

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.

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

9223

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: HPOC, LLC OGRID #: 246238  
Address: 113 Centennial Plaza, P.O. Box 5046, Buena Vista, CO 81211  
Facility or well name: Ojo Encino 31 Federal-SWD 1  
API Number: 30-031-21112 OCD Permit Number: \_\_\_\_\_  
U/L or Qtr/Qtr: B (NW4/NE4) Section: 31 Township: 20N Range: 5W County: McKinley  
Center of Proposed Design: Latitude: 35.92648°N Longitude: 107.40532°W 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: 9,260 bbl Dimensions: L 130' x W 40' x D 10'

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 \_\_\_\_\_

RCVD NOV 16 '11  
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.

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 \_\_\_\_\_

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	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> 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	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> 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	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; Written approval obtained from the municipality	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within a 100-year floodplain. - FEMA map	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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<sub>2</sub>S, Prevention Plan
- ☐ Emergency Response Plan
- ☐ Oil Field Waste Stream Characterization
- ☐ Monitoring and Inspection Plan
- ☐ Erosion Control Plan
- ☐ Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

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

Disposal Facility Name: \_\_\_\_\_ 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 S. Allen Title: Project Manager

Signature: Michael S. Allen Date: November 8, 2011

e-mail address: mallen@highplainsop.com Telephone: (719)395-3584 (Office); (719)207-2848 (Cell)

20.

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

OCD Representative Signature: Jonathan D. Kelly Approval Date: 11/18/2011

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

21.

**Closure Report (required within 60 days of closure completion):** Subsection K of 19.15.17.13 NMAC

**Instructions:** Operators are required to obtain an approved closure plan prior to implementing any closure activities and submitting the closure report. The closure report is required to be submitted to the division within 60 days of the completion of the closure activities. Please do not complete this section of the form until an approved closure plan has been obtained and the closure activities have been completed.

☐ Closure Completion Date: \_\_\_\_\_

22.

**Closure Method:**

☐ Waste Excavation and Removal ☐ On-Site Closure Method ☐ Alternative Closure Method ☐ Waste Removal (Closed-loop systems only)  
☐ If different from approved plan, please explain.

23.

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

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

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

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

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

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

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

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

24.

**Closure Report Attachment Checklist:** Instructions: Each of the following items must be attached to the closure report. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Proof of Closure Notice (surface owner and division)  
☐ Proof of Deed Notice (required for on-site closure)  
☐ Plot Plan (for on-site closures and temporary pits)  
☐ Confirmation Sampling Analytical Results (if applicable)  
☐ Waste Material Sampling Analytical Results (required for on-site closure)  
☐ Disposal Facility Name and Permit Number  
☐ Soil Backfilling and Cover Installation  
☐ Re-vegetation Application Rates and Seeding Technique  
☐ Site Reclamation (Photo Documentation)

On-site Closure Location: Latitude \_\_\_\_\_ Longitude \_\_\_\_\_ NAD: ☐ 1927 ☐ 1983

25.

**Operator Closure Certification:**

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

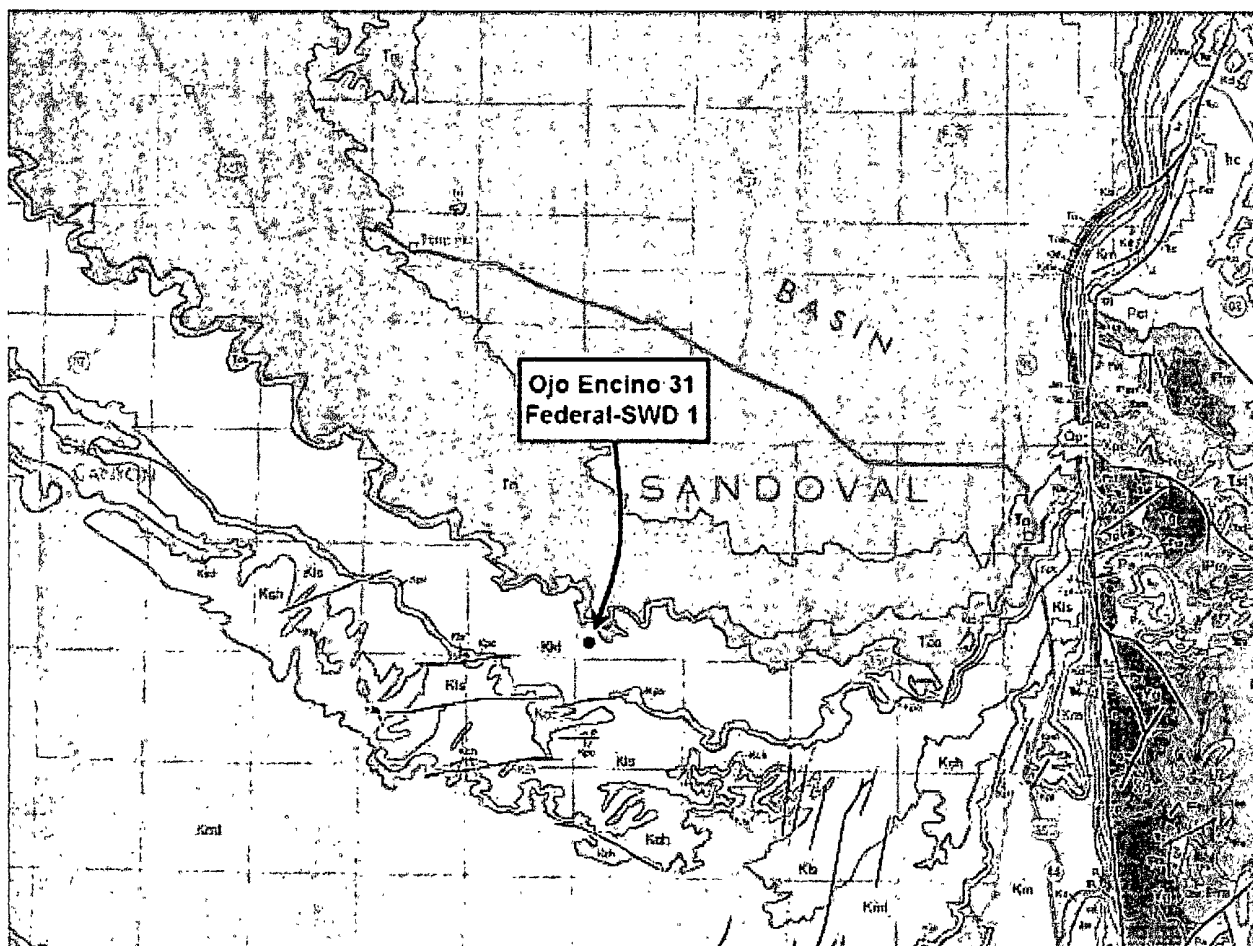
Name (Print): \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

e-mail address: \_\_\_\_\_ Telephone: \_\_\_\_\_

## ***Temporary Pit Hydrogeologic Data for Ojo Encino 31 Federal-SWD 1***

The Ojo Encino property lies on the gently dipping South Chaco Slope of the San Juan Basin. Cretaceous (Campanian) aged sediments of the Kirtland and Fruitland Formations outcrop at the surface, where exposed. See the yellow band in the geologic map below.



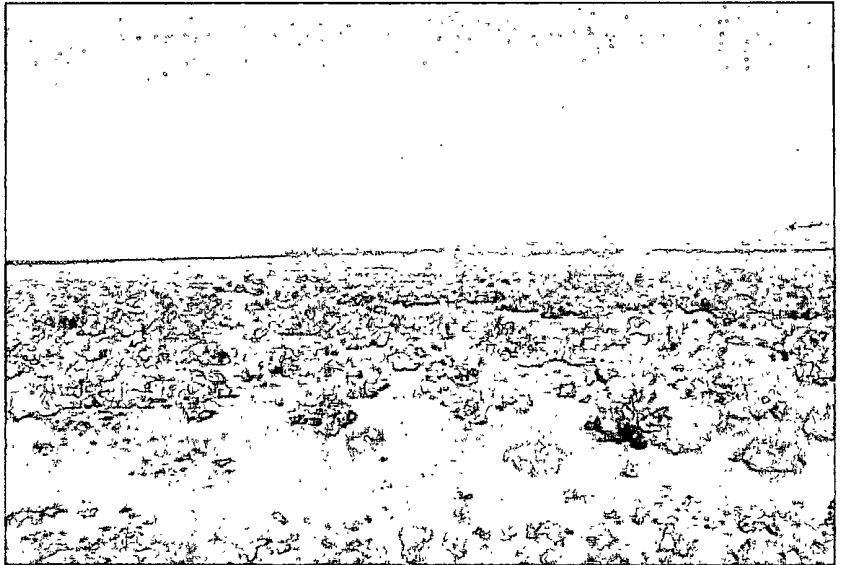
PCUD NOV 16 '11

Fassett and Hinds, in USGS Professional Paper 676, state that the Fruitland formation is composed of interbedded sandstone, siltstone, shale, carbonaceous shale, carbonaceous sandstone and siltstone, and coal. Most of the rock units in the Fruitland are discontinuous, with individual beds pinching out laterally, normally within a few hundred feet. The Fruitland formation was deposited after the Upper Cretaceous seaway had retreated from the San Juan Basin. The deposits were laid down in coastal swamp, river, floodplain and lake environments.

The overlying Kirtland shale is divided into 2 members by Fassett and Hinds, a lower shale member, and the "Farmington Sandstone" and upper shale member. The lower shale member is composed of mostly gray shale with a few thin interbeds of siltstone and sandstone. The Farmington Sandstone and upper shale member are composed of a series of interbedded lenticular sandstones and shale. Lenticular sandstones are more common in the northern part of the basin, and become less frequent in the southern part. The lower shale member of the Kirtland contains little coal or carbonaceous material, which is used to differentiate the Kirtland from the underlying upper Fruitland formation.

The overall thickness of the Fruitland and Kirtland shale formation ranges from about 190 feet to 290 in the area of the Eagle Springs property. The Cretaceous Pictured Cliffs Sandstone underlies the Fruitland formation.

The area of the Ojo Encino 31 Federal-SWD 1 location lies on the south flank of a broad, gentle topographic high. A photo of the well site with a view to the west is at right. There are no formation outcrops, no fresh water wells and no live streams in the immediate project vicinity. See the NM Office of the State Engineer's POD reports and aerial and topographic maps in the next section of this report for further details. Due to this paucity of information concerning fresh water resources, it is difficult to determine obtain accurate hydrogeologic data regarding water resources for this location.



### **References:**

Fassett, J.E., and Hinds, J.S., 1971, Geology and Fuel Resources of the Fruitland Formation and Kirtland Shale of the San Juan Basin, New Mexico and Colorado: Geological Survey Professional Paper 676, 76 pgs and 3 plates

## **Temporary Pit Siting Criteria Compliance Demonstrations for Ojo Encino 31 Federal-SWD 1**

An search of the water records on the New Mexico Office of the State Engineer's Web site using multiple criteria indicates no fresh water wells or "Points of Diversion" in the project area. See search results on this and following pages. All searches were conducted on October 12, 2011.



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### **New Mexico Office of the State Engineer Currently Active Points of Diversion (with Ownership Information)**

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No PODs found

**POD Search:**

POD Basin: Can Juan

**UTMNA083 Radius Search (in meters):**

Easting (X): 292880.53

Northing (Y): 3378459.32

Radius: 2000





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New Mexico Office of the State Engineer  
**Point of Diversion with Meter Attached**

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No PODs found.

Basin/County Search:

County: McKinley

UTM NAD83 Radius Search (in meters):

Eastng (X): 282960.93

Northng (Y): 3978488.32

Radius: 2000

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The data is furnished by the NMOSERSC and is accepted by the recipient with the expressed understanding that the OSERSC make no warranties expressed or implied, concerning the accuracy, completeness, suitability, quality, or suitability for any particular purpose of the data.

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10/12/11 10:26 AM

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POINT OF DIVERSION WITH METER ATTACHED



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

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No records found.

**Basin/County Search:**

**County:** McKinley

**UTMNAD83 Radius Search (in meters):**

**Easting (X):** 282980.93

**Northing (Y):** 3978468.32

**Radius:** 2000

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

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WATER COLUMN/ AVERAGE  
DEPTH TO WATER



## New Mexico Office of the State Engineer Wells with Well Log Information

No wells found.

Basin/County Search:

County: McKinley

UTMNA083 Radius Search (in meters):

Easting (X): 282900.03

Northing (Y): 3978468.32

Radius: 2000



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## New Mexico Office of the State Engineer Wells Without Well Log Information

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No wells found.

**Basin/County Search:**

**County:** McKinley

**UTMNA83 Radius Search (in meters):**

**Easting (X):** 282960.93

**Northing (Y):** 3978468.32

**Radius:** 2000

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

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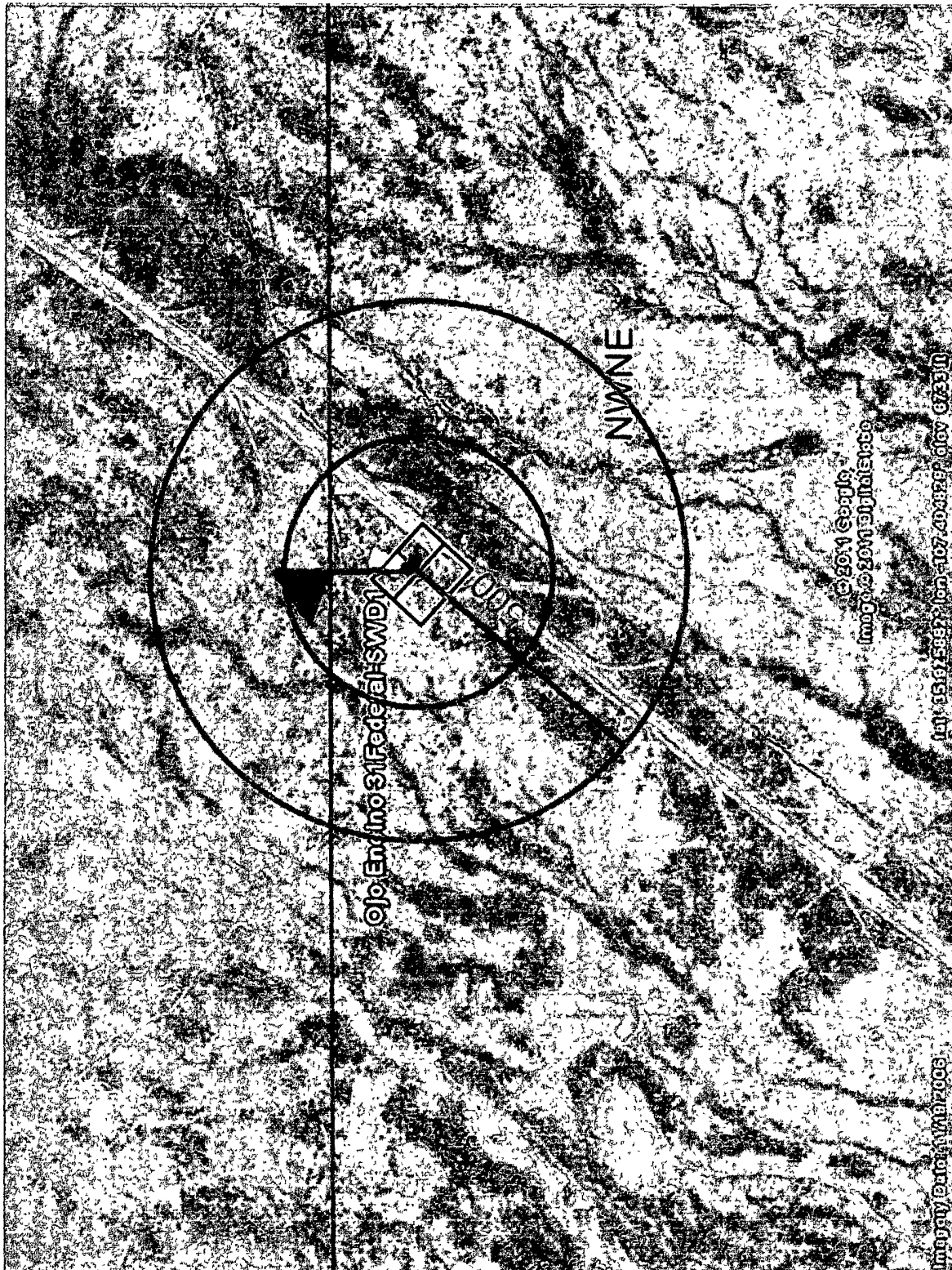
10/12/11 10:25 AM

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WELLS WITHOUT WELL LOG INFORMATION

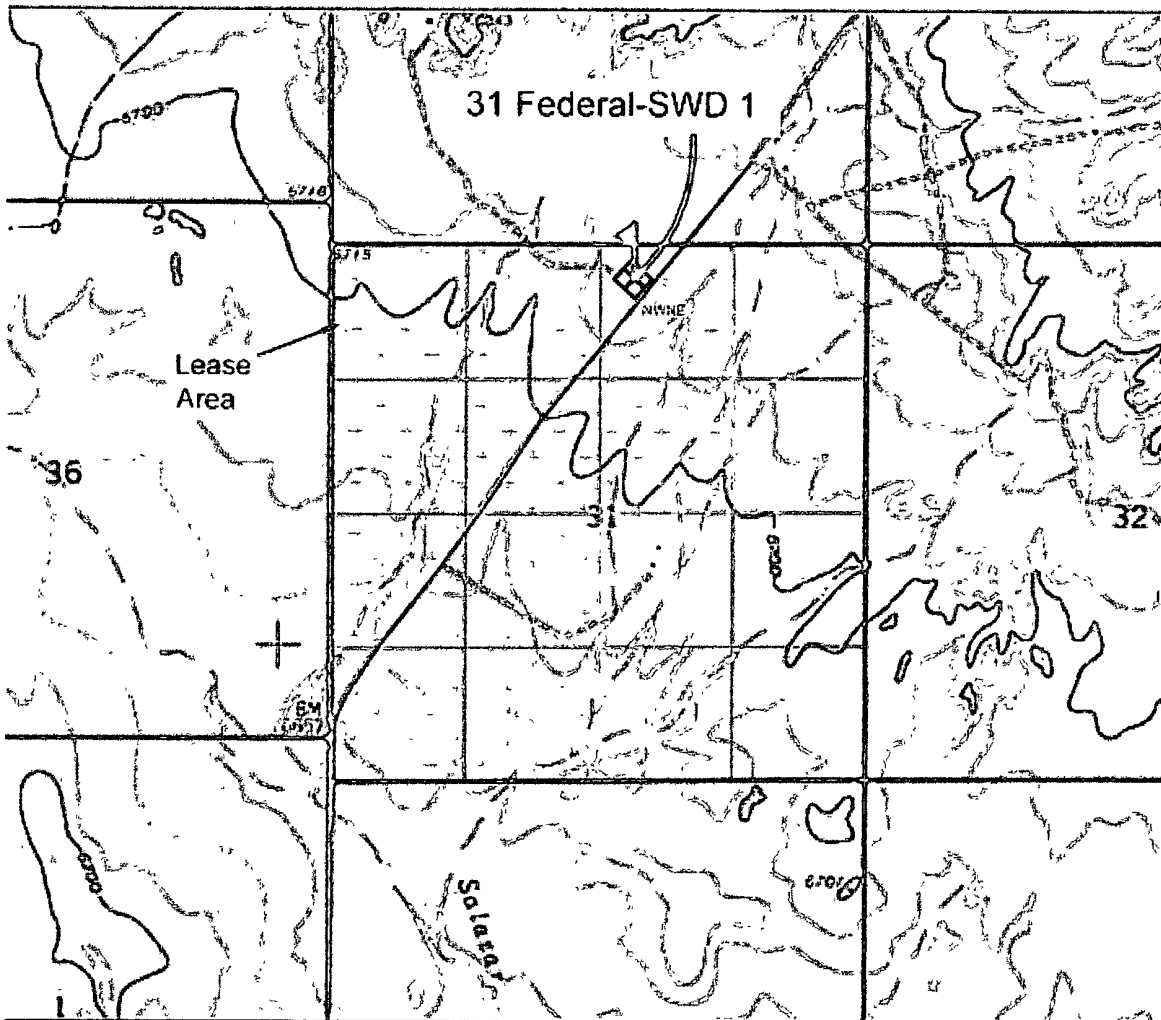
## Aerial Photo

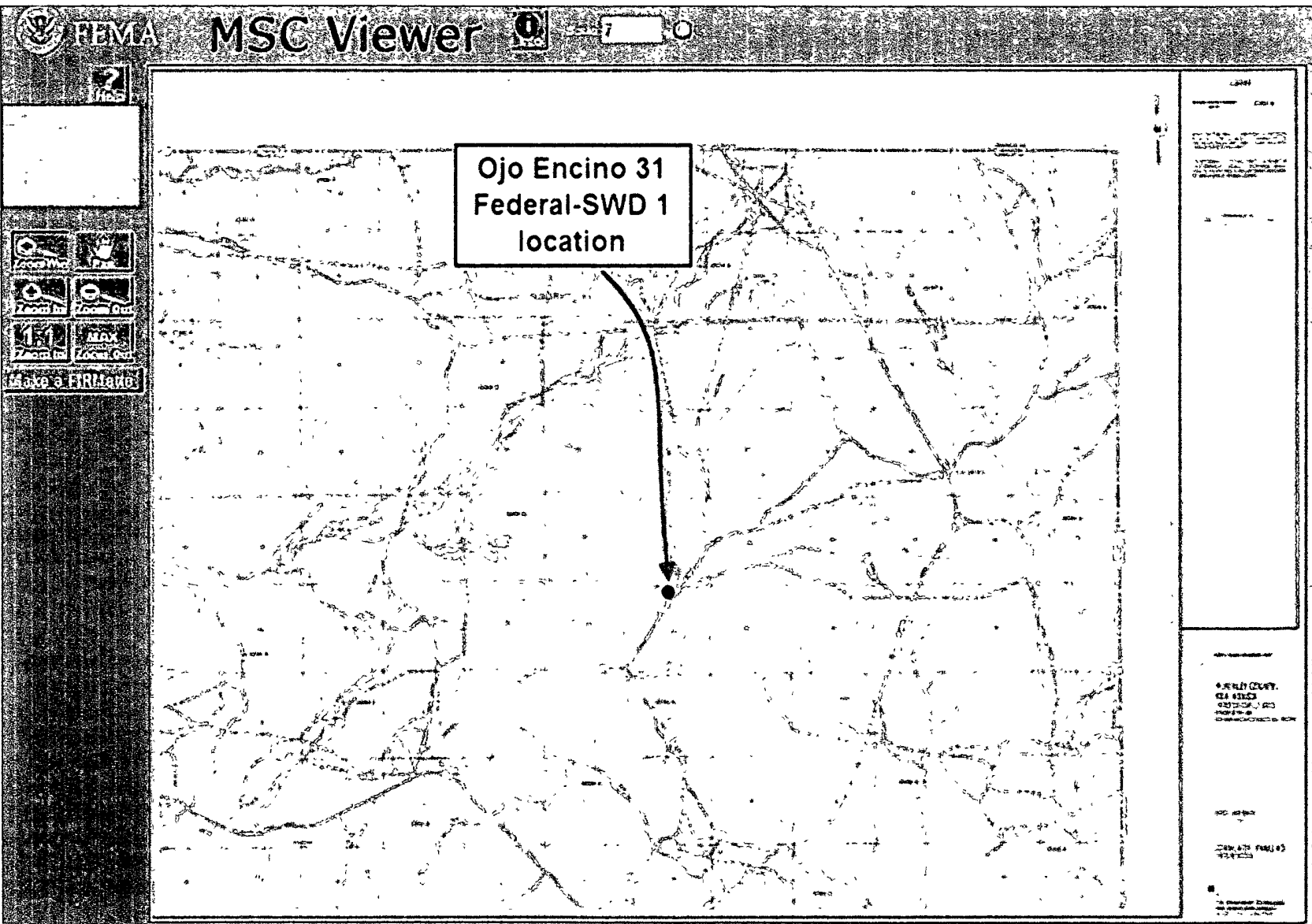
This project is a vertical salt water injection well into the Entrada Formation located approximately 2.5 miles southwest of the Ojo Encino Entrada Oil Field. The aerial photo below shows the proposed HPOC Ojo Encino 31 Federal-SWD 1 location and 500' and 1,000' radii about the well. No water courses are within 500', and two dry drainage washes are present within 1,000'.



## Topographic Map

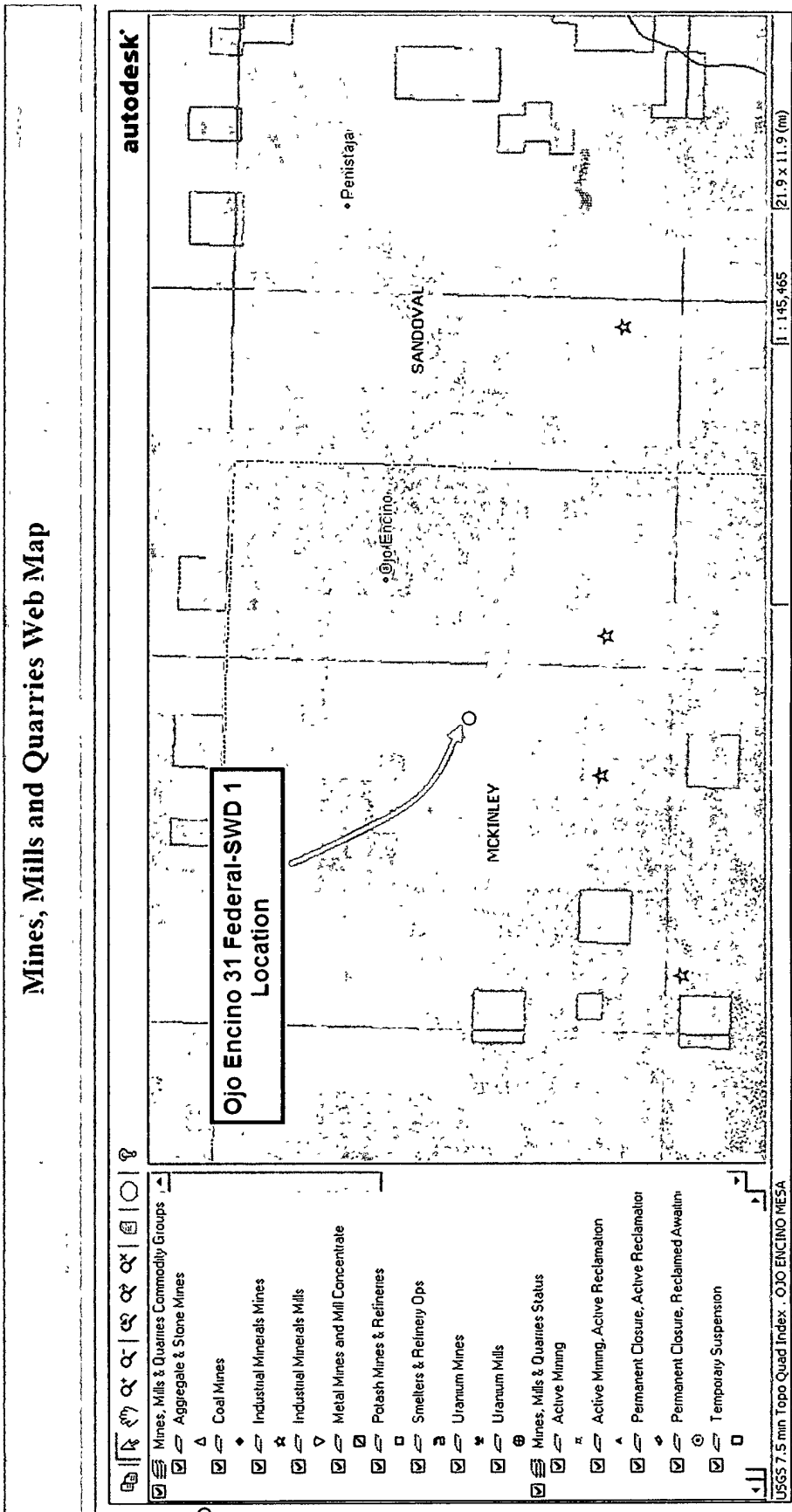
A portion of the "Ojo Encino Mesa" 7.5 degree 1:24:000 topographic map is shown below.





## Mines, Mills and Quarries Map

The Morningstar Humate mine approximately 4 miles south of the proposed well is closed. See Mines, Mills & Quarries report that follows.





# Mines, Mills and Quarries report



NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
MINING AND MINERALS DIVISION

Mines, Mills and Quarries Report

Mining and Minerals Division  
1220 South St. Francis Drive  
Santa Fe, NM 87505  
P: (505) 476-3400  
F: (505) 476-3402

## General Information

The following table provides general information for the selected mine:

Mine Name:	Morningstar Mine
County	McKinley
Status	Permanent Closure, Active Reclamation
Commodity Types	Humate
Site Types	Surface - Open Pit
MSHA Numbers	
Land Ownership	Federal
Mineral Ownership	Federal

## Current Operators

This contains the current operators for this mine:

Operator Name	Address	Phone
Morningstar Corporation	22 CR3957 Farmington NM 87499 USA	(505) 325-2401

## ***On-Site Closure Plan—Proof of Surface Owner Notice***

E-mail November 8, 2011

From: Self <[mallen@chaffeeeco.net](mailto:mallen@chaffeeeco.net)>

To: [rswitzer@blm.gov](mailto:rswitzer@blm.gov)

**Subject: Ojo Encino 31 Federal-SWD 1 Notice**

Date sent: Tue, 08 Nov 2011 14:11 32 -0700

Bob,

HPOC, LLC has submitted to your office an APD for a new salt water disposal well (31 Federal-SWD 1 about 2.5 miles southwest of our 21 Federal #2 DWS well in the Ojo Encino field in McKinley County. This APD includes the NM-OCD "Pit Permit" form C-144. Since HPOC will be utilizing a temporary reserve pit during our drilling operation which will be closed on-site, HPOC is required to notify the surface owner of such pit closure.

This email serves as notification to the BLM of HPOC's proposal for on-site closure of this temporary reserve pit. Details of the pit have been included in the APD and with the C-144.

Please confirm receipt of this email, and please contact me with any questions you may have.

Thank you,  
Mike Allen

HPOC New Mexico Project Manager

## ***Temporary Pit Design Plan for Ojo Encino 31 Federal-SWD 1***

HPOC's temporary pit for the Ojo Encino 31 Federal-SWD 1 will be designed and constructed following all rules in NMAC 19.15 Part 17, "PITS, CLOSED-LOOP SYSTEMS, BELOW-GRADE TANKS AND SUMPS," #11, "DESIGN AND CONSTRUCTION SPECIFICATIONS."

The top 6" of topsoil will be stripped and rolled up in the northeast corner of the pad near the road to divert runoff and prevent erosion of the location per agreement with Craig Willems in conversation subsequent to the BLM onsite inspection. HPOC will post a sign not less than 12" X 24" prior to pit construction listing the operator, location of the well by unit letter, section, township and range with emergency telephone numbers. The temporary pit will be fenced with 48" field fence (hogwire) with a single strand of barbed wire above. During drilling or workover operations, HPOC will temporarily remove the side of the fence along the edge of the pit adjacent to the drilling or workover rig.

NMAC 19.15.17.11; Subsection F Requirements:

1. HPOC will design and construct the temporary pit to ensure the confinement of liquids to prevent unauthorized releases.
2. HPOC's temporary pit will have a properly constructed foundation and interior slopes consisting of a firm, unyielding base, smooth and free of rocks, debris, sharp edges or irregularities to prevent the liner's rupture or tear.
3. HPOC's temporary pit will be constructed with a geomembrane liner consisting of 20-mil string reinforced LLDPE or equivalent liner material that the Aztec division district office approves. The geomembrane liner shall be composed of an impervious, synthetic material that is resistant to petroleum hydrocarbons, salts and acidic and alkaline solutions. The liner material shall be resistant to ultraviolet light. Liner compatibility shall comply with EPA SW-846 method 9090A.
4. HPOC will minimize liner seams and orient them up and down, not across a slope. HPOC will use factory-welded seams where possible. Prior to field seaming, HPOC will overlap liners four to six inches and orient seams parallel to the line of maximum slope, *i.e.*, oriented along, not across, the slope. HPOC will minimize the number of field seams in corners and irregularly shaped areas. Qualified personnel shall perform field seaming. HPOC will weld any field liner seams necessary.
5. Construction will avoid excessive stress-strain on the liner.
6. HPOC will utilize geotextile under the liner where needed to reduce localized stress-strain or protuberances that may otherwise compromise the liner's integrity.
7. HPOC will anchor the edges of all liners in the bottom of a compacted earth-filled trench. The anchor trench shall be at least 18 inches deep.
8. HPOC will ensure that the liner is protected from any fluid force or mechanical damage at any point of discharge into or suction from the lined temporary pit.
9. HPOC will design and construct the temporary pit to prevent run-on of surface water. A berm, ditch, proper sloping or other diversion shall surround the temporary pit to prevent run-on of surface water. During drilling operations, the edge of the temporary pit adjacent to the drilling or workover rig is not required to have run-on protection if HPOC is using the temporary pit to collect liquids escaping from the drilling or workover rig and run-on will not result in a breach of the temporary pit.

## **Temporary Pit Operating and Maintenance Plan for Ojo Encino 31 Federal-SWD 1**

HPOC's temporary pit for the Ojo Encino 31 Federal-SWD 1 will be operated and maintained following all rules in NMAC 19.15 Part 17, "PITS, CLOSED-LOOP SYSTEMS, BELOW-GRADE TANKS AND SUMPS," #12, "OPERATIONAL REQUIREMENTS."

1. HPOC will operate and maintain the pit to contain liquids and solids and maintain the integrity of the liner, prevent contamination of fresh water and protect public health and the environment.
2. HPOC will recycle, reuse or reclaim or dispose of all drilling fluids in a manner approved by division rules that prevents the contamination of fresh water and protects public health and the environment. As required, drilling fluids will be disposed of at T-n-T Environmental, Inc.'s Commercial Surface Waste Management Facility Permit NM-01-0008 (evaporation ponds and landfarm).
3. HPOC will not discharge into or store any hazardous waste in the pit.
4. If the pit liner's integrity is compromised, or if any penetration of the liner occurs above the liquid's surface, then HPOC will notify the Aztec division district office within 48 hours of the discovery and repair the damage or replace the liner.
5. If the pit develops a leak, or if any penetration of the pit liner occurs below the liquid's surface, then HPOC will remove all liquid above the damage or leak line within 48 hours, notify the Aztec division district office within 48 hours of the discovery and repair the damage or replace the pit liner.
6. The injection or withdrawal of liquids from the pit shall be accomplished through a header, diverter or other hardware that prevents damage to the liner by erosion, fluid jets or impact from installation and removal of hoses or pipes.
7. HPOC will operate and install the pit to prevent the collection of surface water run-on.
8. HPOC will install, or maintain on site, an oil absorbent boom or other device to contain and remove oil from a pit's surface.
9. Only fluids used or generated during the drilling or workover process will be discharged into the temporary pit. HPOC will maintain the temporary pit free of miscellaneous solid waste or debris. Immediately after cessation of a drilling or workover operation, HPOC will remove any visible or measurable layer of oil from the surface of a drilling or workover pit.
10. HPOC will maintain at least two feet of freeboard for the temporary pit.
11. HPOC will inspect the temporary pit containing drilling fluids at least daily while the drilling or workover rig is on-site. Thereafter, HPOC will inspect the temporary pit weekly so long as liquids remain in the temporary pit. HPOC will maintain a log of such inspections and make the log available for the Aztec division district office's review upon request. HPOC will file a copy of the log with the Aztec division district office when the operator closes the temporary pit.
12. HPOC will remove all free liquids from the temporary pit within 30 days from the date of drilling or workover rig release. HPOC will note the date of the drilling or workover rig's release on form C-105 or C-103 upon well or workover completion. The Aztec division district office may grant an extension of up to three months upon HPOC's request.

## ***Temporary Pits Closure Plan for Ojo Encino 31 Federal-SWD 1***

HPOC's temporary pit for the Ojo Encino 31 Federal-SWD 1 will be closed following all rules in NMAC 19.15 Part 17, "PITS, CLOSED-LOOP SYSTEMS, BELOW-GRADE TANKS AND SUMPS," #13, "CLOSURE REQUIREMENTS."

HPOC will close the temporary pit within six months from the date HPOC releases the drilling or workover rig. The Aztec division district office may grant an extension not to exceed three months upon HPOC's request. HPOC will remove all liquids from the temporary pit prior to closure and these fluids will be disposed of at T-n-T Environmental, Inc.'s Commercial Surface Waste Management Facility Permit NM-01-0008 (evaporation ponds and landfarm), or HPOC may recycle, reuse or reclaim the liquids in a manner that the Aztec division district office approves.

The proposed closure method of the temporary pit involves on-site burial. If the well is either productive or deemed an acceptable injection well, HPOC will need to keep the service area obstruction free so will install a 24"x24" steel marker plate at the center of the on-site burial. If the well is abandoned after drilling or when HPOC no longer requires salt water disposal and abandons it, HPOC will re-grade the site and install a steel marker not less than four inches in diameter cemented in a three-foot (minimum) deep hole. The steel marker shall extend at least four feet above mean ground level and at least three feet below ground level. The operator name, lease name and well number and location, including unit letter, section, township and range, and that the marker designates an on-site burial location shall be welded, stamped or otherwise permanently engraved into the metal of the steel plate/marker. HPOC will report the exact location of the on-site burial on our well completion form filed with the BLM and on NM-OCD form C-105.

HPOC will perform interim reclamation of the temporary pit area by restoring the impacted surface area, exclusive of that needed for production or injection operations, to the condition that existed prior to HPOC's operations by placement of the soil cover and re-vegetation as provided in Subsection H of 19.15.17.13 NMAC. Specifically, HPOC will cover the pit with 4 feet of clean soil including 1 foot of topsoil and match existing grade to prevent ponding and re-vegetate the soil cover for the first growing season using a seed mix with at least 70% of native perennials. HPOC will ensure vegetative cover that equals 70% of the native perennial vegetative cover consisting of at least three native plant species, including at least one grass, but not including noxious weeds, and maintain that cover through two successive growing seasons without artificial irrigation. HPOC shall repeat seeding or planting until it successfully achieves the required vegetative cover.

When the well is abandoned, HPOC will re-grade the well pad site to approximate the original slope that blends with the surrounding topography and will re-vegetate the area according to Subsection I of 19.15.17.13 NMAC.

HPOC will notify the BLM (surface owner) by certified mail, return receipt requested, that HPOC plans to close the temporary pit. HPOC will notify the Aztec division district office verbally or by other means at least 72 hours, but not more than one week, prior to any closure operation. HPOC will file a closure report within 60 days of closure completion on form C-144.

Following Paragraph (2) of Subsection F of 19.15.17.13 NMAC:

1. Prior to closing the temporary pit, HPOC will stabilize or solidify the contents to a bearing capacity sufficient to support the temporary pit's final cover. HPOC will not mix the contents

with soil or other material at a mixing ratio of greater than 3:1, soil or other material to contents.

2. As the ground water is more than 100 feet below the bottom of the buried waste, HPOC will collect at a minimum, a five point, composite sample of the contents of the temporary pit after treatment or stabilization, if treatment or stabilization is required, to demonstrate that benzene, as determined by EPA SW-846 method 8021B or 8260B, does not exceed 0.2 mg/kg; total BTEX, as determined by EPA SW-846 method 8021B or 8260B, does not exceed 50 mg/kg; the GRO and DRO combined fraction, as determined by EPA SW-846 method 8015M, does not exceed 500 mg/kg; TPH, as determined by EPA method 418.1 or other EPA method that the division approves, does not exceed 2500 mg/kg; and chlorides, as determined by EPA method 300.1, do not exceed 1000 mg/kg or the background concentration, whichever is greater. HPOC may collect the composite sample prior to treatment or stabilization to demonstrate that the contents do not exceed these concentrations. However, if the contents collected prior to treatment or stabilization exceed the specified concentrations HPOC will collect a second five point, composite sample of the contents after treatment or stabilization to demonstrate that the contents do not exceed these concentrations.
3. Upon closure of the temporary pit, HPOC will cover the geomembrane lined, filled, temporary pit with compacted, non-waste containing, earthen material; construct a division-prescribed soil cover; re-contour and re-vegetate the site. The division-prescribed soil cover, re-contouring and re-vegetation shall comply with Subsections G, H and I of 19.15.17.13 NMAC.