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

HOBBS OCD
OCT 23 2013
RECEIVED

12130
21-20589

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**
OIL CONS. DIV DIST. 3
Facility or well name: **Miera 2130 #35-1**
AUG 08 2014
API Number: 30-021-20589 OCD Permit Number:
U/L or Qtr/Qtr **J** Section **35** Township **21-N** Range **30-E** County: **Harding**
Center of Proposed Design: Latitude **36.0042027** Longitude **-103.7115555** 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: **10,700** bbl Dimensions: L **100'** x W **100'** x D **6'**

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

45

6.

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

☐ Screen ☐ Netting ☐ Other_____

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

7.

Signs: Subsection C of 19.15.17.11 NMAC

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

☐ Signed in compliance with 19.15.16.8 NMAC

8.

Variances and Exceptions:

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

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

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

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

9.

Siting Criteria (regarding permitting): 19.15.17.10 NMAC

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

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

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

10.

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

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

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

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

11.

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

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

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

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

12.

Permanent Pits Permit Application Checklist: Subsection B of 19.15.17.9 NMAC

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

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

13.

Proposed Closure: 19.15.17.13 NMAC

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

Type: ☒ Drilling ☐ Workover ☐ Emergency ☐ Cavitation ☐ P&A ☐ Permanent Pit ☐ Below-grade Tank ☐ Alternative

Proposed Closure Method: ☐ Waste Excavation and Removal

☐ Waste Removal (Closed-loop systems only)

☒ On-site Closure Method (Only for temporary pits and closed-loop systems)

☒ In-place Burial ☐ On-site Trench Burial

☐ Alternative Closure Method

14.

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

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

15.

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

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

Ground water is less than 25 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☒ No ☐ NA
Ground water is between 25-50 feet below the bottom of the buried waste - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☒ No ☐ NA
Ground water is more than 100 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☒ No ☐ NA
Within 100 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☒ No
Within 300 horizontal feet of a private, domestic fresh water well or spring used for domestic or stock watering purposes, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within 300 feet of a wetland. US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☒ No

Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☒ No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	☐ Yes ☒ No
Within a 100-year floodplain. - FEMA map	☐ Yes ☒ No

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

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

17.
Operator Application Certification:

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

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

Signature: Date: 10-21-13

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:** ~~10/31/2013~~

Title: DISTRICT SUPERVISOR **OCD Permit Number:** 9/18/14

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:** 5/13/2014

20.
Closure Method:

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

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

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

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

22.

Operator Closure Certification:

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

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

Signature: _____ Date: 05/12/2014

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

OCD Form C-144: Supporting Data

Well Name: Miera 2130 #35-1

Location Photo #1

Whiting Petroleum Corporation

Miera 2130 #35-1

T-21-N, R-30E, Section 35 NMPM

Harding County, New Mexico

Surface Hydrology:

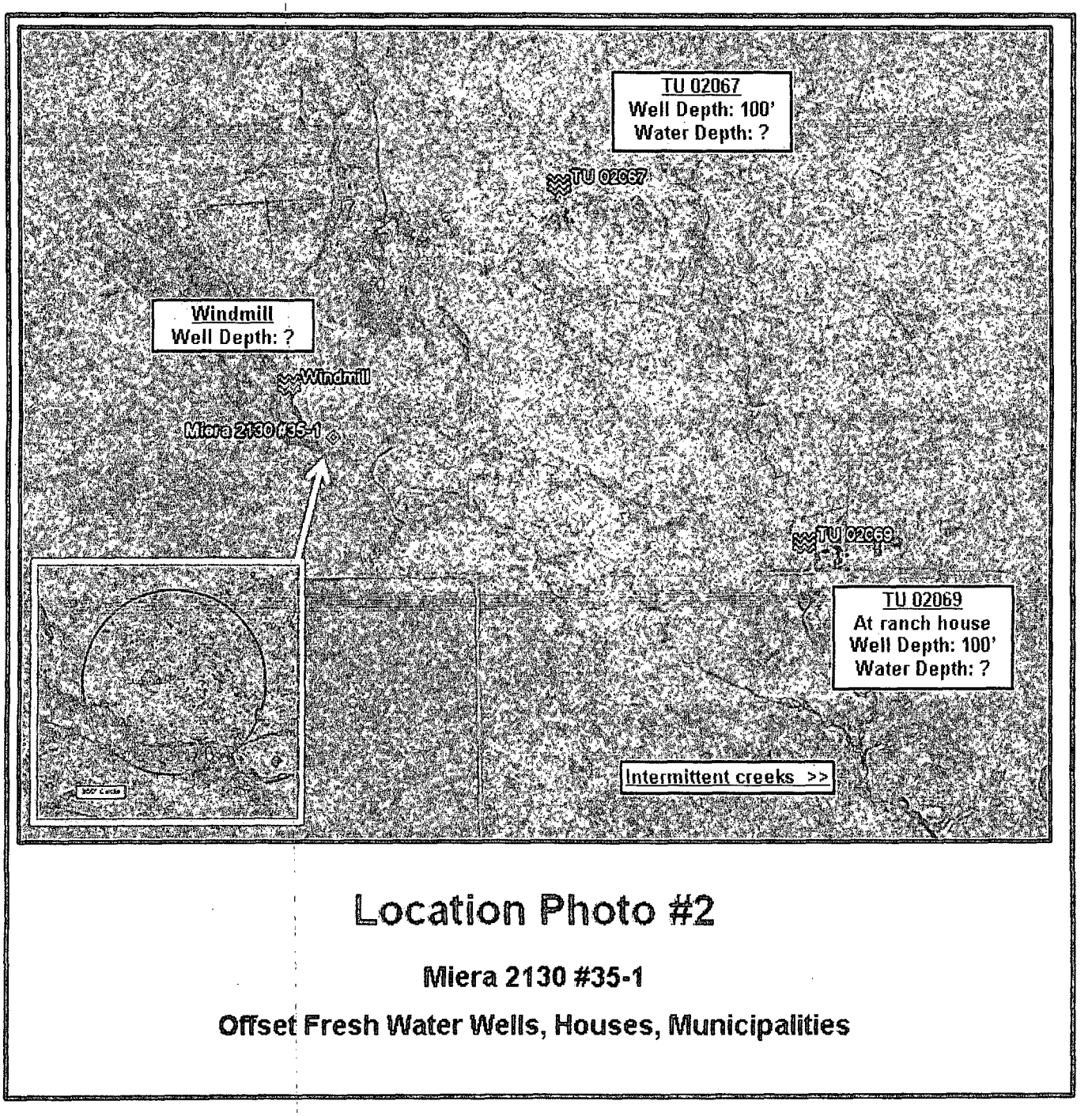
The local surface drainage is controlled by gravel alluvium and a gentle regional dip to the south east. Runoff from the location will flow southeast towards one of several intermittent creeks. Aerial photos indicate that the reserve pit will be greater than 300 feet from any significant waterways or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

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, or 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.



Location Photo #2

Miera 2130 #35-1

Offset Fresh Water Wells, Houses, Municipalities

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. The nearest recorded well, with available water-depth information, is almost 3 miles from the location (see Location Photo I, above). This well identified from OSE records (see Air Photo 1) is listed below. It should be noted that several water wells in the area have a total depth less than 50', but it is unknown if they are active.

Well	Distance/Direction from Proposed Project Area	Depth of Well	Depth to Water
TU 01454	~2.9 miles West (ranch compound)	120'	26'

   Sources:

   New Mexico Office of the State Engineer. 2011. Waters/ NMRRWS data base 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 active watercourses within 300 feet of the proposed pit/system (**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.

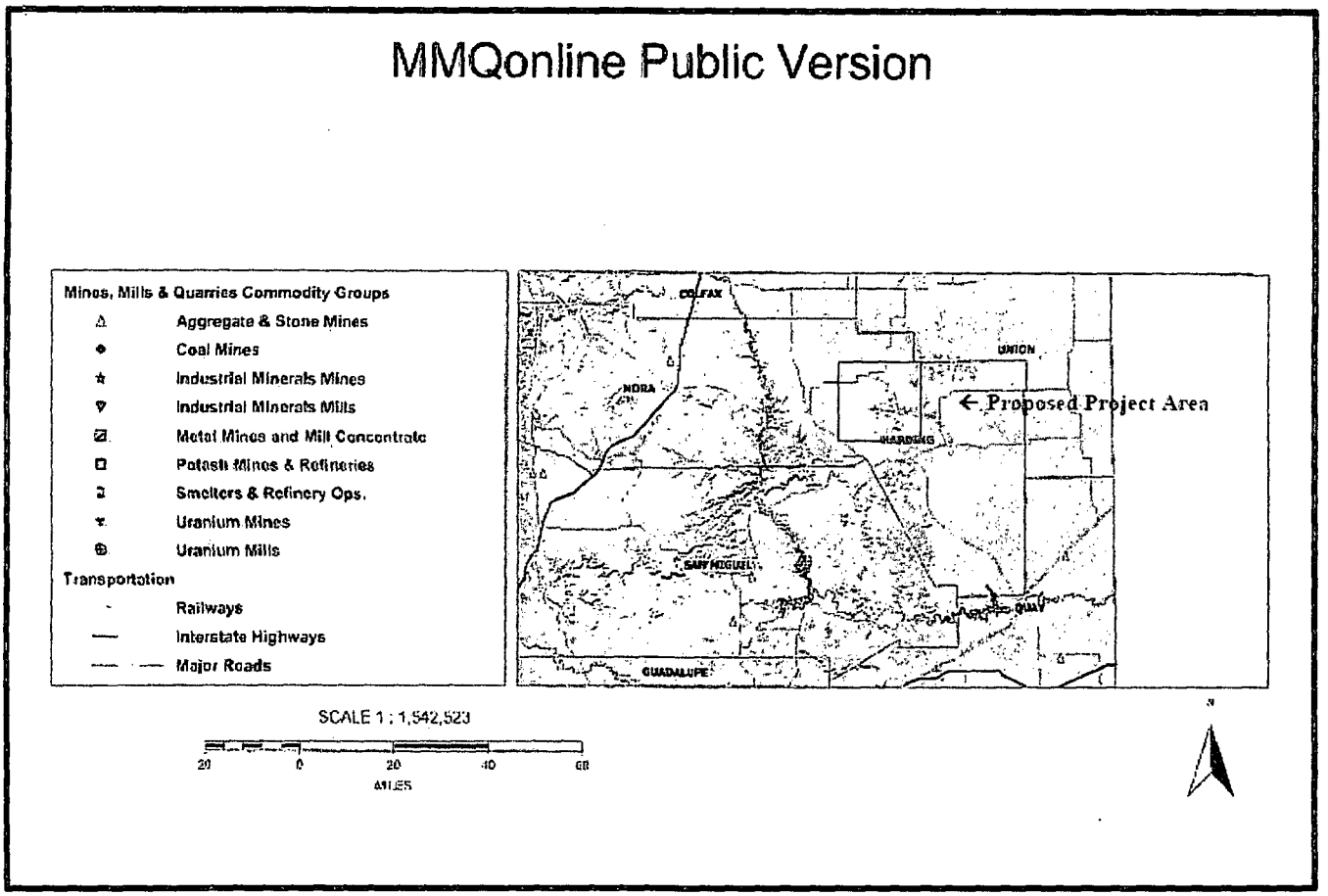
7. Location above subsurface mine (should not overlie a subsurface mine):

   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 top of a flat mesa and any regional flooding will be unprecedented.

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.

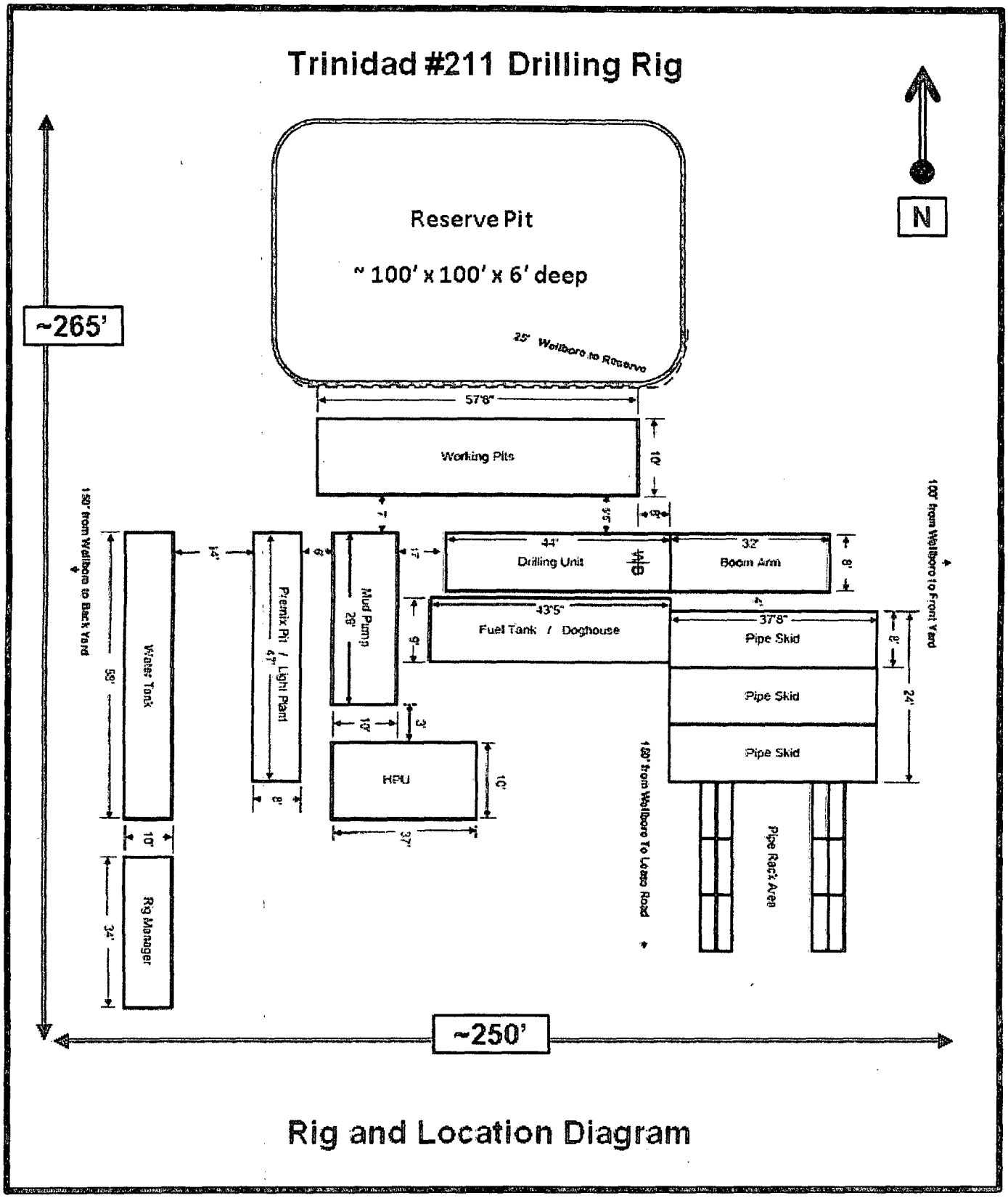
- Qualified personnel will perform field seaming. Liner seams will be minimized, particularly in corners and irregularly shaped areas. Field liner seams will be welded. Factory-welded seams will be used where possible. Prior to field seaming, liners will be overlapped four (4) to six (6) inches and will 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 10,250 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	Meira 2130 #35-1	Liner Type & Thickness	
API#	30 - 021 - _____	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. The following should not be exceeded:

   - **Benzene** (EPA SW-846 method 8021B or 8260B or other approved EPA method): **0.2 mg/kg**
   - **BTEX** (EPA SW-846 method 8021B or 8260B or other approved EPA method): **50 mg/kg**
   - **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): **500 mg/kg.**
   - **Chlorides** (ads determined by EPA method 300.1): **500 mg/kg** or background concentration, whichever is greater

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.

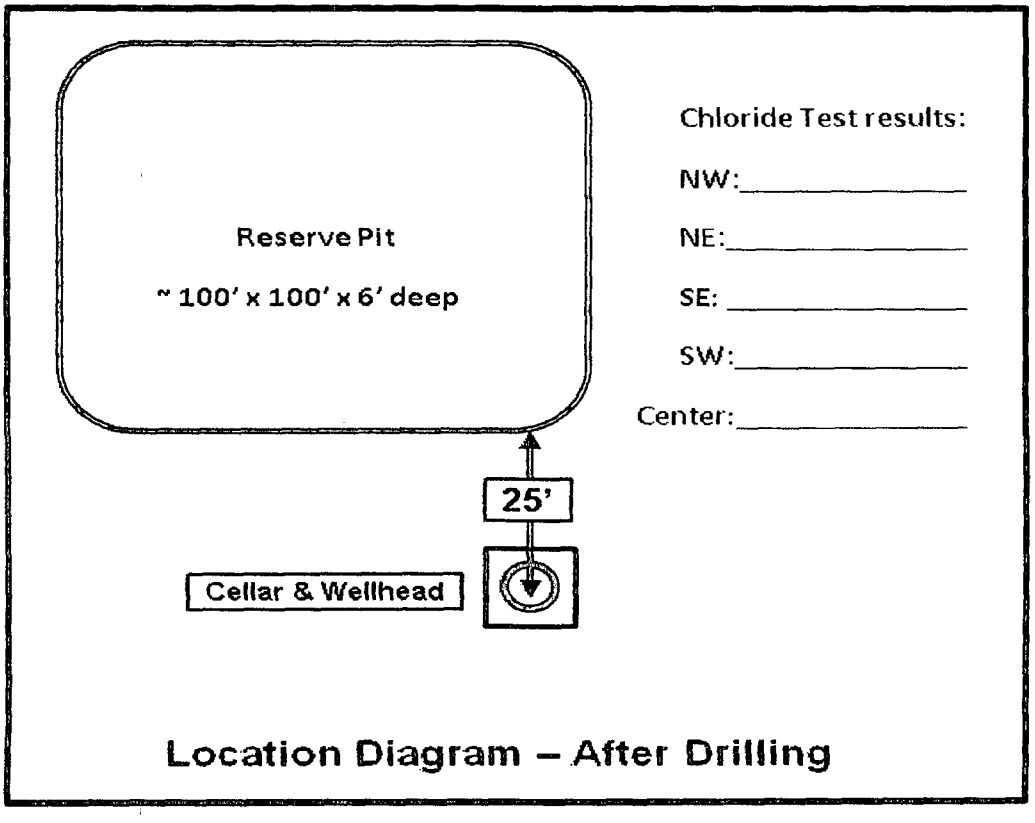
13) Seeding will be accomplished by drilling on the contour whenever practical, or by other division-approved methods. Vegetative cover equaling 70% of the native perennial vegetative cover (un-impacted by overgrazing, fire, or other damaging intrusion) will be obtained. This cover will consist of at 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.



October 18, 2013

Arnold Miera
284 Campbell Road
Bueyeros, New Mexico 88415

RE: Notification to Surface Owner of On-Site Drilling Pit Closure Plan
Well: Miera 2130 Well #35-1
Harding County, NM

Dear Mr. Miera,

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 18th day of October, 2013

Kay Maddox Certified # 7011 3500 0002 4991 1076
Signed: Kay Maddox- Regulatory Supervisor

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 175586

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

1. Operator Name and Address	2. OGRID Number
WHITING OIL AND GAS CORPORATION 400 W. Illinois Midland, TX 79701	25078
	3. API Number 30-021-20589
4. Property Code: 40202	5. Property Name: MIERA 2130
	6. Well No.: 35-1

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
J	35	21N	30E		1875	S	1807	E	Harding

8. Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
J	35	21N	30E	J	1875	S	1807	E	Harding

9. Pool Information

BRAVO DOME CARBON DIOXIDE GAS 640	96010

Additional Well Information

11. Work Type	12. Well Type	13. Cable/Rotary	14. Lease Type	15. Ground Level Elevation
New Well	CO2		Private	4633
16. Multiple	**17. Proposed Depth**	**18. Formation**	**19. Contractor**	**20. Spud Date**
N	2500	Tubb		11/12/2013
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	750	500	0
Prod	7.875	5.5	15.5	2500	350	0

Casing/Cement Program: Additional Comments

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. **I further certify I have complied with 19.15.14.9 (A) NMAC ☒ and/or 19.15.14.9 (B) NMAC ☒, if applicable.** Signature:		OIL CONSERVATION DIVISION	
Printed Name: Electronically filed by Kay Maddox		Approved By: Ed Martin	
Title: Regulatory Agent		Title: District Supervisor	
Email Address: kay.maddox@whiting.com		Approved Date: 10/31/2013	Expiration Date: 10/31/2015
Date: 10/17/2013	Phone: 432-686-6709	Conditions of Approval Attached	

P:\SURVEY\WHITING_PETROLEUM_CORPORATION\MIERA_2130_35_1\FINAL_PRODUCTS\LO_MIERA_2130_35_1.dwg, 10/14/2013 11:40:10 AM

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, and Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Form C-102
Revised October 12, 2005
Submit to Appropriate District Office
State Lease - 4 copies
Fee Lease - 3 copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
	96010	BRAVO DOME CARBON DIOXIDE GAS

[4] Property Code	[5] Property Name	[6] Well Number
	MIERA 2130	#35-1

[7] OGRID No.	[8] Operator Name	[9] Elevation
24078	WHITING Oil and Gas Corporation	4633'

[10] Surface Location

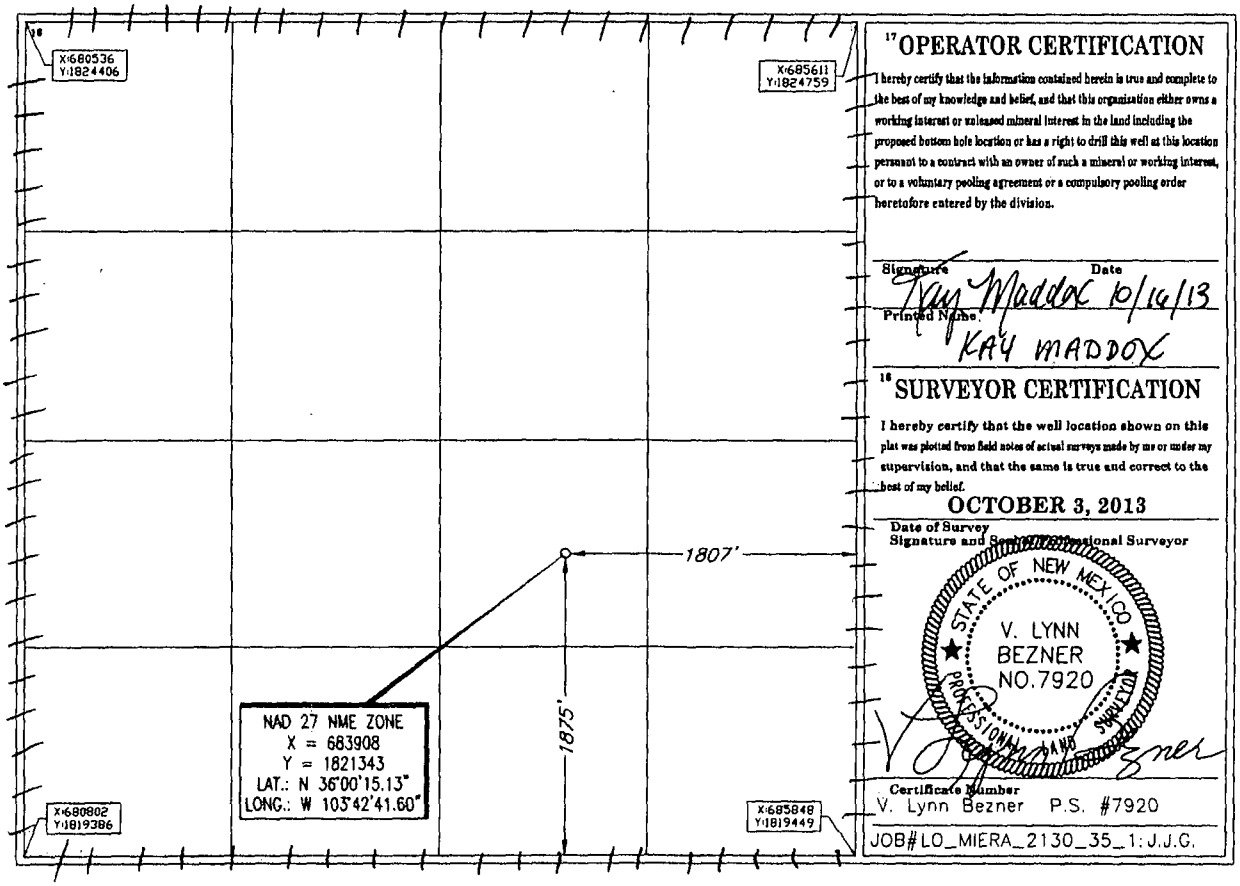
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	35	21 NORTH	30 EAST, N.M.P.M.		1875'	SOUTH	1807'	EAST	HARDING

[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 WELL 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: Kay Maddox Date: 10/16/13

Printed Name: KAY MADDOX

[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.

OCTOBER 3, 2013

Date of Survey

Signature and Seal of Professional Surveyor

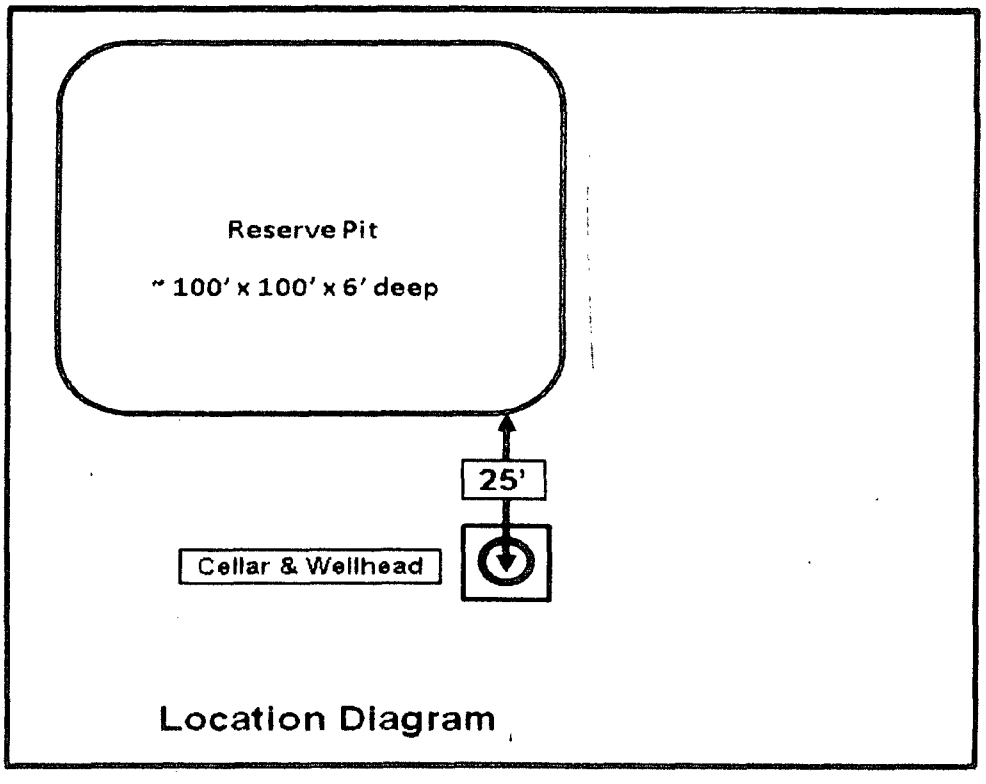
STATE OF NEW MEXICO
V. LYNN BEZNER
NO. 7920
PROFESSIONAL LAND SURVEYOR

Certificate Number V. Lynn Bezner P.S. #7920

JOB# LO_MIERA_2130_35_1: J.J.G.

Plot Plan

Miera 2130 – Well # 35-1
API # 30-021-20589
Section 35, T21N, R30E
Harding County, NM



Submit 1 Copy To Appropriate District Office
District I – (575) 393-6161
1625 N. French Dr., Hobbs, NM 88240
District II – (575) 748-1283
811 S. First St., Artesia, NM 88210
District III – (505) 334-6178
1000 Rio Brazos Rd., Aztec, NM 87410
District IV – (505) 476-3460
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources

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

Form C-103
Revised July 18, 2013

WELL API NO. 30-021-20589

5. Indicate Type of Lease STATE ☐ FEE ☒

6. State Oil & Gas Lease No.

SUNDRY NOTICES AND REPORTS ON WELLS
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

7. Lease Name or Unit Agreement Name
MIERA 2130

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

8. Well Number 35-1

2. Name of Operator
WHITING OIL AND GAS CORPORATION

9. OGRID Number 25078

3. Address of Operator
400 W ILLINOIS STE 1300

10. Pool name or Wildcat
BRAVO DOME CARBON DIOXIDE GAS 640

4. Well Location
Unit Letter J : 1875 feet from the SOUTH line and 1807 feet from the EAST line
Section 35 Township 21N Range 30E NMPM County HARDING

11. Elevation *(Show whether DR, RKB, RT, GR, etc.)*
4633 GR

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☐	PLUG AND ABANDON	☐	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	P AND A	☐
PULL OR ALTER CASING	☐	MULTIPLE COMPL	☐	CASING/CEMENT JOB	☐		
DOWNHOLE COMMINGLE	☐						
CLOSED-LOOP SYSTEM	☐						
OTHER:	☐			OTHER:	☐		

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

12/22/2013 – SPUD WELL
12/23/2013 – RAN 8 5/8" SURFACE CSG J-55, 24# SET @ 708' W/450 SXS CMT, CIRCULATED 42 BBLS CMT TO SURFACE
12/29/2013 – RAN 5 ½" PRODUCTION CSG J-55, 15.5# SET @ 2170' W/350 SXS CMT, DID NOT CIRCULATE CMT
12/29/2013 – RELEASED RIG

RECEIVED OCD
2014 JAN -6 P 4:12

Spud Date: 12/22/2013 Rig Release Date: 12/29/2013

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

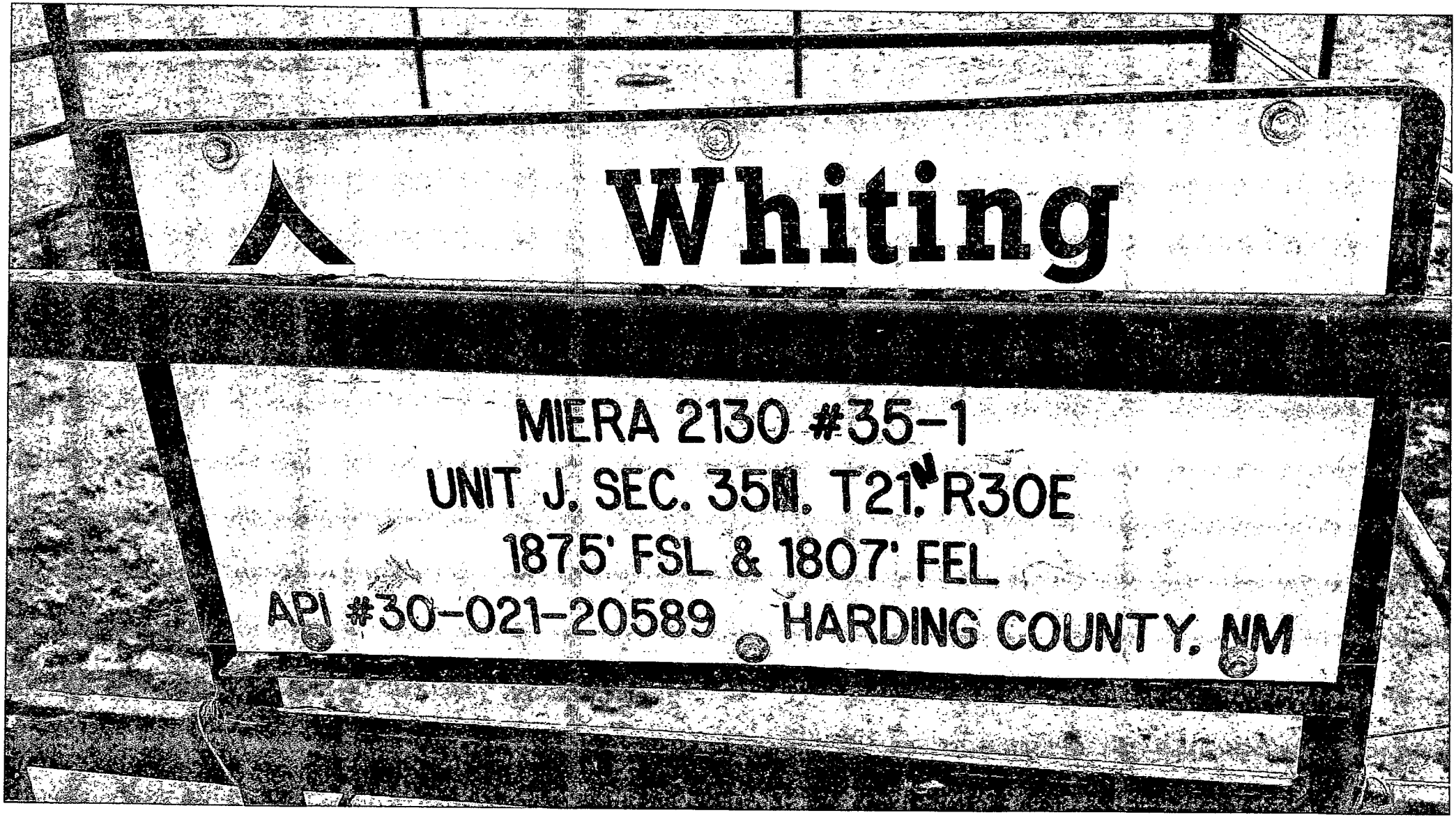
SIGNATURE Kay Maddox TITLE: REGULATORY SUPERVISOR DATE 1/2/2014

Type or print name KAY MADDOX E-mail address: kay.maddox@whiting.com PHONE: 432-686-6709

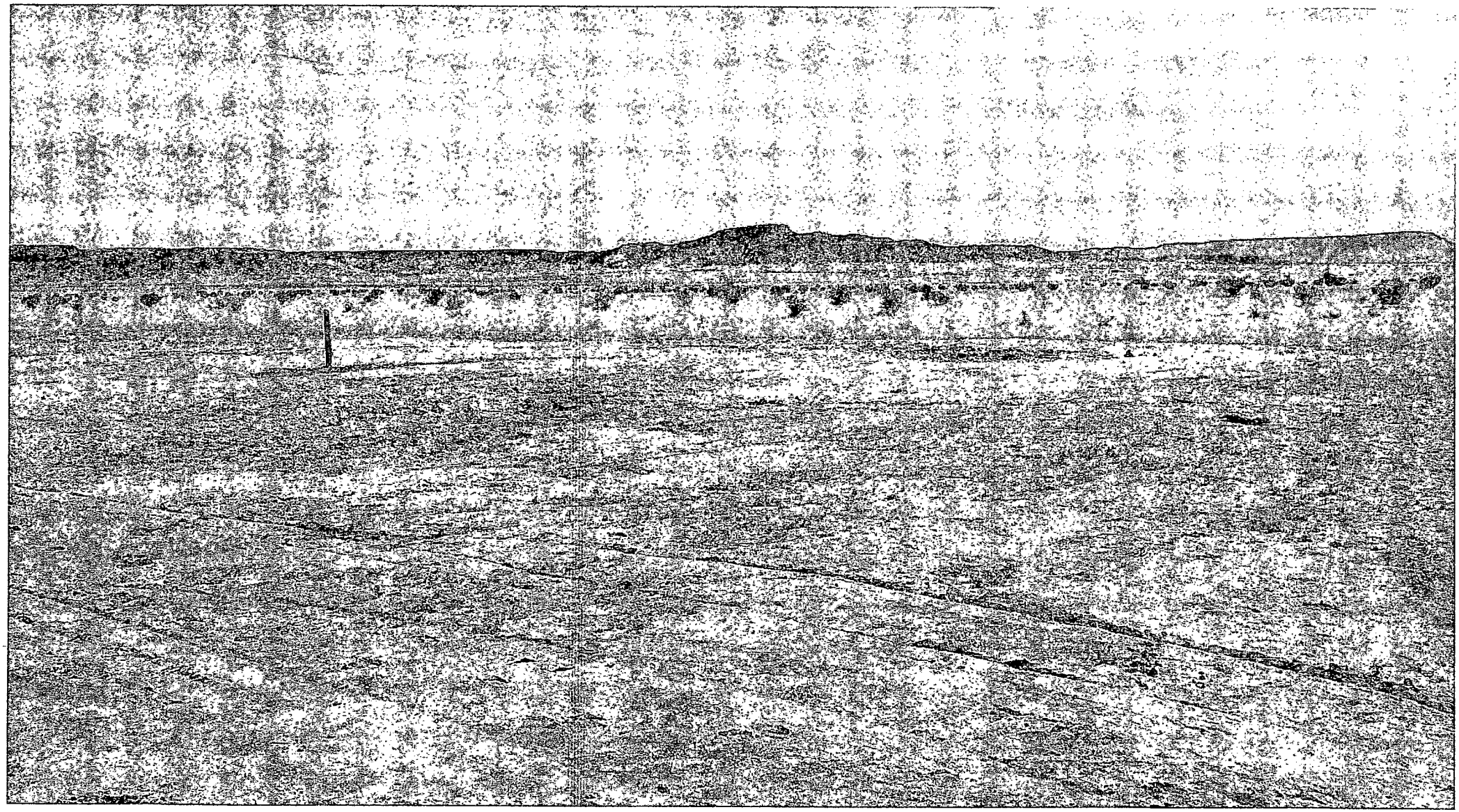
For State Use Only

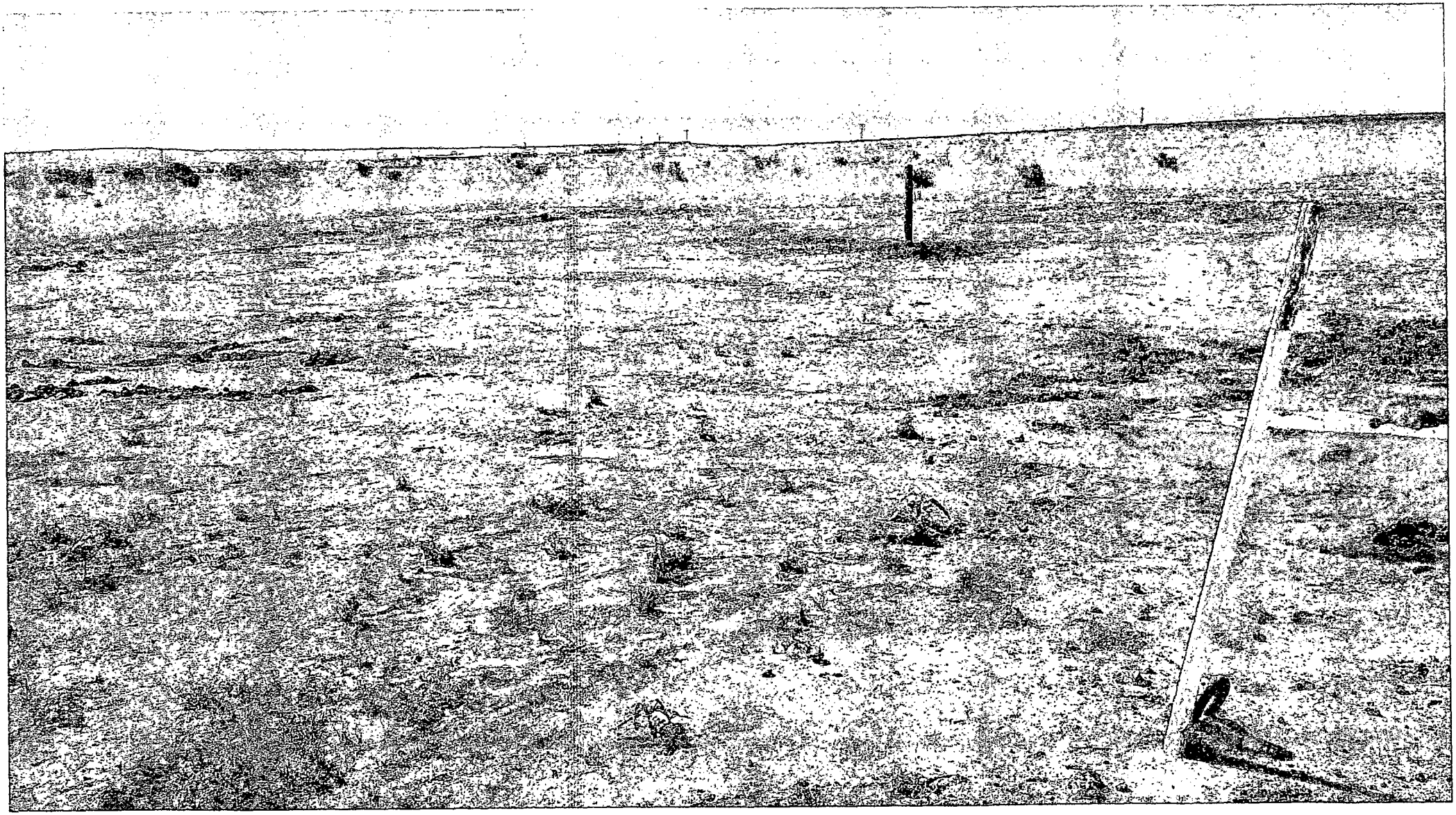
APPROVED BY: Ed Martin TITLE DISTRICT SUPERVISOR DATE 1/8/2014

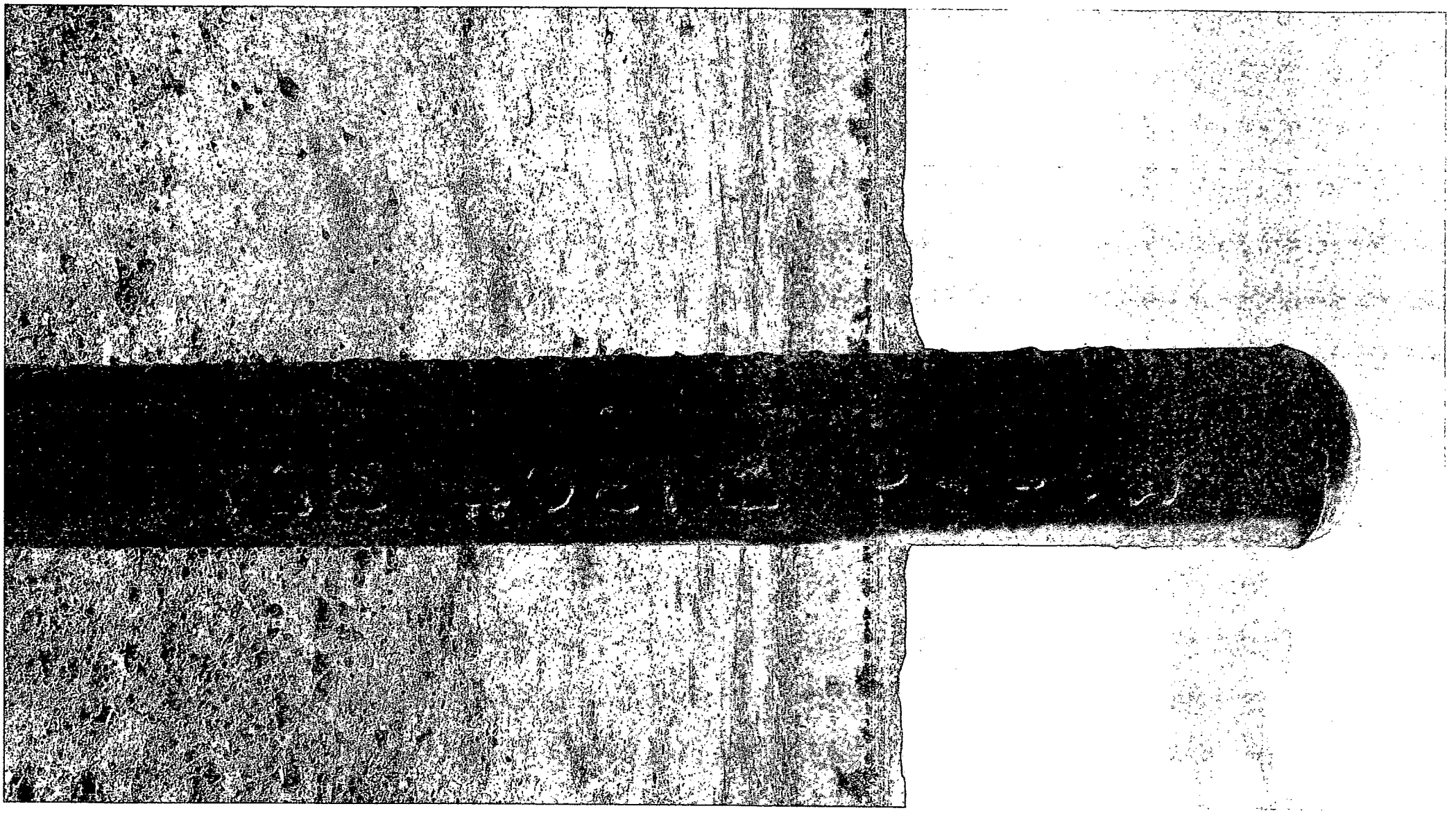
Conditions of Approval (if any):


Whiting
MIERA 2130 #35-1
UNIT J. SEC. 35N. T21N. R30E
1875' FSL & 1807' FEL
API #30-021-20589 HARDING COUNTY, NM


Whiting
MIERA 2130 #35-1
UNIT J, SEC. 35, T21N R30E
1875 FSL & 1807 FEL
API #30-021-20589 HARDING COUNTY, NM







May 1, 2014

Arnold Miera
284 Campbell Road
Bueyeros, New Mexico 88415

RE: Notification to Surface Owner of On-Site Drilling Pit Closure
Miera 2130 Well # 35-1
Harding County, NM

Dear Mr. Miera,

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 beginning May 5, 2014

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 18th day of April, 2014

Kay Maddox
Signed: Kay Maddox- Regulatory Supervisor

7011 3500 0002 4991 1526
Certified Mail Number

STATE OF NEW MEXICO

COUNTY OF HARDING

HARDING COUNTY, NM
RECEPTION# 20706
08/01/2014 12:52:56 PM
BK 19 PAGE 10347
1 of 1
BY CELESTE YBARRA

NOTICE OF PIT CLOSURE

In accordance with Section 19.15.17.13.E.4 of the NMOCD , the operator hereby provides notice of an on-site burial of a temporary Oil & Gas drilling pit. All rules and regulations of Rule 19.15.17 have been adhered to.

Lease name:	MIERA 2130
Well No:	35-1
API No:	30-021-20589
TWN & RGE:	TWN 21N RGE 30E Section 35
Unit Letter:	J
Footages:	1875 FSL & 1807 FEL
Closure Date:	5/13/2014

IN WITNESS WHEREOF, the recordation notice of Pit Closure/burial has been executed on the date indicated below by undersigned.

Whiting Petroleum Corporation
And its wholly owned subsidiary
Whiting Oil & Gas Corporation

Kay Maddox

Kay Maddox – Regulatory Supervisor

STATE OF TEXAS
COUNTY OF MIDLAND

This instrument was acknowledged before me this 17 day of July, 2014, by

Kay Maddox on behalf of Whiting Oil & Gas Corporation.

Ella D. Scurlark

Notary Public

ELLA DENICE SCURLARK
Notary Public, State of Texas
My Commission Expires
September 15, 2015

July 17, 2014

Mr. Cory Smith
New Mexico Oil Conservation Division
1000 Rio Brazos Rd
Aztec, NM 87410

RE: Pit Closures

Dear Mr. Smith,

Whiting Oil & Gas shall re-seed the disturbed Pit area for the well listed below. The re-seeding shall occur in the upcoming rainy season documented for Harding County, New Mexico approximately August/September 2014. As evidenced by the pictures submitted some natural native vegetative growth has already occurred.

Sincerely,

Kay Maddox

Kay Maddox
Regulatory Supervisor

MIERA 2130 Well #35-1
30-021-20589
Harding County, New Mexico

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

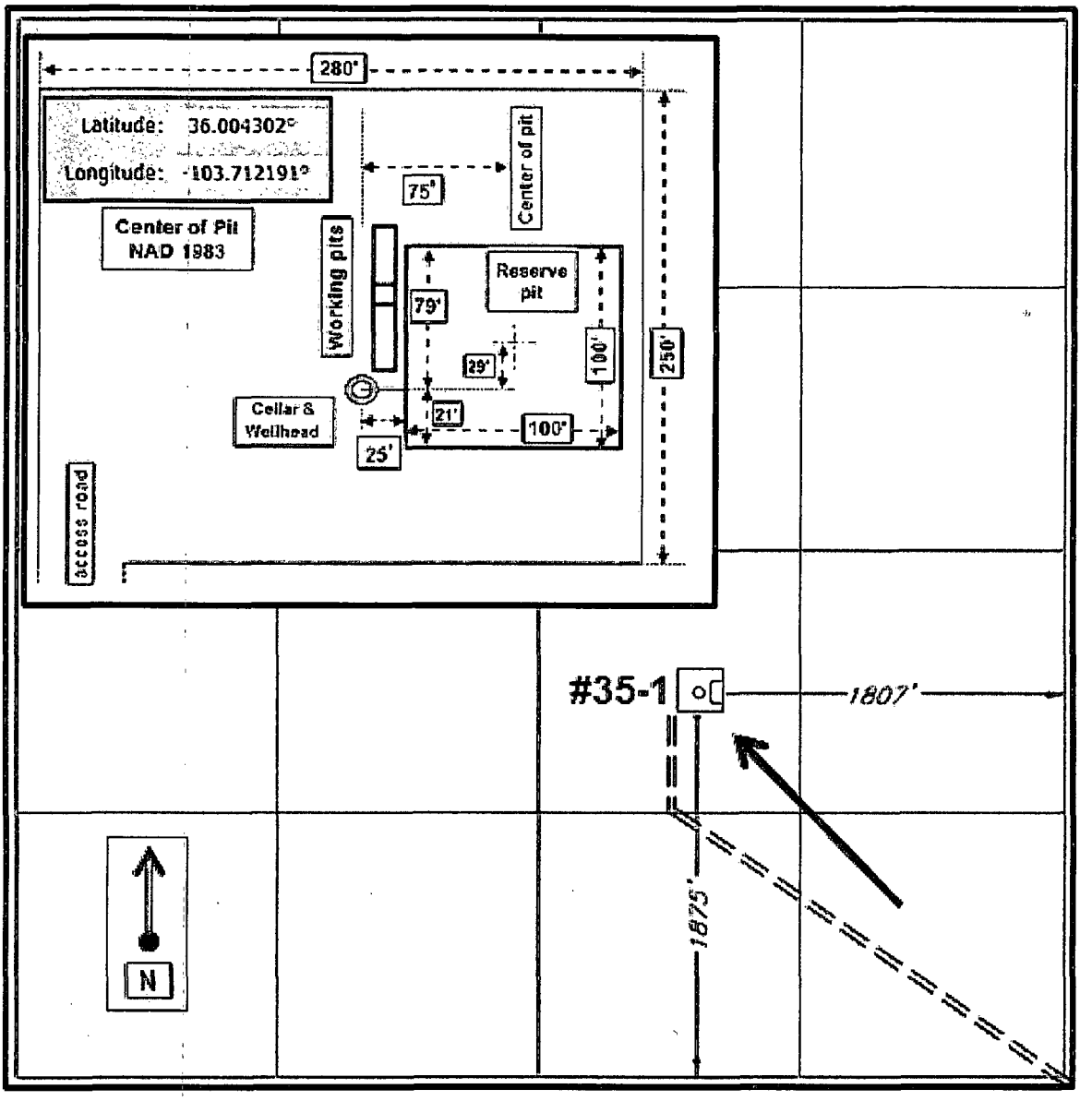
Pit Plot

Whiting Petroleum Corporation

Miera 2130 #35-1

T-21-N, R-30E, Section 35 NMPM

Harding County, New Mexico



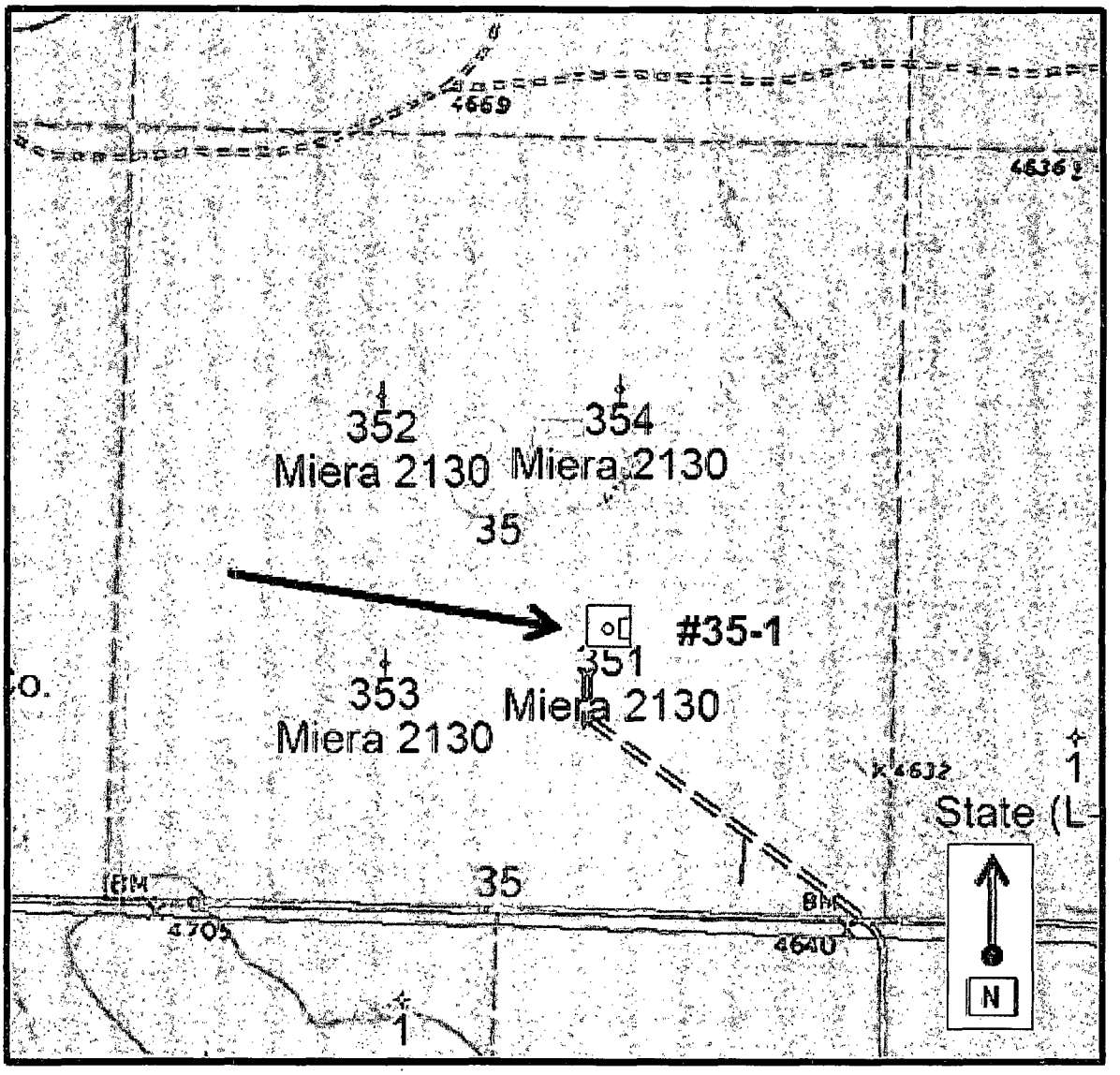
Topo Map

Whiting Petroleum Corporation

Miera 2130 #35-1

T-21-N, R-30E, Section 35 NMPM

Harding County, New Mexico



CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

WHITING OIL & GAS
BRIAN HOLLADAY
400 W. ILLINOIS, SUITE 1300
MIDLAND TX, 79701
Fax To: NONE

Received:	04/23/2014	Sampling Date:	04/22/2014
Reported:	04/30/2014	Sampling Type:	Soil
Project Name:	WEST BRAVO DOME CO2	Sampling Condition:	Cool & Intact
Project Number:	13-1224-03	Sample Received By:	Jodi Henson
Project Location:	HARDING COUNTY, NM		

Sample ID: MIERA 2130 #35-1 (H401230-02) 30-021-20589

BTEX 8260B mg/kg **Analyzed By: ck**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/29/2014	ND	2.35	118	2.00	6.15	
Toluene*	<0.050	0.050	04/29/2014	ND	2.13	106	2.00	8.09	
Ethylbenzene*	<0.050	0.050	04/29/2014	ND	2.03	102	2.00	7.15	
Total Xylenes*	<0.150	0.150	04/29/2014	ND	6.25	104	6.00	8.15	
Total BTEX	<0.300	0.300	04/29/2014	ND					

Surrogate: Dibromofluoromethane	*104 %*	*61.3-142*
Surrogate: Toluene-d8	*103 %*	*71.3-129*
Surrogate: 4-Bromofluorobenzene	*101 %*	*65.7-141*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**16.0**	16.0	04/25/2014	ND	416	104	400	0.00	

TPH 8015M mg/kg **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/25/2014	ND	186	92.9	200	11.1	
DRO >C10-C28	**17.8**	10.0	04/25/2014	ND	207	103	200	12.5	

Surrogate: 1-Chlorooctane	*113 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*114 %*	*63.6-154*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

April 30, 2014

BRIAN HOLLADAY

WHITING OIL & GAS

400 W. ILLINOIS, SUITE 1300

MIDLAND, TX 79701

RE: WEST BRAVO DOME CO2

Enclosed are the results of analyses for samples received by the laboratory on 04/23/14 16:55.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

WHITING OIL & GAS
BRIAN HOLLADAY
400 W. ILLINOIS, SUITE 1300
MIDLAND TX, 79701
Fax To: NONE

Received:	04/23/2014	Sampling Date:	04/22/2014
Reported:	04/30/2014	Sampling Type:	Soil
Project Name:	WEST BRAVO DOME CO2	Sampling Condition:	Cool & Intact
Project Number:	13-1224-03	Sample Received By:	Jodi Henson
Project Location:	HARDING COUNTY, NM		

Sample ID: MAES 2131 #18-1 (H401230-01)

BTEX 8260B mg/kg **Analyzed By: ck**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/29/2014	ND	2.35	118	2.00	6.15	
Toluene*	<0.050	0.050	04/29/2014	ND	2.13	106	2.00	8.09	
Ethylbenzene*	<0.050	0.050	04/29/2014	ND	2.03	102	2.00	7.15	
Total Xylenes*	<0.150	0.150	04/29/2014	ND	6.25	104	6.00	8.15	
Total BTEX	<0.300	0.300	04/29/2014	ND					

Surrogate: Dibromofluoromethane	*101 %*	*61.3-142*
Surrogate: Toluene-d8	*97.5 %*	*71.3-129*
Surrogate: 4-Bromofluorobenzene	*98.8 %*	*65.7-141*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**96.0**	16.0	04/25/2014	ND	416	104	400	0.00	

TPH 8015M mg/kg **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/25/2014	ND	186	92.9	200	11.1	
DRO >C10-C28	<10.0	10.0	04/25/2014	ND	207	103	200	12.5	

Surrogate: 1-Chlorooctane	*123 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*119 %*	*63.6-154*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

WHITING OIL & GAS
BRIAN HOLLADAY
400 W. ILLINOIS, SUITE 1300
MIDLAND TX, 79701
Fax To: NONE

Received:	04/23/2014	Sampling Date:	04/22/2014
Reported:	04/30/2014	Sampling Type:	Soil
Project Name:	WEST BRAVO DOME CO2	Sampling Condition:	Cool & Intact
Project Number:	13-1224-03	Sample Received By:	Jodi Henson
Project Location:	HARDING COUNTY, NM		

Sample ID: MIERA 2130 #35-1 (H401230-02)

BTEX 8260B mg/kg **Analyzed By: ck**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/29/2014	ND	2.35	118	2.00	6.15	
Toluene*	<0.050	0.050	04/29/2014	ND	2.13	106	2.00	8.09	
Ethylbenzene*	<0.050	0.050	04/29/2014	ND	2.03	102	2.00	7.15	
Total Xylenes*	<0.150	0.150	04/29/2014	ND	6.25	104	6.00	8.15	
Total BTEX	<0.300	0.300	04/29/2014	ND					

Surrogate: Dibromofluoromethane	*104 %*	*61.3-142*
Surrogate: Toluene-d8	*103 %*	*71.3-129*
Surrogate: 4-Bromofluorobenzene	*101 %*	*63.7-141*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**16.0**	16.0	04/25/2014	ND	416	104	400	0.00	

TPH 8015M mg/kg **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/25/2014	ND	186	92.9	200	11.1	
DRO >C10-C28	**17.8**	10.0	04/25/2014	ND	207	103	200	12.5	

Surrogate: 1-Chlorooctane	*113 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*114 %*	*63.6-154*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

WHITING OIL & GAS
BRIAN HOLLADAY
400 W. ILLINOIS, SUITE 1300
MIDLAND TX, 79701
Fax To: NONE

Received:	04/23/2014	Sampling Date:	04/22/2014
Reported:	04/30/2014	Sampling Type:	Soil
Project Name:	WEST BRAVO DOME CO2	Sampling Condition:	Cool & Intact
Project Number:	13-1224-03	Sample Received By:	Jodi Henson
Project Location:	HARDING COUNTY, NM		

Sample ID: CASADOS 2030 #12-1 (H401230-03)

BTEX 8260B mg/kg **Analyzed By: ck**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/29/2014	ND	2.35	118	2.00	6.15	
Toluene*	<0.050	0.050	04/29/2014	ND	2.13	106	2.00	8.09	
Ethylbenzene*	<0.050	0.050	04/29/2014	ND	2.03	102	2.00	7.15	
Total Xylenes*	<0.150	0.150	04/29/2014	ND	6.25	104	6.00	8.15	
Total BTEX	<0.300	0.300	04/29/2014	ND					

Surrogate: Dibromofluoromethane	*100 %*	*61.3-142*
Surrogate: Toluene-d8	*101 %*	*71.3-129*
Surrogate: 4-Bromofluorobenzene	*100 %*	*65.7-141*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	04/25/2014	ND	416	104	400	0.00	

TPH 8015M mg/kg **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/25/2014	ND	186	92.9	200	11.1	
DRO >C10-C28	**10.9**	10.0	04/25/2014	ND	207	103	200	12.5	

Surrogate: 1-Chlorooctane	*126 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*124 %*	*63.6-154*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

WHITING OIL & GAS
BRIAN HOLLADAY
400 W. ILLINOIS, SUITE 1300
MIDLAND TX, 79701
Fax To: NONE

Received:	04/23/2014	Sampling Date:	04/22/2014
Reported:	04/30/2014	Sampling Type:	Soil
Project Name:	WEST BRAVO DOME CO2	Sampling Condition:	Cool & Intact
Project Number:	13-1224-03	Sample Received By:	Jodi Henson
Project Location:	HARDING COUNTY, NM		

Sample ID: FOUR WAY 2031 #4-1 (H401230-04)

BTEX 8260B mg/kg **Analyzed By: ck**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/29/2014	ND	2.35	118	2.00	6.15	
Toluene*	<0.050	0.050	04/29/2014	ND	2.13	106	2.00	8.09	
Ethylbenzene*	<0.050	0.050	04/29/2014	ND	2.03	102	2.00	7.15	
Total Xylenes*	<0.150	0.150	04/29/2014	ND	6.25	104	6.00	8.15	
Total BTEX	<0.300	0.300	04/29/2014	ND					

Surrogate: Dibromofluoromethane	*101 %*	*61.3-142*
Surrogate: Toluene-d8	*99.0 %*	*71.3-129*
Surrogate: 4-Bromofluorobenzene	*104 %*	*65.7-141*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**176**	16.0	04/25/2014	ND	416	104	400	0.00	

TPH 8015M mg/kg **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/25/2014	ND	186	92.9	200	11.1	
DRO >C10-C28	<10.0	10.0	04/25/2014	ND	207	103	200	12.5	

Surrogate: 1-Chlorooctane	*107 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*106 %*	*63.6-154*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

WHITING OIL & GAS
BRIAN HOLLADAY
400 W. ILLINOIS, SUITE 1300
MIDLAND TX, 79701
Fax To: NONE

Received:	04/23/2014	Sampling Date:	04/22/2014
Reported:	04/30/2014	Sampling Type:	Soil
Project Name:	WEST BRAVO DOME CO2	Sampling Condition:	Cool & Intact
Project Number:	13-1224-03	Sample Received By:	Jodi Henson
Project Location:	HARDING COUNTY, NM		

Sample ID: STATE 2229 #36-1 (H401230-05)

BTEX 8260B mg/kg **Analyzed By: ck**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/29/2014	ND	2.35	118	2.00	6.15	
Toluene*	<0.050	0.050	04/29/2014	ND	2.13	106	2.00	8.09	
Ethylbenzene*	<0.050	0.050	04/29/2014	ND	2.03	102	2.00	7.15	
Total Xylenes*	<0.150	0.150	04/29/2014	ND	6.25	104	6.00	8.15	
Total BTEX	<0.300	0.300	04/29/2014	ND					

Surrogate: Dibromofluoromethane	*97.4 %*	*61.3-142*
Surrogate: Toluene-d8	*101 %*	*71.3-129*
Surrogate: 4-Bromofluorobenzene	*104 %*	*65.7-141*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	04/25/2014	ND	416	104	400	0.00	

TPH 8015M mg/kg **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/25/2014	ND	186	92.9	200	11.1	
DRO >C10-C28	**15.7**	10.0	04/25/2014	ND	207	103	200	12.5	

Surrogate: 1-Chlorooctane	*113 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*112 %*	*63.6-154*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

WHITING OIL & GAS
BRIAN HOLLADAY
400 W. ILLINOIS, SUITE 1300
MIDLAND TX, 79701
Fax To: NONE

Received:	04/23/2014	Sampling Date:	04/22/2014
Reported:	04/30/2014	Sampling Type:	Soil
Project Name:	WEST BRAVO DOME CO2	Sampling Condition:	Cool & Intact
Project Number:	13-1224-03	Sample Received By:	Jodi Henson
Project Location:	HARDING COUNTY, NM		

Sample ID: DOROTEO 1927 #15-1 (H401230-06)

BTEX 8260B mg/kg **Analyzed By: ck**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/30/2014	ND	2.35	118	2.00	6.15	
Toluene*	<0.050	0.050	04/30/2014	ND	2.13	106	2.00	8.09	
Ethylbenzene*	<0.050	0.050	04/30/2014	ND	2.03	102	2.00	7.15	
Total Xylenes*	<0.150	0.150	04/30/2014	ND	6.25	104	6.00	8.15	
Total BTEX	<0.300	0.300	04/30/2014	ND					

Surrogate: Dibromofluoromethane	*102 %*	*61.3-142*
Surrogate: Toluene-d8	*104 %*	*71.3-129*
Surrogate: 4-Bromofluorobenzene	*106 %*	*65.7-141*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**240**	16.0	04/25/2014	ND	416	104	400	0.00	

TPH 8015M mg/kg **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/25/2014	ND	186	92.9	200	11.1	
DRO >C10-C28	**92.1**	10.0	04/25/2014	ND	207	103	200	12.5	

Surrogate: 1-Chlorooctane	*110 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*113 %*	*63.6-154*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

WHITING OIL & GAS
BRIAN HOLLADAY
400 W. ILLINOIS, SUITE 1300
MIDLAND TX, 79701
Fax To: NONE

Received:	04/23/2014	Sampling Date:	04/22/2014
Reported:	04/30/2014	Sampling Type:	Soil
Project Name:	WEST BRAVO DOME CO2	Sampling Condition:	Cool & Intact
Project Number:	13-1224-03	Sample Received By:	Jodi Henson
Project Location:	HARDING COUNTY, NM		

Sample ID: LADD 1928 #17-1 (H401230-07)

BTEX 8260B mg/kg **Analyzed By: ck**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/30/2014	ND	2.35	118	2.00	6.15	
Toluene*	<0.050	0.050	04/30/2014	ND	2.13	106	2.00	8.09	
Ethylbenzene*	<0.050	0.050	04/30/2014	ND	2.03	102	2.00	7.15	
Total Xylenes*	<0.150	0.150	04/30/2014	ND	6.25	104	6.00	8.15	
Total BTEX	<0.300	0.300	04/30/2014	ND					

Surrogate: Dibromofluoromethane	*99.2 %*	*61.3-142*
Surrogate: Toluene-d8	*98.0 %*	*71.3-129*
Surrogate: 4-Bromofluorobenzene	*115 %*	*65.7-141*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**64.0**	16.0	04/25/2014	ND	416	104	400	0.00	

TPH 8015M mg/kg **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/25/2014	ND	186	92.9	200	11.1	
DRO >C10-C28	**16.9**	10.0	04/25/2014	ND	207	103	200	12.5	

Surrogate: 1-Chlorooctane	*104 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*101 %*	*63.6-154*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

WHITING OIL & GAS
BRIAN HOLLADAY
400 W. ILLINOIS, SUITE 1300
MIDLAND TX, 79701
Fax To: NONE

Received:	04/23/2014	Sampling Date:	04/22/2014
Reported:	04/30/2014	Sampling Type:	Soil
Project Name:	WEST BRAVO DOME CO2	Sampling Condition:	Cool & Intact
Project Number:	13-1224-03	Sample Received By:	Jodi Henson
Project Location:	HARDING COUNTY, NM		

Sample ID: LEWIS 1928 #2-1 (H401230-08)

BTEX 8260B mg/kg Analyzed By: ck

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/30/2014	ND	2.35	118	2.00	6.15	
Toluene*	<0.050	0.050	04/30/2014	ND	2.13	106	2.00	8.09	
Ethylbenzene*	<0.050	0.050	04/30/2014	ND	2.03	102	2.00	7.15	
Total Xylenes*	<0.150	0.150	04/30/2014	ND	6.25	104	6.00	8.15	
Total BTEX	<0.300	0.300	04/30/2014	ND					

Surrogate: Dibromofluoromethane	*103 %*	*61.3-142*
Surrogate: Toluene-d8	*97.4 %*	*71.3-129*
Surrogate: 4-Bromofluorobenzene	*102 %*	*65.7-141*

Chloride, SM4500Cl-B mg/kg Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**848**	16.0	04/25/2014	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/25/2014	ND	186	92.9	200	11.1	
DRO >C10-C28	<10.0	10.0	04/25/2014	ND	207	103	200	12.5	

Surrogate: 1-Chlorooctane	*97.4 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*94.8 %*	*63.6-154*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

WHITING OIL & GAS
BRIAN HOLLADAY
400 W. ILLINOIS, SUITE 1300
MIDLAND TX, 79701
Fax To: NONE

Received:	04/23/2014	Sampling Date:	04/22/2014
Reported:	04/30/2014	Sampling Type:	Soil
Project Name:	WEST BRAVO DOME CO2	Sampling Condition:	Cool & Intact
Project Number:	13-1224-03	Sample Received By:	Jodi Henson
Project Location:	HARDING COUNTY, NM		

Sample ID: HAZEN 1928 #24-1 (H401230-09)

BTEX 8260B mg/kg **Analyzed By: ck**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.100	0.100	04/29/2014	ND	2.35	118	2.00	6.15	
Toluene*	<0.050	0.050	04/29/2014	ND	2.13	106	2.00	8.09	
Ethylbenzene*	<0.050	0.050	04/29/2014	ND	2.03	102	2.00	7.15	
Total Xylenes*	<0.150	0.150	04/29/2014	ND	6.25	104	6.00	8.15	
Total BTEX	<0.300	0.300	04/29/2014	ND					

Surrogate: Dibromofluoromethane	*104 %*	*61.3-142*
Surrogate: Toluene-d8	*97.8 %*	*71.3-129*
Surrogate: 4-Bromofluorobenzene	*108 %*	*65.7-141*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**48.0**	16.0	04/25/2014	ND	416	104	400	0.00	

TPH 8015M mg/kg **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/25/2014	ND	186	92.9	200	11.1	
DRO >C10-C28	**21.5**	10.0	04/25/2014	ND	207	103	200	12.5	

Surrogate: 1-Chlorooctane	*112 %*	*65.2-140*
Surrogate: 1-Chlorooctadecane	*109 %*	*63.6-154*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name: Whiting Oil & Gas	BILL TO
Project Manager: Brian Holladay	P.O. #: 13-1224-03
Address: 400 W. Illionis Suite 1300	Company: Whiting oil & gas
City: Midland State: TX Zip: 79701	Attn: Gary Bullock
Phone #: 806-231-1758 Fax #:	Address: 400 W Illinois Suite 1300
Project #: ~~West Bravo Dome~~ Project Owner:	City: Midland
Project Name: West Bravo Dome Co^2	State: TX Zip: 79701
Project Location: Harding county, NM	Phone #:
Sampler Name: Brian Holladay	Fax #:

FOR LAB USE ONLY				MATRIX							PRESERV.			SAMPLING		ANALYSIS REQUEST		
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME	TPH 8015	BTEX	Cl-
H401230																	
1	Maes 2131 #18-1												4/22	11:14	✓	✓	✓
2	Miera 2130 # 35-1												4/22	11:25	✓	✓	✓
3	Casados 2030 # 12-1												4/22	11:39	✓	✓	✓
4	Four Way 2031 #4-1												4/22	11:56	✓	✓	✓
5	State 2229 #36-1												4/22	2:15	✓	✓	✓
6	Doroteo 1927 #15-1												4/22	3:15	✓	✓	✓
7	Ladd 1928 #17-1												4/22	3:27	✓	✓	✓
8	Lewis 1928 #2-1												4/22	3:40	✓	✓	✓
9	Hazen 1928 #24-1												4/22	4:10	✓	✓	✓

Relinquished By: Brian Holladay	Date: 4/23 Time: 4:55	Received By: Addi Henson	Phone Result: ☐ Yes ☐ No Add'l Phone #:
Relinquished By:	Date: Time:	Received By:	Fax Result: ☐ Yes ☐ No Add'l Fax #:
			REMARKS: brian.holladay@live.com

Delivered By: (Circle One) Sampler - UPS - Bus - Other: 5.6°C

Sample Condition: Cool ☐ Yes ☐ No; Intact ☑ Yes ☐ No

CHECKED BY: (Initials)

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

454