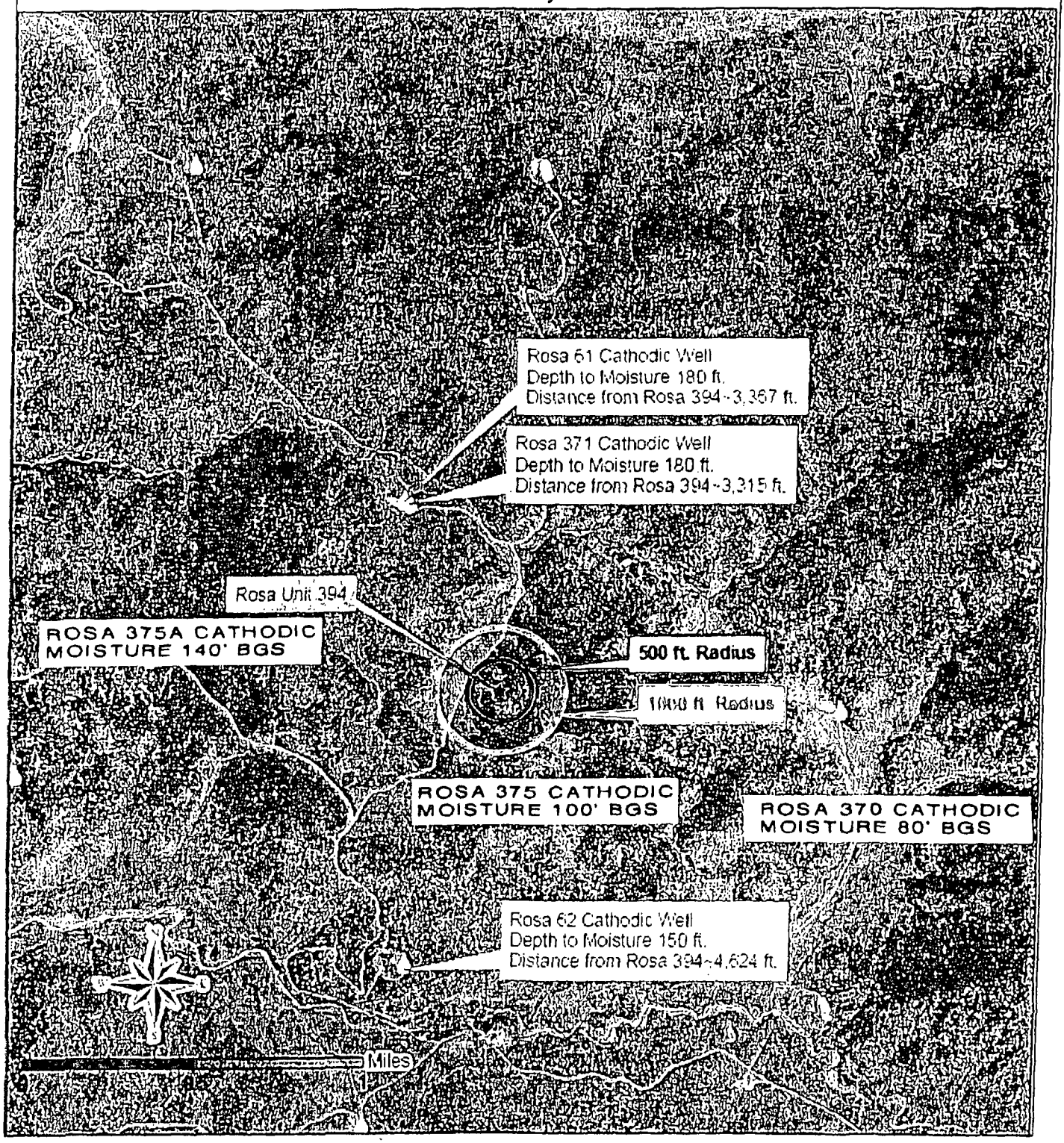
United States Department of the Interior. Bureau of Land Management. 2003. Final Farmington *Resource Management Plan and Final Environmental Impact Statement. Farmington Field Office,* Farmington, New Mexico.

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.

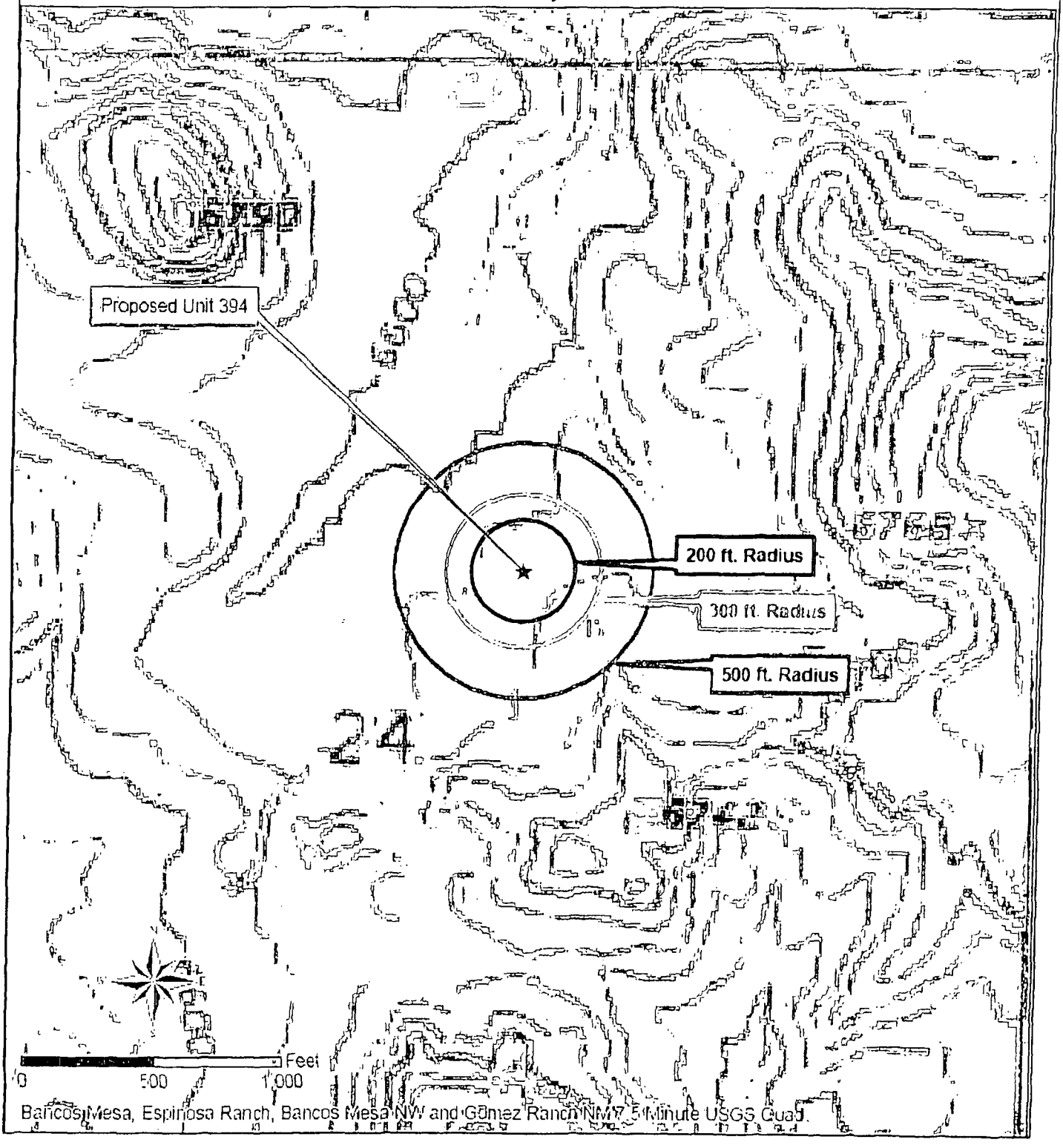
Table 1: Comparison of Cathodic Well Data to Proposed Rosa Unit SWD #2Temporary Pit Location

Well	Lat	Long	Site Elevation (ft) MSL	Depth to Moisture		Relative to RU 394	
				BGS (ft)	Elevation (ft) MSL	GW Elevation (ft) BGS	Distance (ft)
Rosa SWD#2 Temp Pit	36.886944	-107.310556	6639	100	6539	>100	0
Rosa 371	36.89495	-107.31722	6530	180	6350	289	3315
Rosa 370	36.87788	-107.29895	6554	80	6474	165	4125
Rosa 375	36.88244	-107.31644	6596	100	6496	143	2062
Rosa 375A	36.88972	107.31972	6655	140	6515	124	2743
Rosa 62	36.87523	-107.31685	6606	150	6456	183	4624
Rosa 61	36.89502	-107.31767	6527	180	6347	292	3367

Siting Criteria Map I
Water Wells, Cathodic Wells, & Springs
Williams Production Company, LLC
ROSA UNIT SWD #2 TEMP PIT
T31N, R05W, Section 24 NMPM
Rio Arriba County, New Mexico

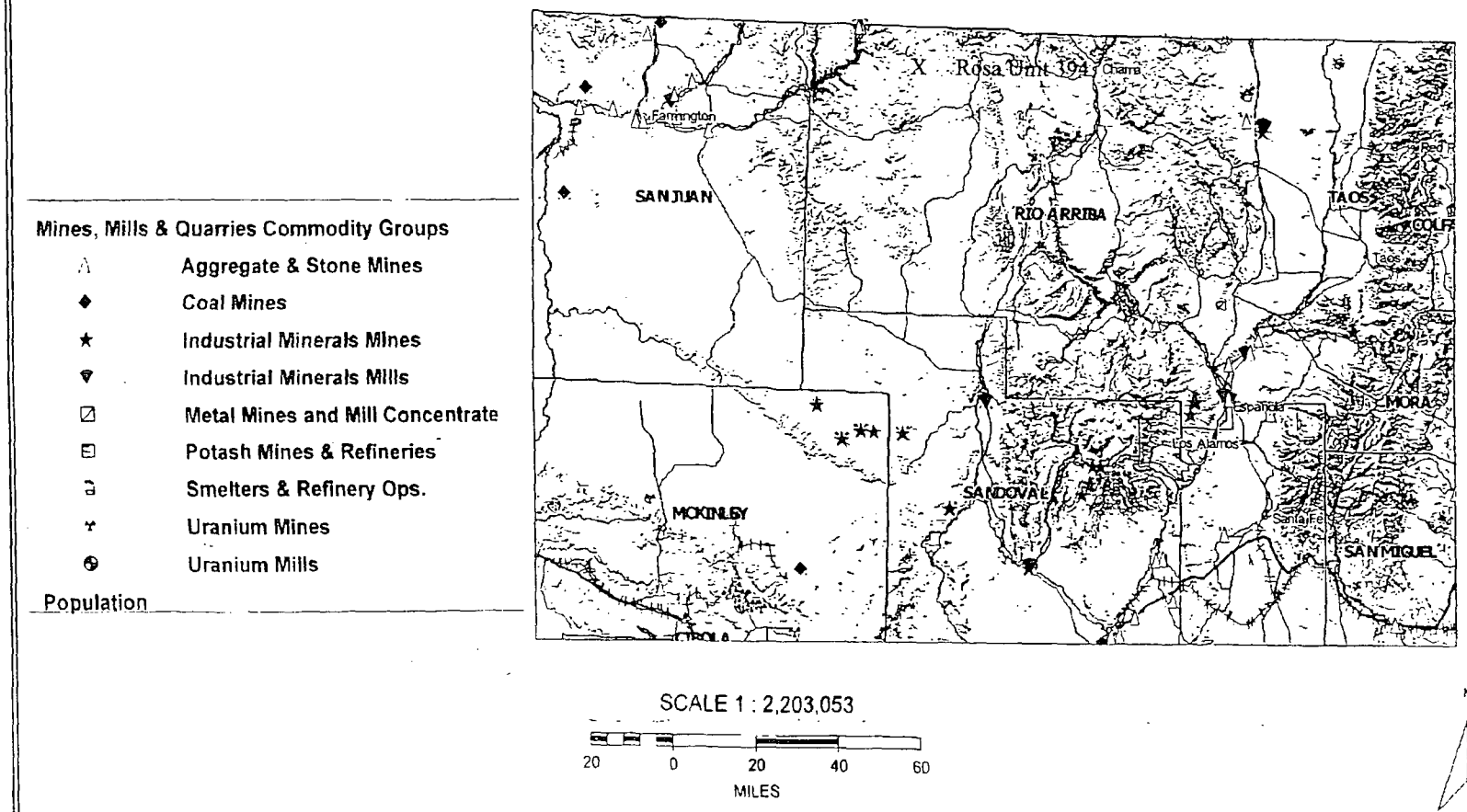


Siting Criteria Map II
Topographic Features
Williams Production Company, LLC
ROSA UNIT SWD #2 TEMP PIT
T31N, R05W, Section 24 NMPM
Rio Arriba County, New Mexico



Bancos Mesa, Espinosa Ranch, Bancos Mesa NW and Gomez Ranch NM 7.5 Minute USGS Quad.

MMQonline Public Version



FEMA Map – 100-Year Floodplain:

As this location is within Carson National Forest, no FEMA maps are available. However, ortho-photographic and topographic maps, and an on site investigation indicate that this location is not within a floodplain..

Siting Criteria Compliance Demonstrations:

The Rosa Unit #394 well 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; 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, January 26, 2010 5:55 PM
To: 'John Reidinger'; 'Jon J Miller'
Cc: Meador, Tasha ; Higgins, Larry ; Riley, Heather
Subject: Landowner Notice - Rosa SWD #2 Closed-Loop & Temporary Pit System

This correspondence is to notify the USFS that Williams Production is planning to use a Closed-Loop with temporary pit associated with the drilling and completion of the reference well. The Closed-Loop system consisting of temporary above-ground tanks only will be used on the SWD#2 wellpad. The temporary pit needed for surplus mud storage and solids handling will be located on the Rosa #394. This will minimize the need for trucking liquid and solids handling during drilling/completion operations, ensuring sufficient mud and liquids are readily available to effectively and safely install the reference well. Following discontinued use of the Closed-Loop system all tanks will be removed from the well site, and the temporary pit will close by onsite burial. The planned closure is consistent with the Surface Use Plans submitted with Williams APDs.

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(s). If site conditions do not allow Williams to close in-place, we will provide your office with prior notice should the USFS have any concerns.

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

Tracking: