

**District I**

1625 N. French Dr., Hobbs, NM 88240  
Phone:(575) 393-6161 Fax:(575) 393-0720

**District II**

811 S. First St., Artesia, NM 88210  
Phone:(575) 748-1283 Fax:(575) 748-9720

**District III**

1000 Rio Brazos Rd., Aztec, NM 87410  
Phone:(505) 334-6178 Fax:(505) 334-6170

**District IV**

1220 S. St Francis Dr., Santa Fe, NM 87505  
Phone:(505) 476-3470 Fax:(505) 476-3462

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

Form C-101  
August 1, 2011

Permit 177126

**APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE**

1. Operator Name and Address WHITING OIL AND GAS CORPORATION 400 W. Illinois Midland, TX 79701		2. OGRID Number 25078
		3. API Number <b>30-021-20593</b>
4. Property Code <b>40241</b>	5. Property Name FOUR WAY <b>2031</b>	6. Well No. 4-1

**7. Surface Location**

UL - Lot K	Section 4	Township 20N	Range 31E	Lot Idn	Feet From 1650	N/S Line S	Feet From <del>1980</del> <b>2030</b>	E/W Line W	County Harding
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**8. Proposed Bottom Hole Location**

UL - Lot K	Section 4	Township 20N	Range 31E	Lot Idn K	Feet From 1650	N/S Line S	Feet From <del>1980</del> <b>2030</b>	E/W Line W	County Harding
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**9. Pool Information**

WILDCAT;SANTA ROSA (GAS)	96305
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**Additional Well Information**

11. Work Type New Well	12. Well Type CO2	13. Cable/Rotary	14. Lease Type Private	15. Ground Level Elevation 4600
16. Multiple N	17. Proposed Depth 1850	18. Formation Triassic Age Rocks-Undivided	19. Contractor	20. Spud Date 12/20/2013
Depth to Ground water		Distance from nearest fresh water well		Distance to nearest surface water

We will be using a closed-loop system in lieu of lined pits

**21. Proposed Casing and Cement Program**

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	12.25	8.625	24	700	450	
Prod	7.875	5.5	15.5	1850	600	

**Casing/Cement Program: Additional Comments**

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**22. Proposed Blowout Prevention Program**

Type	Working Pressure	Test Pressure	Manufacturer
Annular	3000	3000	REGAN TAURUS

23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief. <b>I further certify I have complied with 19.15.14.9 (A) NMAC <input checked="" type="checkbox"/> and/or 19.15.14.9 (B) NMAC <input checked="" type="checkbox"/> if applicable.</b>  Signature: Printed Name: Electronically filed by Kay Maddox Title: Regulatory Agent Email Address: kay.maddox@whiting.com Date: 11/21/2013      Phone: 432-686-6709	<b>OIL CONSERVATION DIVISION</b>	
	Approved By:	
	Title:	
	Approved Date:	Expiration Date:
	Conditions of Approval Attached	

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

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

Form C-144  
Revised June 6, 2013

**For temporary pits, below-grade tanks, and multi-well fluid management pits,** submit to the appropriate NMOCD District Office.  
**For permanent pits** submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.

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

- Type of action:  Below grade tank registration  
 Permit of a pit or proposed alternative method  
 Closure of a pit, below-grade tank, or proposed alternative method  
 Modification to an existing permit/or registration  
 Closure plan only submitted for an existing permitted or non-permitted pit, below-grade tank, or proposed alternative method

**Instructions: Please submit one application (Form C-144) per individual pit, below-grade tank or alternative request**

Please be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

1.  
Operator: Whiting Oil & Gas Corp OGRID #: 25078  
Address: 400 W. Illinois, Suite 1300, Midland, Texas 79701  
Facility or well name: Four Way 2031 #4-1  
API Number: 30-021-20593 OCD Permit Number: \_\_\_\_\_  
U/L or Qtr/Qtr K Section 4 Township 20-N Range 31-E County: Harding  
Center of Proposed Design: Latitude 35.99156878 Longitude -103.65403697 NAD:  1927  1983  
Surface Owner:  Federal  State  Private  Tribal Trust or Indian Allotment

2.  
 **Pit:** Subsection F, G or J of 19.15.17.11 NMAC  
Temporary:  Drilling  Workover  
 Permanent  Emergency  Cavitation  P&A  Multi-Well Fluid Management Low Chloride Drilling Fluid  yes  no  
 Lined  Unlined Liner type: Thickness 20 mil  LLDPE  HDPE  PVC  Other \_\_\_\_\_  
 String-Reinforced  
Liner Seams:  Welded  Factory  Other \_\_\_\_\_ Volume: 4,000 bbl Dimensions: L 75' x W 75' x D 4'

3.  
 **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 \_\_\_\_\_

4.  
 **Alternative Method:**  
Submittal of an exception request is required. Exceptions must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

5.  
**Fencing:** Subsection D of 19.15.17.11 NMAC (*Applies to permanent pits, temporary pits, and below-grade tanks*)  
 Chain link, six feet in height, two strands of barbed wire at top (*Required if located within 1000 feet of a permanent residence, school, hospital, institution or church*)  
 Four foot height, four strands of barbed wire evenly spaced between one and four feet  
 Alternate. Please specify \_\_\_\_\_

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

- Screen  Netting  Other \_\_\_\_\_
- Monthly inspections (If netting or screening is not physically feasible)

7. **Signs:** Subsection C of 19.15.17.11 NMAC

- 12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers
- Signed in compliance with 19.15.16.8 NMAC

8. **Variations and Exceptions:**

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

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

- Variance(s): Requests must be submitted to the appropriate division district for consideration of approval.
- Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

9. **Siting Criteria (regarding permitting):** 19.15.17.10 NMAC

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

**General siting**

**Ground water is less than 25 feet below the bottom of a low chloride temporary pit or below-grade tank.**

- NM Office of the State Engineer - iWATERS database search;  USGS;  Data obtained from nearby wells

- Yes  No
- NA

**Ground water is less than 50 feet below the bottom of a Temporary pit, permanent pit, or Multi-Well Fluid Management pit.**

- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells

- Yes  No
- NA

Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. **(Does not apply to below grade tanks)**

- Written confirmation or verification from the municipality; Written approval obtained from the municipality

- Yes  No

Within the area overlying a subsurface mine. **(Does not apply to below grade tanks)**

- Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division

- Yes  No

Within an unstable area. **(Does not apply to below grade tanks)**

- Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map

- Yes  No

Within a 100-year floodplain. **(Does not apply to below grade tanks)** - FEMA map

- Yes  No

**Below Grade Tanks**

Within 100 feet of a continuously flowing watercourse, significant watercourse, lake bed, sinkhole, wetland or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site

- Yes  No

Within 200 horizontal feet of a spring or a fresh water well used for public or livestock consumption;

- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

- Yes  No

**Temporary Pit using Low Chloride Drilling Fluid** (maximum chloride content 15,000 mg/liter)

Within 100 feet of a continuously flowing watercourse, or any other significant watercourse or within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). (Applies to low chloride temporary pits.)

- Topographic map; Visual inspection (certification) of the proposed site

- Yes  No

Within 300 feet from a occupied permanent residence, school, hospital, institution, or church in existence at the time of initial application. Visual inspection (certification) of the proposed site; Aerial photo; Satellite image

- Yes  No

Within 200 horizontal feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or 300feet of any other fresh water well or spring, in existence at the time of the initial application.

- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

- Yes  No

Within 100 feet of a wetland.

- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site

**Temporary Pit Non-low chloride drilling fluid**

Within 300 feet of a continuously flowing watercourse, or any other significant watercourse, or within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).  
- Topographic map; Visual inspection (certification) of the proposed site

Yes  No

Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.  
- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image

Yes  No

Within 500 horizontal feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or 1000 feet of any other fresh water well or spring, in the existence at the time of the initial application; NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

Yes  No

Within 300 feet of a wetland.  
- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site

Yes  No

**Permanent Pit or Multi-Well Fluid Management Pit**

Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).  
- Topographic map; Visual inspection (certification) of the proposed site

Yes  No

Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.  
- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image

Yes  No

Within 500 horizontal feet of a spring or a fresh water well used for domestic or stock watering purposes, in existence at the time of initial application.  
- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

Yes  No

Within 500 feet of a wetland.  
- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site

Yes  No

Yes  No

10. **Temporary Pits, Emergency Pits, and Below-grade Tanks Permit Application Attachment Checklist:** Subsection B of 19.15.17.9 NMAC  
*Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.*

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

Previously Approved Design (attach copy of design) API Number: \_\_\_\_\_ or Permit Number: \_\_\_\_\_

11. **Multi-Well Fluid Management Pit Checklist:** Subsection B of 19.15.17.9 NMAC  
*Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.*

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

Previously Approved Design (attach copy of design) API Number: \_\_\_\_\_ or Permit Number: \_\_\_\_\_

12.

**Permanent Pits Permit Application Checklist:** Subsection B of 19.15.17.9 NMAC

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

- Hydrogeologic Report - based upon the requirements of Paragraph (1) of Subsection B of 19.15.17.9 NMAC
- Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- Climatological Factors Assessment
- Certified Engineering Design Plans - based upon the appropriate requirements of 19.15.17.11 NMAC
- Dike Protection and Structural Integrity Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- Leak Detection Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- Liner Specifications and Compatibility Assessment - based upon the appropriate requirements of 19.15.17.11 NMAC
- Quality Control/Quality Assurance Construction and Installation Plan
- Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- Freeboard and Overtopping Prevention Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- Nuisance or Hazardous Odors, including H<sub>2</sub>S, Prevention Plan
- Emergency Response Plan
- Oil Field Waste Stream Characterization
- Monitoring and Inspection Plan
- Erosion Control Plan
- Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

13.

**Proposed Closure:** 19.15.17.13 NMAC

**Instructions:** Please complete the applicable boxes, Boxes 14 through 18, in regards to the proposed closure plan.

- Type:  Drilling  Workover  Emergency  Cavitation  P&A  Permanent Pit  Below-grade Tank  Alternative
- Proposed Closure Method:  Waste Excavation and Removal
- Waste Removal (Closed-loop systems only)
  - On-site Closure Method (Only for temporary pits and closed-loop systems)
    - In-place Burial  On-site Trench Burial
  - Alternative Closure Method

14.

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

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

15.

**Siting Criteria (regarding on-site closure methods only):** 19.15.17.10 NMAC

**Instructions:** Each siting criteria requires a demonstration of compliance in the closure plan. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria require justifications and/or demonstrations of equivalency. Please refer to 19.15.17.10 NMAC for guidance.

Ground water is less than 25 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
Ground water is between 25-50 feet below the bottom of the buried waste - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> 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	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
Within 100 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - 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. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 300 horizontal feet of a private, domestic fresh water well or spring used for domestic or stock watering purposes, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database; Visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 300 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 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 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

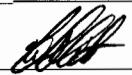
16.  
**On-Site Closure Plan Checklist:** (19.15.17.13 NMAC) *Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.*

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

17.  
**Operator Application Certification:**

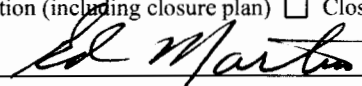
I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief.

Name (Print): Robert McNaughton Title: Sr. Operations Engineer

Signature:  Date: 11-15-13

e-mail address: Robert.McNaughton@whiting.com Telephone: 432-413-2989

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

OCD Representative Signature:  Approval Date: 12/16/2013

Title: DISTRICT SUPERVISOR OCD Permit Number: \_\_\_\_\_

19.  
**Closure Report (required within 60 days of closure completion):** 19.15.17.13 NMAC

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

Closure Completion Date: \_\_\_\_\_

20.  
**Closure Method:**

Waste Excavation and Removal  On-Site Closure Method  Alternative Closure Method  Waste Removal (Closed-loop systems only)

If different from approved plan, please explain.

21.  
**Closure Report Attachment Checklist:** *Instructions: Each of the following items must be attached to the closure report. Please indicate, by a check mark in the box, that the documents are attached.*

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

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

## Siting Criteria and Compliance Demonstrations

### 1. Depth to groundwater (should not be less than 50 feet):

Depth to groundwater is unknown at this exact location, but may be between 50' to 100' in the area. An active windmill located about 1750' ESE from the well location, but there are no records for it. The nearest well with water-depth information is approximately 1.6 miles from the location (see Location Photo 1, above). These wells were identified from OSE and USGS records (see Air Photo 1) and are listed below:

<u>Well</u>	<u>Distance/Direction from Proposed Project Area</u>	<u>Depth of Well</u>	<u>Depth to Water</u>
USGS 360051103383901	~1.6 miles NE	?	51'
TU 02069	~2.1 miles NW	100'	?

#### Sources:

New Mexico Office of the State Engineer. 2011. Waters/ NMRRWS data base  
[http://www.ose.state.nm.us/water\\_info\\_data.html](http://www.ose.state.nm.us/water_info_data.html).

### 2. Distance to watercourse (should not be within 300 feet of a continuously flowing watercourse or 200' feet of any other significant watercourse or lakebed, sinkhole, or playa lake):

Aerial photos and a visit to the location indicate that there are no lakebeds, sinkholes, playa lakes, or watercourses within 300 feet of the proposed pit/system - ~700' to dry creek (**Location Photo 2 – inset detail**).

### 3. Distance to buildings (should not be within 300 feet of any permanent buildings):

Aerial photos and a site visit indicate that the pit will not be within 300 feet of any of these locations (see **Location Photo 2**).

### 4. Distance to springs or wells (should not be within 500 feet of a private, domestic fresh water well or spring used by less than five (5) households or within 1000 feet of any other fresh water well or spring):

Air photos indicate the pit will not be within 1000 feet of any recorded well or spring (see **Location Photo 1 & 2**).

### 5. Presence within incorporated area (should not be within incorporated municipal boundaries or within defined municipal fresh water well field covered under municipal ordinance):

The aerial photo and a site visit indicate the pit will not be within an incorporated area or municipal fresh water well field (see **Location Photo 1 & 2**).

### 6. Distance to wetlands (should not be within 500 feet):

The aerial photo and a site visit indicate that the location is not within 500 feet of a wetland.

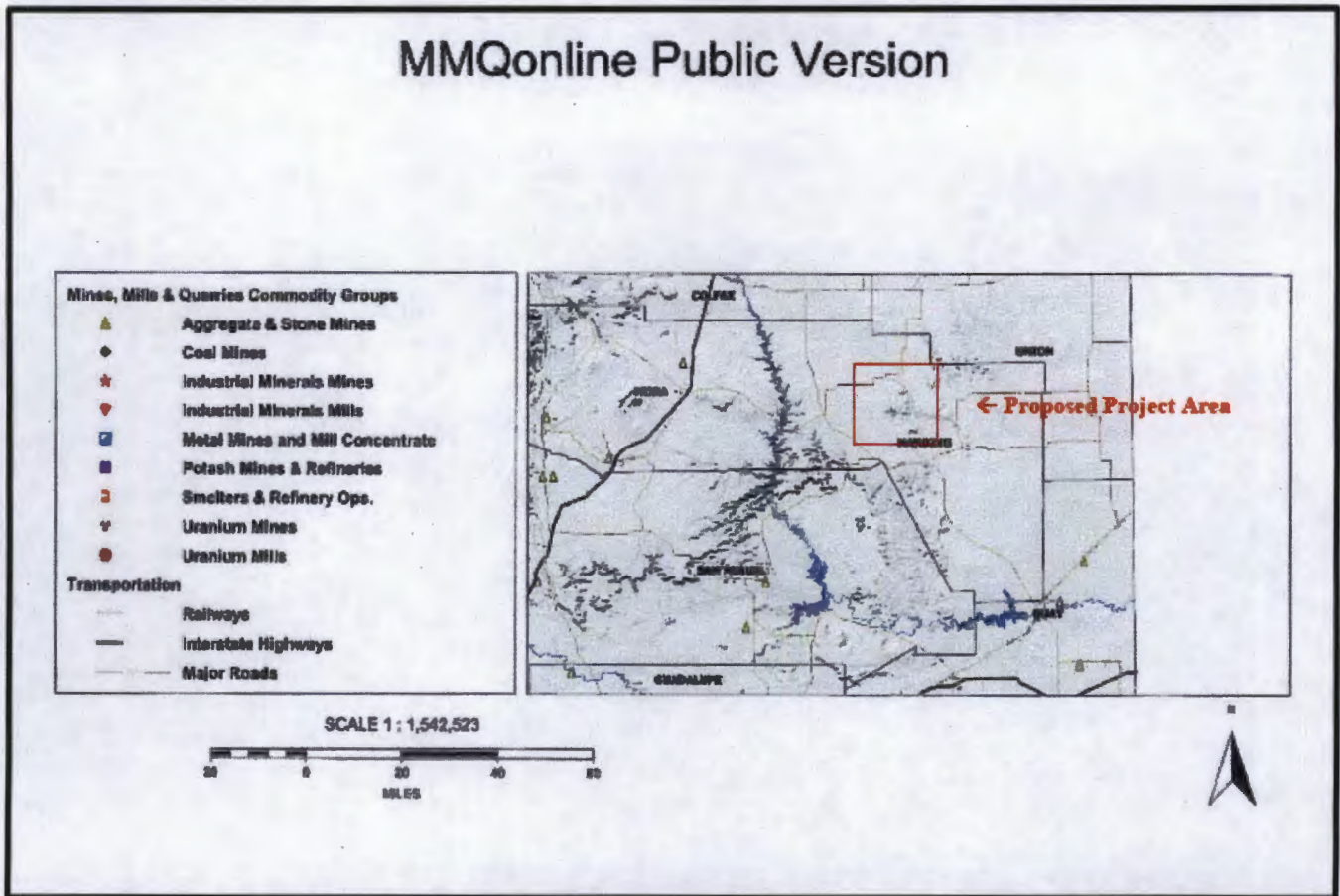
### 7. Location above subsurface mine (should not overlie a subsurface mine):

The pit will not overlie a mine. The 2009 Mines, Mills, and Quarries map, an aerial photo and a site survey indicate that there are no subsurface mines in the area.

### 8. Presence within unstable area (should not be within an unstable area):

A topographic map and aerial photo indicate the location will not be within an unstable area. The location will be on a gentle slope (see **Location Photo 2**).

# MINES, MILLS, AND QUARRIES IN NEW MEXICO



## Sources:

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

<http://www.emnrd.state.nm.us/MMD/MRRS/MinesMillsQuarriesWebMap.htm>. Accessed March 2009.

NMOCD drilling applications for offset and regional wells, primarily recent wells drilled by Hess in the west Bravo Dome Unit. Also reviewed recent applications for OXY wells in the Bravo Dome CO2 unit to the east. There are no records of any subsurface mines or deep aggregate mines within the project area.

## FEMA ISSUED FLOOD MAPS

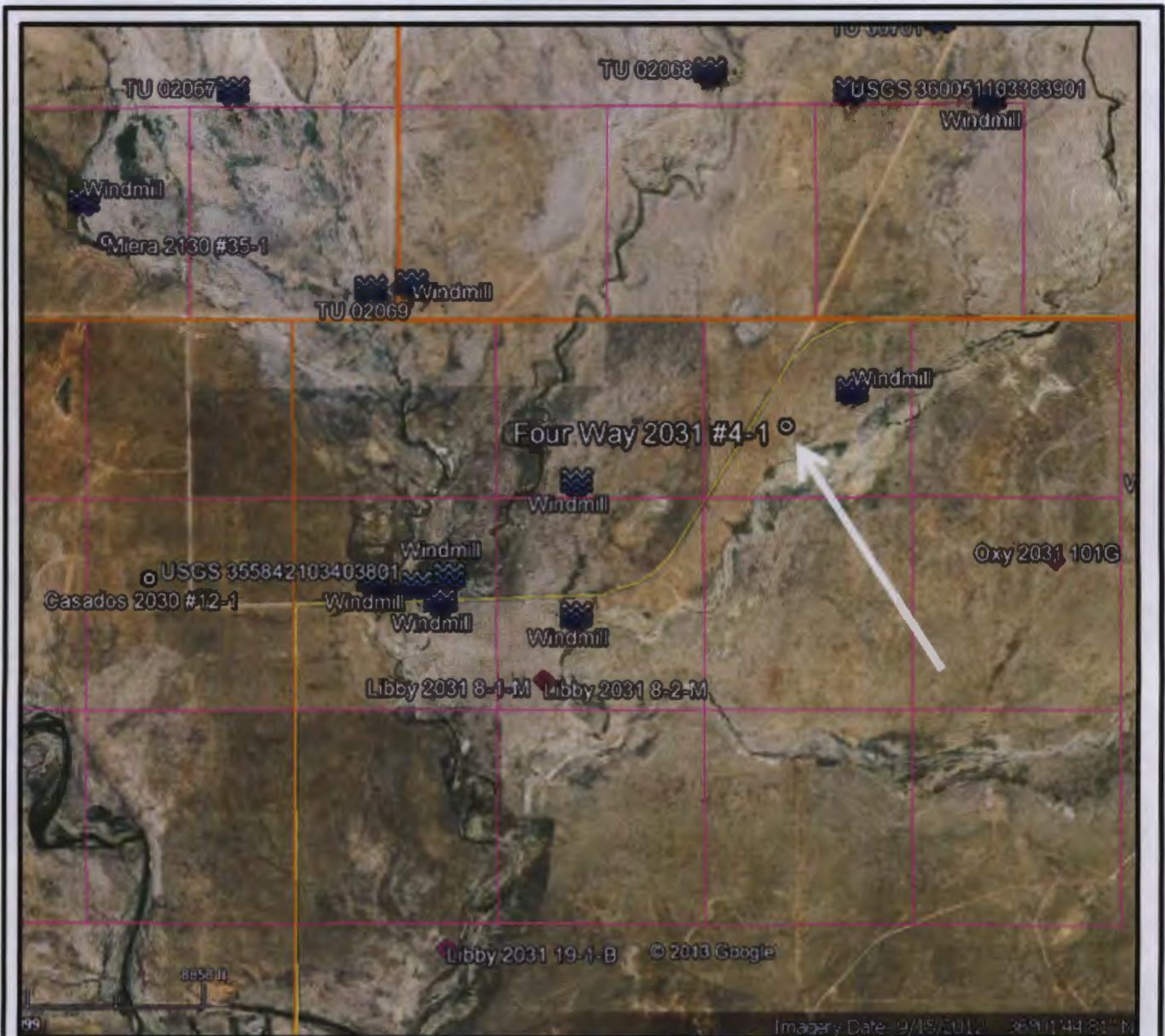
### 9. Presence within floodplain (should not be within a 100-year floodplain):

The location (Harding County, NM) has not been mapped by FEMA. However, aerial photos and offset drilling permits indicate that the location is not within a floodplain. It is located on a gently sloping plain adjacent to a wide ravine (Salado Creek) that is subject to brief flash-flooding from infrequent rains. The location was carefully chosen to avoid weak soils and buried gravel deposits, and should not have any near or long term stability issues.



**OCD Form C-144: Supporting Data**

**Four Way 2031 #4-1**



**Location Photo #1**

**Whiting Petroleum Corporation**

**Four Way 2031 #4-1**

**T-20-N, R-31-E, Section 4 NMPM**

**Harding County, New Mexico**

# Four Way 2031 #4-1

## Surface Hydrology:

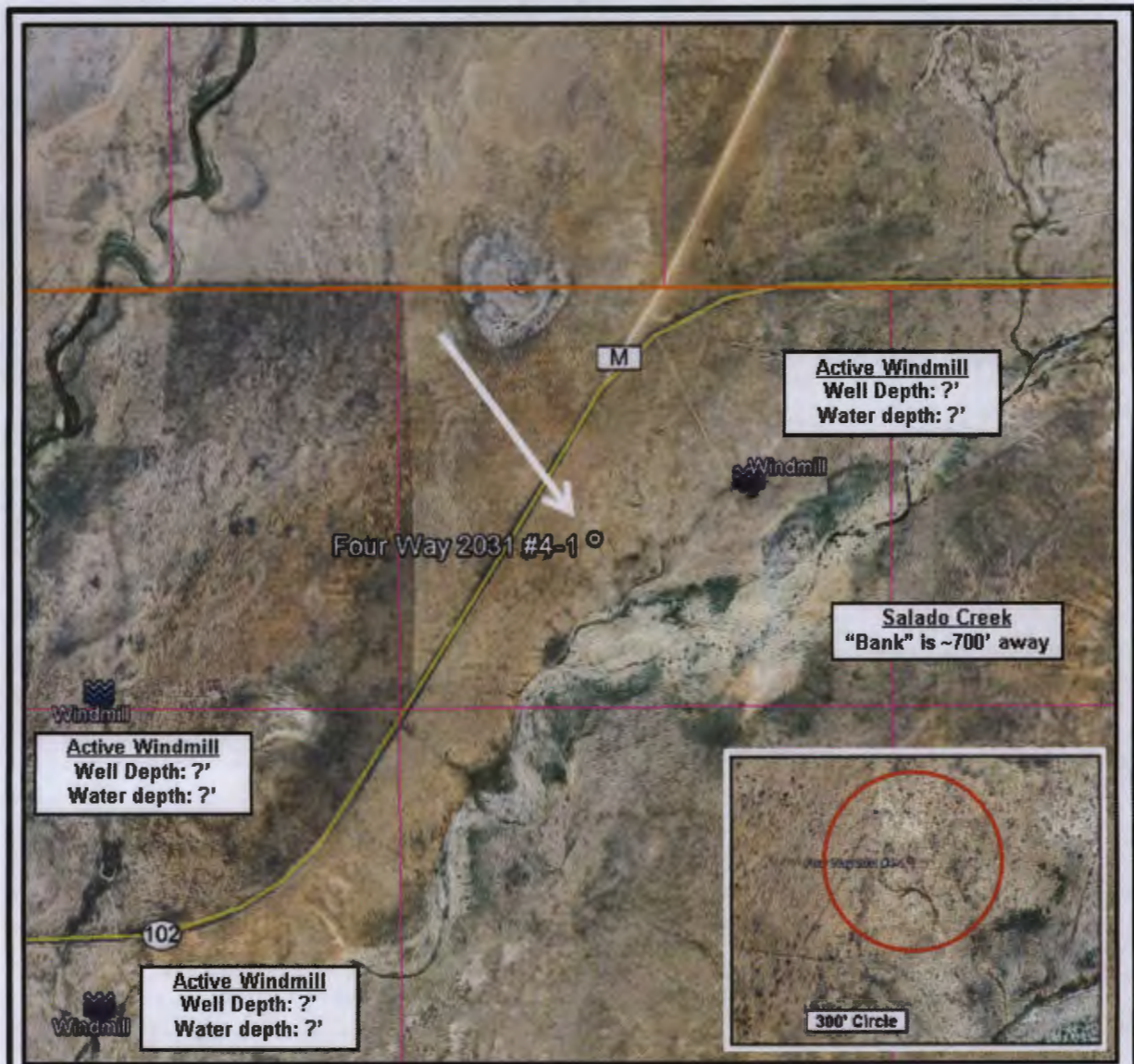
The local surface drainage is controlled by gravel alluvium and a gentle regional dip to the south east. Runoff from the location will flow southeast towards the intermittent Salado creek. Aerial photos indicate that the reserve pit will be greater than 300 feet from any significant waterways or surface water (see Location Photos 1 and 2).

## Ground Water Hydrology:

The High Plains aquifer extends westward into eastern Harding County, but in the proposed project region there is no principal aquifer. Aquifers do not exist here, yield too little water for water wells to be significant and yield insufficient water to supply local requirements. When present, they are not extensive enough to be classified as major aquifers.

### Sources:

New Mexico Office of the State Engineer. 2011. Waters/ NMRRWS data base  
[http://www.ose.state.nm.us/water\\_info\\_data.html](http://www.ose.state.nm.us/water_info_data.html).



## Location Photo #2

Four Way 2031 #4-1

Offset Fresh Water Wells, Houses, Municipalities

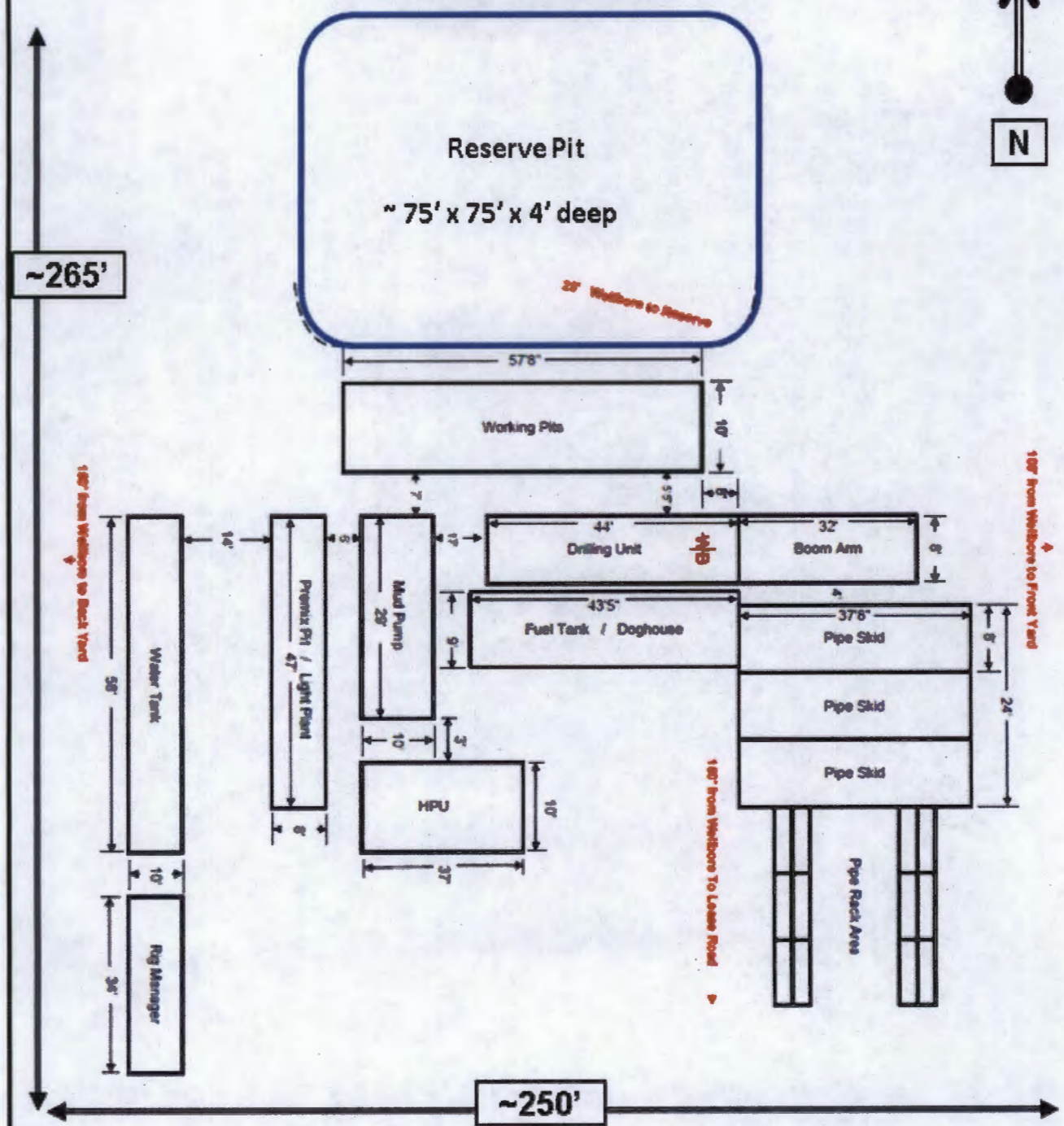
## Temporary Drilling Pit - Design Plan

(Based on Appropriate Requirements of 19.15.17.11 NMAC)

### Design and construction specifications for this temporary pit are as follows:

- Prior to constructing the pit, topsoil will be stripped and stockpiled for use as final cover or fill at the time of closure.
- An upright sign (at least 12" x 24" with lettering at least 2" in height) will be placed conspicuously on the fence surrounding the pit, or will use a well sign (complying with 19.15.3.103 NMAC). The sign will be posted in a manner and location such that the legend can be easily read, and will contain the following information: operator's name, legal location (quarter-quarter or unit letter, section, township, and range), and emergency telephone number(s).
- The pit will be fenced or enclosed in a manner that prevents unauthorized access. The fence will be at least four (4) foot in height with at least four (4) strands of barbed wire evenly spaced between the top and bottom. Fences will be maintained in good repair. During drilling or workover operations, three (3) sides of the pit will be fenced; the side adjacent to the drilling or workover rig will remain open only during such operations.
- The pit will be designed and constructed to ensure the confinement of liquids.
- The pit will be constructed with a properly constructed foundation and interior slopes consisting of a firm, unyielding base. The pit will be smooth and free of rocks, debris, sharp edges, or irregularities to prevent the liner's rupture or tearing. Slopes will be no steeper than two (2) horizontal feet to one (1) vertical foot (2H:1V).
- The pit will have a geo-membrane liner with 20-mil string-reinforced LLDPE or its equivalent (approved by the division district office). This liner will be composed of an impervious, synthetic material resistant to petroleum hydrocarbons, salts, and acidic and alkaline solutions. The liner will be resistant to ultraviolet light. The liner will comply with EPA SW-846 method 9090A.
- Qualified personnel will perform field seaming. Liner seams will be minimized, particularly in corners and irregularly shaped areas. Field liner seams will be welded. Factory-welded seams will be used where possible. Prior to field seaming, liners will be overlapped four (4) to six (6) inches and will be oriented parallel to the line of maximum slope (along, not across, the slope).
- Construction will avoid excessive stress-strain on the liner. Geotextile will be used under the liner where needed to reduce localized stress-strain or protuberances that may compromise the liner's integrity. The edges of all liners will be anchored in the bottom of a compacted, earth-filled trench that is at least 18" deep.
- The liner will be protected from any fluid force or mechanical damage at any point of discharge into or suction from the pit. A berm, ditch, proper sloping, or other diversion will be constructed around the pit to prevent run-on of surface water. During drilled operations, the edge of the pit adjacent to the drilling or workover rig may not have protection if the pit is being used to collect liquids escaping from the rig and run-on will not result in a breach of the pit.
- The volume of the pit will not exceed 5,000 Bbls, including freeboard.

# Trinidad #211 Drilling Rig



Rig and Location Diagram

## Temporary Drilling Pit - Operating & Maintenance Plan

(Based on Appropriate Requirements of 19.15.17.12 NMAC)

### **Operating and maintenance specifications for this temporary pit are as follows:**

- The pit will be maintained to contain liquids and solids, prevent contamination of fresh water, and protect public health of the environment.
- All drilling fluids will be recycled, reused, reclaimed, or disposed of in a manner approved by division rules and that prevents contamination of fresh water and protects public health and the environment.
- Hazardous waste will not be discharged into or stored in the pit.
- If the pit liner's integrity is compromised or if penetration of the liner occurs above the liquid's surface, the appropriate division district office will be notified within 48 hours of the discovery, and the liner will be repaired or replaced.
- If the pit develops a leak or if any penetration of the liner occurs below the liquid's surface, all liquid above the leak line will be removed within 48 hours, the appropriate division district office will be notified within 48 hours, and the liner will be repaired or replaced.
- The injection or withdrawal of liquids from the pit will be accomplished via 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.
- Pit operation will prevent the collection of surface water run-on.
- An oil-absorbent boom or other device will be installed and maintained onsite to contain and remove oil from the pit's surface.
- Only fluids used or generated during drilling or workover processes will be discharged into the pit. The pit will remain free of miscellaneous solid waste or debris. A tank made of steel or other division district office-approved material will be used to contain hydrocarbon-based drilling fluids. Immediately after cessation of a drilling or workover operation, any visibly or measurable layer of oil will be removed from the surface of the pit.
- At least two (2) feet of freeboard will be maintained.
- The pit will be inspected at least once daily while the drilling or workover rig is onsite. Thereafter, the pit will be inspected weekly as long as liquids remain within it. An inspection log will be maintained and made available to the division district office upon request. A copy of the log will be filed with the division district office at the time of pit closure.
- All free liquids will be removed from the pit within 30 days from release of the drilling or workover rig. On form C-105 or C-103, the date of the drilling or workover rig's release will be noted. If necessary, an extension of up to three (3) months may be requested from the division district office; this extension may or may not be granted.

**Temporary Drilling Pit :**

**Pit Inspection Log**

Well	<b>Four Way 2031 #4-1</b>	Liner Type & Thickness	
API#	<b>30 - 021 - _____</b>	Rig Mobilization Date:	
County	Harding	Rig Demobilization Date:	

Inspection Date	Time	By Whom	Has any hazardous waste been disposed of in the pit?	Is the pit liner intact and free of penetrations?	Distance from top of pit to fluid (minimum 2').

All pits to be inspected **DAILY** during drilling and completion operations and **Weekly** thereafter. All penetrations or damage to the liner must be reported to the NMOCD within 48 hours.

## Temporary Drilling Pit – Closure Plan

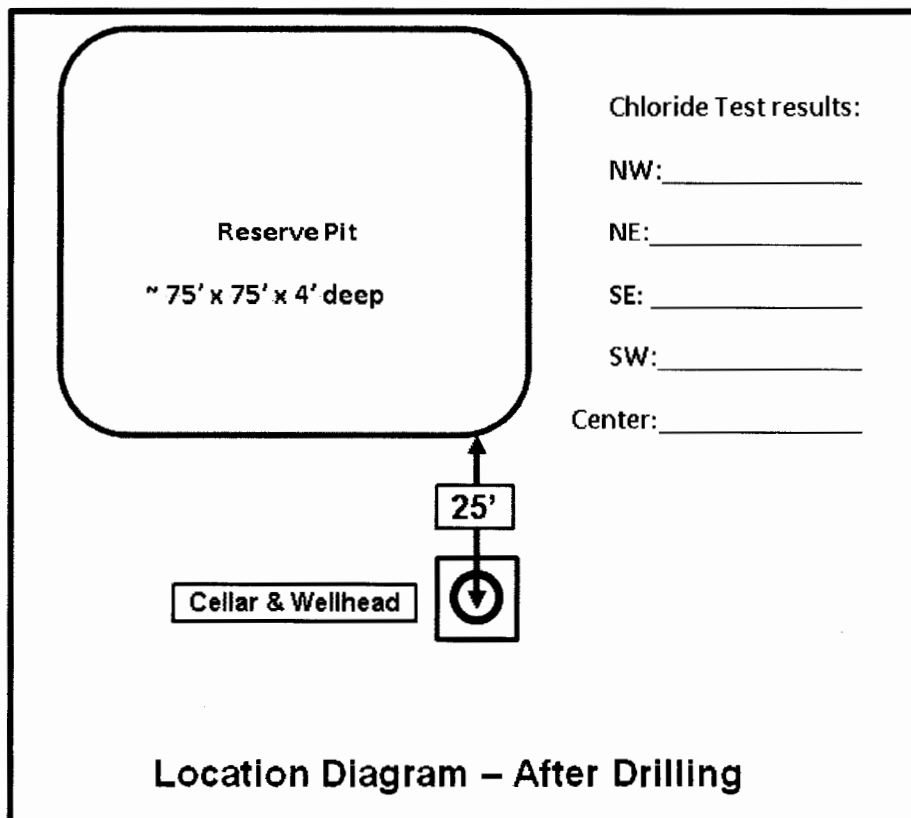
(Based on Appropriate Requirements of Subsection C, 19.15.17.9 NMAC & 19.15.17.13 NMAC)

### Closure specifications for this temporary pit are as follows:

- 1) The pit will be closed within six (6) months from the date that the drilling or workover rig is released. If necessary, the division district office may grant an extension not to exceed three (3) months.
- 2) All liquids from the pit will be removed prior to closure. Liquids will be disposed of at the Sundance Services, Inc. Parabo Disposal Facility (Permit No. 010003), unless they are recycled, reused, or reclaimed in a division district office-approved manner.
- 3) All contents, including synthetic pit liners, will be buried in place.
- 4) The soils around the pit will be tested to determine whether a release occurred. A five-point composite sample will be collected. In addition, grab samples will be gathered from any area that is wet, discolored, or showing evidence of a release. The samples will be sent to an approved laboratory and analyzed for benzene, total BTEX, TPH, the GRO and DRO combined fraction, and chlorides. Assuming groundwater could be encountered at a depth of between 51' to 100', the following limits should not be exceeded:
  - **Chlorides** (determined by EPA method 300.1): **40,000 mg/kg** or background concentration, whichever is greater.
  - **TPH** (EPA SW-846 method 418.a or other division-approved EPA method): **2500 mg/kg**.
  - **GRO and DRO** combined fraction (EPA SW-846 method 8015M): **1000 mg/kg**.
  - **BTEX** (EPA SW-846 method 8021B or 8260B or other approved EPA method): **50 mg/kg**
  - **Benzene** (EPA SW-846 method 8021B or 8260B or other approved EPA method): **10 mg/kg**
- 5) The division will be notified of the results on form C-141, at which point the division may require additional delineation.
- 6) If it is determined that a release has occurred, Whiting will comply with 19.15.3.116 NMAC and 19.15.1.19 NMAC, as appropriate.
- 7) If it is determined that a release has not occurred, or that any release doesn't exceed the above-specified concentrations, the pit will be covered with compacted, non-waste-containing, earthen material. A division-prescribed soil cover will be constructed and the site will be re-contoured and re-vegetated, per Subsections G, H, and I of 19.15.17.13 NMAC:
- 8) All areas associated with the pit that are no longer being used will be substantially restored to the condition that existed prior to oil and gas operations by placement of the soil cover (detailed below), re-contouring to match original contours and surrounding topography, and re-vegetating (detailed below).
- 9) If an alternative to the re-vegetation requirements is required to prevent erosion, protect fresh water, or protect human health and the environment, this alternative will be proposed to the surface owner. The proposed alternative, with written documentation demonstrating that the surface owner approves the alternative, will be submitted to the division for approval.
- 10) Soil cover will consist of the background thickness of topsoil or one (1) foot of material suitable for establishing vegetation at the site, whichever is greater.

**Closure specifications for this temporary pit , continued:**

- 11) Soil cover will be constructed to the site's existing grade and will prevent ponding of water and erosion of the cover material.
- 12) The first growing season following pit closure, all disturbed areas associated with the pit and no longer being used will be seeded or planted.
- 13) Seeding will be accomplished by drilling on the contour whenever practical, or by other division-approved methods. Vegetative cover equaling 70% of the native perennial vegetative cover (unimpacted by overgrazing, fire, or other damaging intrusion) will be obtained. This cover will consist of at least three (3) native plant species, including one (1) grass species but not including noxious weeds. That cover will be maintained through two (2) successive growing seasons, during which time no artificial irrigation will occur.
- 14) Seeding or planting will be repeated until the required vegetative cover is successfully achieved.
- 15) When conditions aren't favorable for the establishment of vegetation (such as during periods of drought), the division will be contacted for approval to delay seeding or planting, or for approval to use additional cultural techniques such as mulching, fertilizing, irrigating, fencing, etc.
- 16) The division will be notified when seeding or planting is completed, and when successful re-vegetation has been achieved.
- 17) Within 60 days of closure, completion, a closure report will be submitted on form C-144, with necessary attachments, to document closure activities, including sampling results, a plot plan, and backfilling details. In this closure report, Whiting will certify that all information in the report and attachments is correct and that Reliant has complied with all applicable closure requirements and conditions specified in the approved Closure Plan. A plat of the temporary pit location will be provided on form C-105.







November 15, 2013

Four Way Cattle Company  
Brenda A. Daniels, Pres.  
P.O. Box 125  
Wagon Mound, NM 87752

RE: Notification to Surface Owner of On-Site Drilling Pit Closure Plan  
Well: Four Way 2031 Well # 4-1  
Harding County, NM

Please reference attached proposed on-site drilling pit closure plan. Whiting Oil & Gas proposes to close and remediate the surface land according to all rules and regulations noted in Subsection E of 19.15.17.13 NMAC within the approved time frame allotted by the NMOGA.

If you have any additional question please contact Kay Maddox @ 432.686.6709.

Sincerely,

Kay Maddox  
Regulatory Supervisor

Mailed by certified mail to above listed party on this the 15<sup>th</sup> day of November, 2013

  
Signed: Kay Maddox- Regulatory Supervisor

*Whiting Petroleum Corporation  
and its wholly owned subsidiary  
Whiting Oil and Gas Corporation*

400 W. Illinois Avenue, Suite 1300, Midland, TX 79701 Office: 432.686.6700 Fax 432.686.6799



November 15, 2013

Ed Martin – District IV NMOCD Supervisor  
New Mexico Oil Conservation Division  
1220 South St. Francis  
Santa Fe, New Mexico 87505

Re: Drilling Permit Application

Dear Mr. Martin,

Please reference drilling permit application submitted 11/15/2013 on-line for the Four Way 2031 # 4-1. Please find attached C-144 and verification of surface owner notification.

If you have any additional question or comments please let me know. Thank you for your time.

Sincerely,

Kay Maddox  
Regulatory Supervisor  
[Kay.maddox@whiting.com](mailto:Kay.maddox@whiting.com)  
432.686.6709

*Whiting Petroleum Corporation  
and its wholly owned subsidiary  
Whiting Oil and Gas Corporation*

400 W. Illinois Avenue, Suite 1300, Midland, TX 79701 Office: 432.686.6700 Fax 432.686.6799