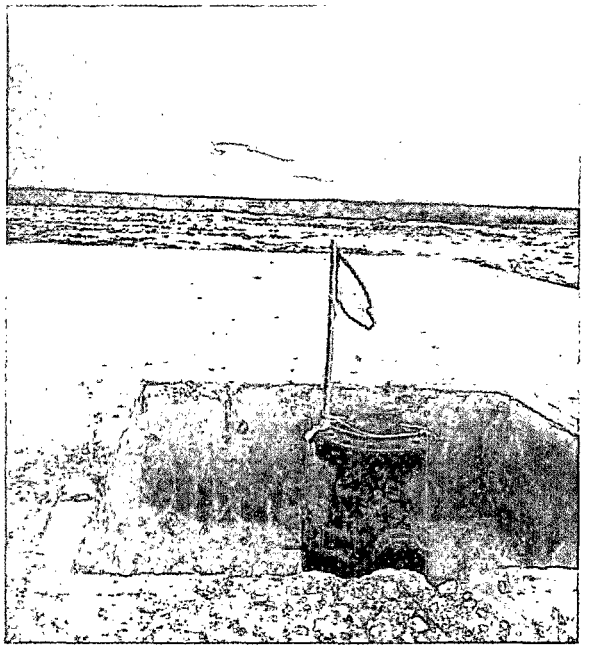
30-025-29990 HOBBS OCD October 2013

C-144 Permit Package for Merchant State Unit #1 Temporary Pit Section 35 T21S R33E Lea County NM

OCT 11 2013

RECEIVED



Location flag of Merchant State Unit 1 taken during field inspection. Pit will be employed for re-entry.

Prepared for
Amtex Energy, Inc.
Midland, Texas

Prepared by
R.T. Hicks Consultants, Ltd.
Albuquerque, New Mexico

R. T. HICKS CONSULTANTS, LTD.

901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266-0745

October 8, 2013

Mr. Geoffrey Leking
NMOCD District
1625 French Drive
Hobbs, NM 88240
Via E-Mail and US Mail

RE: Amtex Energy, Merchant State Unit #1

Dear Geoff:

On behalf of Amtex Energy, R.T. Hicks Consultants submits the attached C-144 application for the above-referenced well.

1. The generic plans were approved by OCD
2. We anticipate "in place" burial of stabilized solids.
3. This letter and application is copied to the State Land Office to notify the surface landowner of the operator's intent to use on-site burial
4. We certify that we conducted a site inspection to examine the conditions on the ground with respect to the siting criteria.

The footprint of the proposed pit for the re-entry overlies the footprint of the pit used to drill the original well. Thus, some of the material excavated for the new pit will be cuttings and residual mud from the original pit. This material will be segregated from clean material excavated from the eastern portion of the proposed pit. We plan to use the dry mud/cuttings for stabilization of the wet cuttings. This mixture of old and new cuttings/mud will be buried in-place in accordance with the Pit Rule. Because the new cuttings will contain little salt, the mixture of old and new cuttings should meet the burial standards for >100 feet to groundwater.

If you have any questions or concerns regarding this application, please contact me. As always, we appreciate your work ethic and attention to detail.

Sincerely,
R.T. Hicks Consultants

Randall Hicks
Principal

Copy: Amtex Energy
NM State Land Office, Terry Warnell

C-144 and Site Specific Information for Temporary Pit

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

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: Amtex Energy, Inc. OGRID #: 000785
Address: PO Box 3418 Midland, Texas 79702
Facility or well name: Merchant State Unit #1
API Number: 30-025-29991 OCD Permit Number: PI-06540
U/L or Qtr/Qtr I Section 35 Township 21S Range 33E County: Lea
Center of Proposed Design: Latitude 32.4342457° N Longitude -103.5373810° W 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: 19,582 bbl Dimensions: L 70 x W 275 x D 8 ft (drilling) 12 ft (fluids cell)

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.

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 ☒ 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 **See Figures 1&2** — ☐ 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) See Figure 5** — ☐ Yes ☒ No

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

Within the area overlying a subsurface mine. **(Does not apply to below grade tanks) See Figure 7** — ☐ Yes ☒ No

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

Within an unstable area. **(Does not apply to below grade tanks) See Figure 8** — ☐ Yes ☒ No

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

Within a 100-year floodplain. **(Does not apply to below grade tanks) See Figure 9** — ☐ Yes ☒ No

- FEMA map

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). — ☐ Yes ☐ No

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

Within 200 horizontal feet of a spring or a fresh water well used for public or livestock consumption;. — ☐ Yes ☐ No

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

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.) — ☐ Yes ☐ No

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

Within 300 feet from a occupied permanent residence, school, hospital, institution, or church in existence at the time of initial application. — ☐ Yes ☐ No

- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image

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. — ☐ Yes ☐ No

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

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

☐ Yes ☐ No

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). **See Figure 3**
- Topographic map; Visual inspection (certification) of the proposed site

Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. ☐ Yes ☒ No
- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image. **See Figure 4**

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; ☐ Yes ☒ No
- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

See Figure 2

Within 300 feet of a wetland. **See Figure 6** ☐ Yes ☒ No
- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site

Permanent Pit or Multi-Well Fluid Management Pit

☐ Yes ☒ No

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

Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. ☐ Yes ☐ No
- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image

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. ☐ Yes ☐ No
- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

Within 500 feet of a wetland. ☐ Yes ☐ No
- 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 ☐ Multi-well Fluid Management Pit ☐ 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
Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ 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): William J. Savage Title: President

Signature: William J. Savage Date: October 8, 2013

e-mail address: bsavage@amtexenergy.com Telephone: (432) 770-0913

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

OCD Representative Signature: Geoffrey Leking **Approval Date:** 10/23/13

Title: Environmental Specialist **OCD Permit Number:** P1-06540

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

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): _____ Title: _____

Signature: _____ Date: _____

e-mail address: _____ Telephone: _____

Distance to Groundwater

Figure 1, Figure 2, and the discussion presented below demonstrates that groundwater (fresh water as defined by NMOCD Rules) at the location is greater than 100 feet beneath the temporary pit.

Figure 1 is an area geologic base map that depicts regional topography and piezometric contours of the uppermost aquifer based upon measurement data obtained by the USGS. These water wells provide reliable depth to water measurement. Figure 1 also shows:

1. The location of the temporary pit as an orange square.
2. Water wells from the USGS database as large red triangles.
3. The groundwater elevation from the most recent available measurement for each well is provided adjacent to the well symbol.
4. Our interpretation of the 3500 and 3600 (feet above sea level) elevation contours of the potentiometric surface.

The ground surface elevation of the location is 3661.4 and the elevation of groundwater at the site is about 3500. Because the bottom of the pit will be about 12-feet deep, the distance to groundwater will be about (3649-3500 =) 149 feet.

Figure 2 is an area topographic map (metric units) that includes all of the water wells for which information is available, regardless of depth to water measurements. It also shows:

1. The location of the temporary pit as an orange square.
2. USGS water wells with the same symbols as those shown in Figure 1 and the date of the most recent depth-to-water measurement.
3. Water wells from the New Mexico Office of the State Engineer (OSE) database are shown as a blue triangle inside colored circles that indicate well depth. Depth to water (drillers log) and completion dates are not shown for these wells because OSE wells are often miss-located in the WATERS database as older wells are plotted in the center of the quarter, quarter, quarter, of the Section Township and Range and depth to water estimates are typically provided by driller's logs.
4. Water wells from other public databases, such as Open File Report 95, are shown as squares. Because water level measurements in OF-95 are pre-1971, we did not include these data as the USGS data are more recent.

Geology

The proposed temporary pit is located on an outcrop of Quaternary Age eolian and piedmont deposits (Qe/Qp on Figure 1). These fine-grained sands and clays, along with the Quaternary piedmont deposits (Qp on Figure 1), are present as a thin covering of the underlying Tertiary (eroded) or Triassic age rocks or the Ogallala Formation. The Ogallala consists primarily of sand with some clay, silt and gravel, generally capped by caliche. Based on information from GWR-6 (1961), the base of the Ogallala Formation is approximately 3500 feet above sea level and overlies a hard red-bed layer of the upper Triassic. Given an estimated groundwater elevation of 3500, the saturated thickness of the Ogallala is very thin or non-existent.

Topographically, the site is a located on the northeast slope the San Simon Swale, a broad (4-mile wide) northwest to southeast trending valley that is bordered on the north by Grama Ridge. As shown on Figure 3, the location is on a small hill that is about 90 feet higher than the drainage to the southeast.

Water Table Elevation

Fourteen USGS water wells were identified in the area surrounding the Merchant State Unit 1 site, all of which appear to provide water table elevation data (see Figures 1 and 2). A summary of this water well data, with respect to groundwater elevation, is provided on the table below. Note that the US Government Shutdown prevented our finding total depth data for some USGS wells listed below. Data on additional wells shown on Figures 1 and 2 are presented in Appendix B.

Summary of Groundwater Data

	Well Location			Well Source Information							Groundwater Elevation Data					
Well Numbers (see Map)	Township (south)	Range (east)	Section	NM-OSE Database	USGS Database	Open File Rpt. 95	USGS Topo Sheet	Aerial Photograph	Field Verification	Surface Elevation (published)	Surface Elevation (Topo Sheet)	Well Total Depth (published)	Depth to Water (published)	Groundwater Elev. (published)	Groundwater Elev. (using topo elev.)	Gauging Date
USGS-773	20	34	34		✓		✓			3774	3774		82	3692	3692	2/2/1996
USGS-772	20	35	33		✓		✓			3699	3699		89.2	3610	3610	2/2/1996
USGS-763	21	33	2		✓		✓			3768	3768		87.5	3681	3681	2/22/1996
USGS-758	21	33	11		✓		✓			3820	3812		142.4	3678	3669.6	2/22/1996
USGS-719	21	33	18		✓	✓	✓	--	--	3,855	3,855	123	115.75	3,739	3,739	2/20/1996
USGS-684	21	33	28		✓	✓	✓	--	--	3,688	3,688	224	178.85	3,509	3,509	2/21/1996
USGS-765	21	34	5		✓		✓			3708	3708		91.1	3617	3617	3/13/1996
USGS-731	21	34	8	✓	✓		✓			3705	3705		101.3	3604	3604	2/13/1996
USGS-680	21	34	28		✓	✓		✓		3728	3728		136.6	3591	3591	3/13/1996
USGS-662	21	34	33		✓		✓			3641	3641		62.2	3578	3578	2/16/1996
USGS-626	22	32	14	✓	✓		✓	✓	--	3,717	3,718	435	382.65	3,334	3,335	2/20/1996
USGS-536	22	33	12		✓					3,531		325	3206			3/13/1996
USGS-629	22	33	13		✓	✓	✓	--	--	3,514	3,515	508	391.13	3,123	3,124	2/20/1996
USGS-646	22	34	8		✓		✓	--	--	3,578	3,573	35	30.8	3,547	3,542	2/16/1996

Initially, an attempt was made to identify each well using USGS topographic maps. The surface elevation of each well identified on the topographic maps was compared to the published surface elevation, if available. Wells that could not be verified using maps were searched for using current and historic satellite photographs in an effort to identify windmills, tanks, or roads associated with the well. All but one of the water well locations for this project were verified by maps or photographs. The following comments should be noted from the figures and table:

- USGS Well 536 did not appear on topographic maps or aerial photography. The surface elevation data in the USGS database correlate to the elevation data on the topographic map. The groundwater elevation data and depth to water data are consistent with nearby wells with verified locations.

No attempts were made to gauge any of the water wells as the critical wells, located nearest to the site, were measured by the USGS on several occasions.

Hydrogeology

GWR-6 indicates that Ogallala groundwater is not present as a regional aquifer within the topographic valley surrounding the Merchant State Unit #1 site. Wells in this area are designated by GWR-6 as producing from the much deeper Triassic aquifer. Based upon our work at the nearby Amtex wells (e.g. Coop 6 State 1H), we believe the Ogallala Formation is not a viable aquifer at the Merchant State Unit #1.

Beneath the Merchant State Unit 1 site, we believe a water table aquifer exists at a depth of about 161 feet below land surface.

Distance to Surface Water

Figure 3 and the site visit demonstrates that the location is not 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).

- The nearest mapped watercourse is located slightly more than 1 mile to the southeast.
- Dunes dominate the surface near the proposed pit.

Distance to Permanent Residence or Structures

Figure 4 and the site visit demonstrates that the location is not within 300 feet from a permanent residence, school, hospital, institution, church, or other structure in existence at the time of initial application.

- The nearest structures are oil wells and tank batteries

Distance to Non-Public Water Supply

Figures 1 and Figure 2 demonstrates that the location is not within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application.

- Figure 2 shows the locations of all area water wells; the nearest water well is located approximately 1 mile to the northeast (Misc – 70, the West Well). There are no known domestic water wells located within the mapping area.
- No springs were identified within the mapping area.

Distance to Municipal Boundaries and Fresh Water Fields

Figure 5 demonstrates that the location is not within incorporated municipal boundaries or defined municipal fresh water well fields covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended.

- The closest municipality is Eunice, NM approximately 29 miles to the east.
- The closest public well field is located in Eunice.

Distance to Wetlands

Figure 6 demonstrates the location is not within 500 feet of wetlands.

- The nearest designated wetlands is a "Freshwater Pond" located approximately 2 miles to the northeast.

Distance to Subsurface Mines

Figure 7 and our general reconnaissance of the area demonstrate that the nearest mines are caliche pits.

- The nearest caliche pit is located approximately 1.5 miles to the northwest.

Distance to High or Critical Karst Areas

Figure 8 shows the location of the temporary pits with respect BLM Karst areas

- The proposed temporary pit is located within a "low" potential karst area.
- The nearest "high" or "critical" potential karst area is located approximately 16 miles west of the site.

Distance to 100-Year Floodplain

Figure 9 demonstrates that the location is within an area that has not yet been mapped by the Federal Emergency Management Agency with respect to the Flood Insurance Rate 100-Year Floodplain.

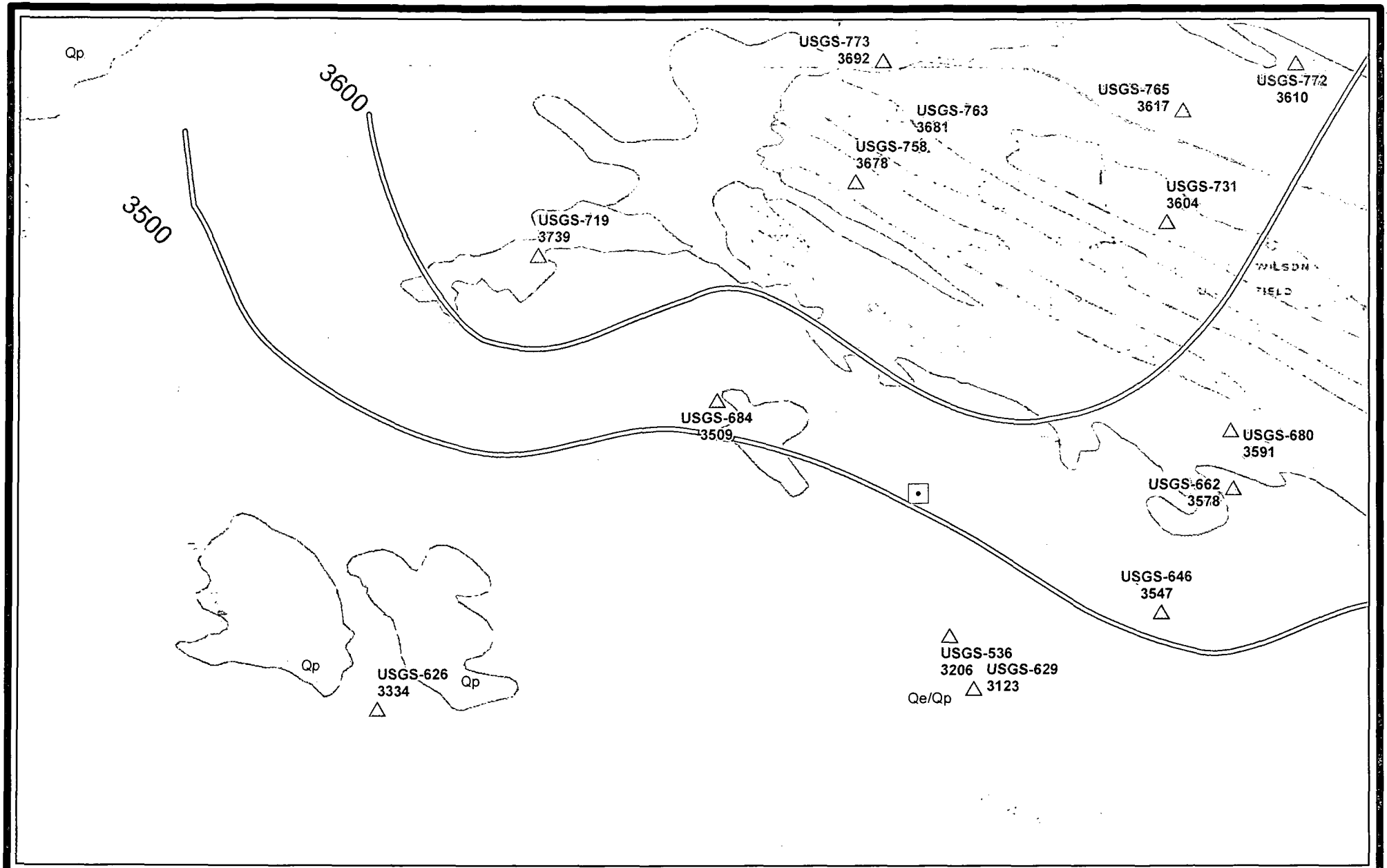
Temporary Pit Design

Please refer to Plates 1 and 2 for the design of the temporary pit and the Design and Construction Plan at the end of this application.

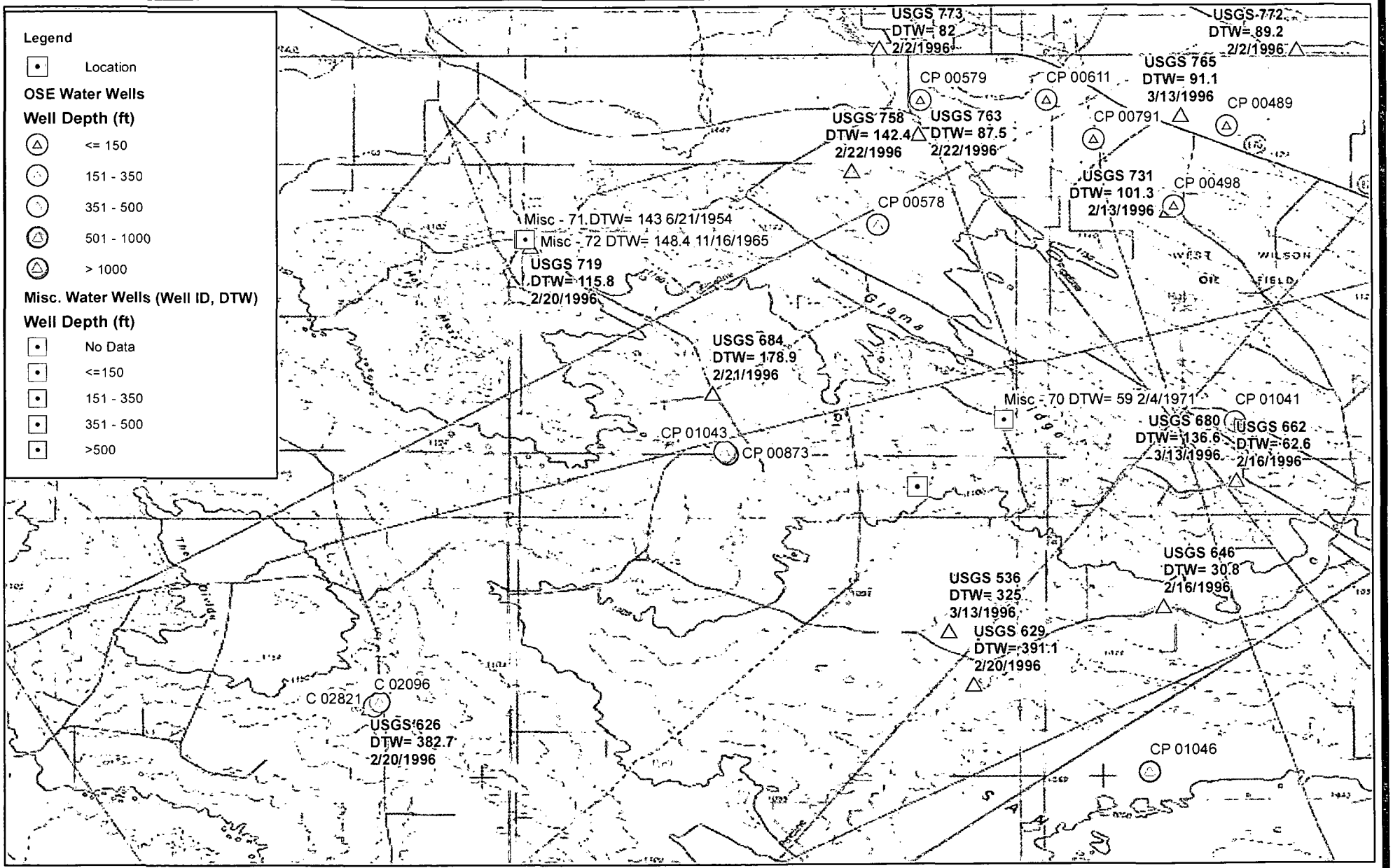
Plate 2 shows that the footprint of the proposed pit for the re-entry overlies the footprint of the pit used to drill the original well. Thus, some of the material excavated for the new pit will be cuttings and residual mud from the original pit. This material will be segregated from clean material excavated from the eastern portion of the proposed pit. We plan to use the dry mud/cuttings for stabilization of the wet cuttings. This mixture of old and new cuttings/mud will be buried in-place in accordance with the Pit Rule. Because the new cuttings will contain little salt, the mixture of old and new cuttings should meet the burial standards for >50 feet to groundwater.

Site Specific Information
Figures

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Geology and USGS Groundwater Elevation	Figure 1
	Amtex Energy - Merchant State Unit #1	Oct. 2013



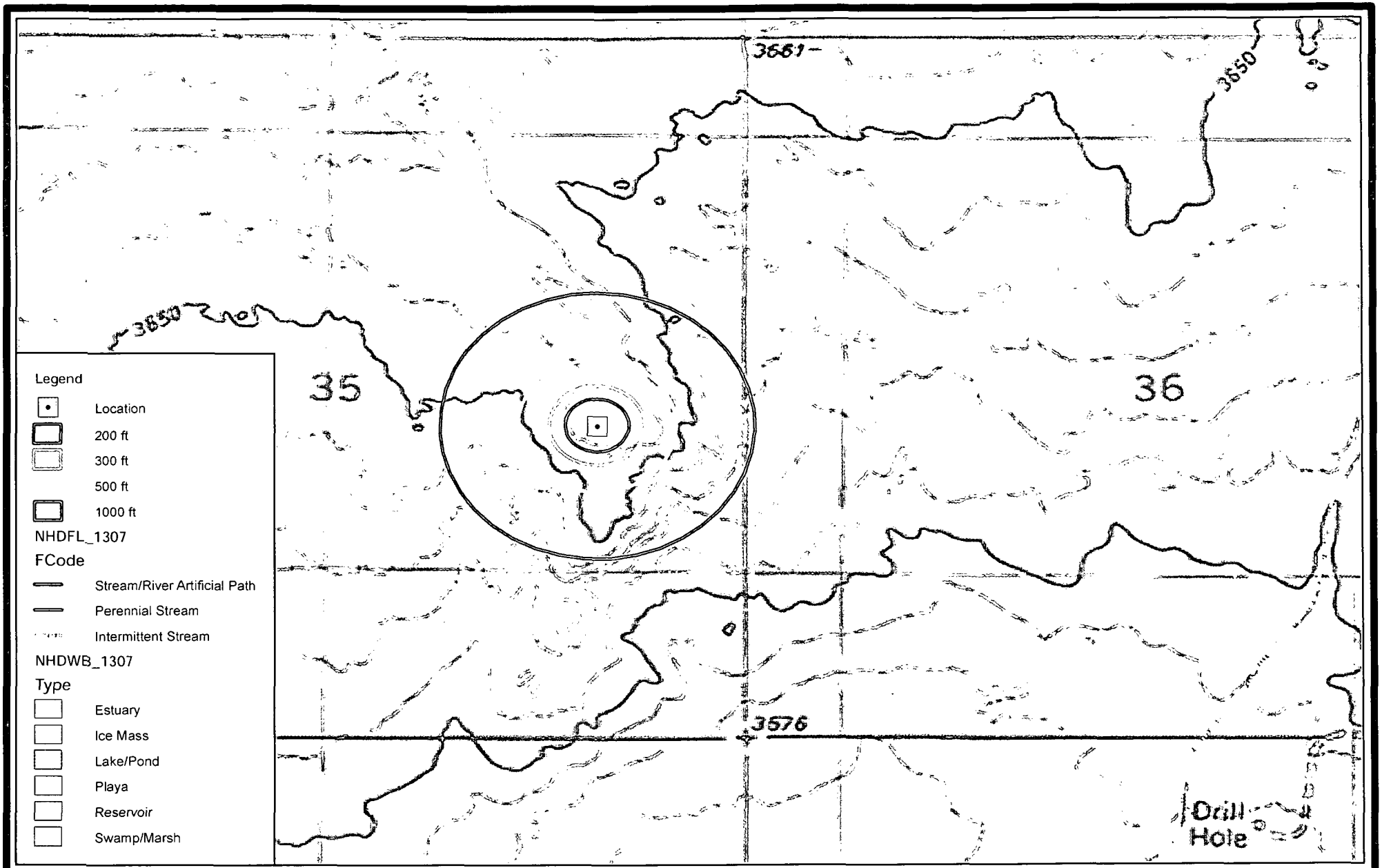
R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

Nearby Wells and Date of Measurments

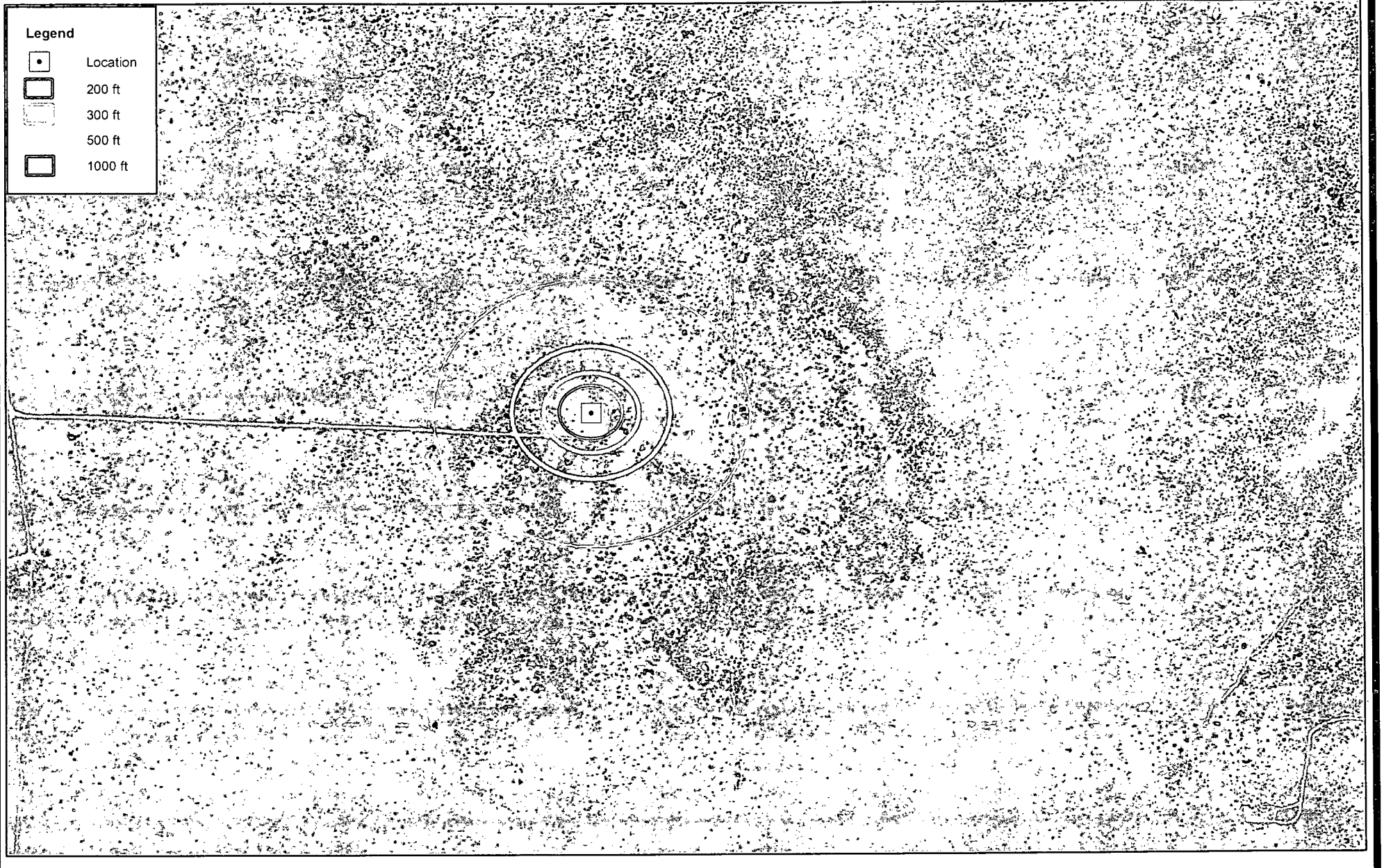
Figure 2

Amtex Energy - Merchant State Unit #1

Oct. 2013



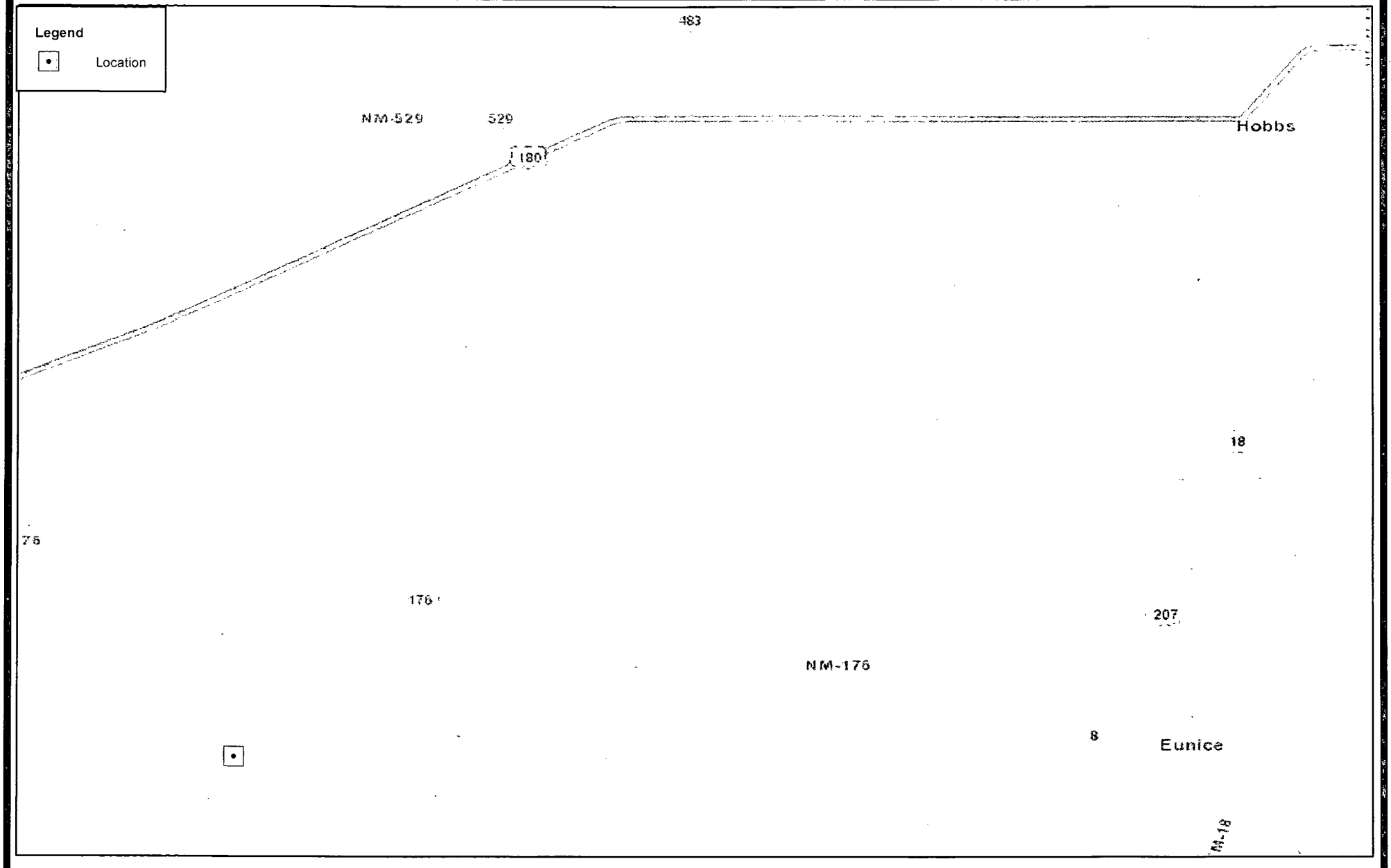
R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Nearby Surface Water	Figure 3
	Amtex Energy - Merchant State Unit #1	Oct. 2013



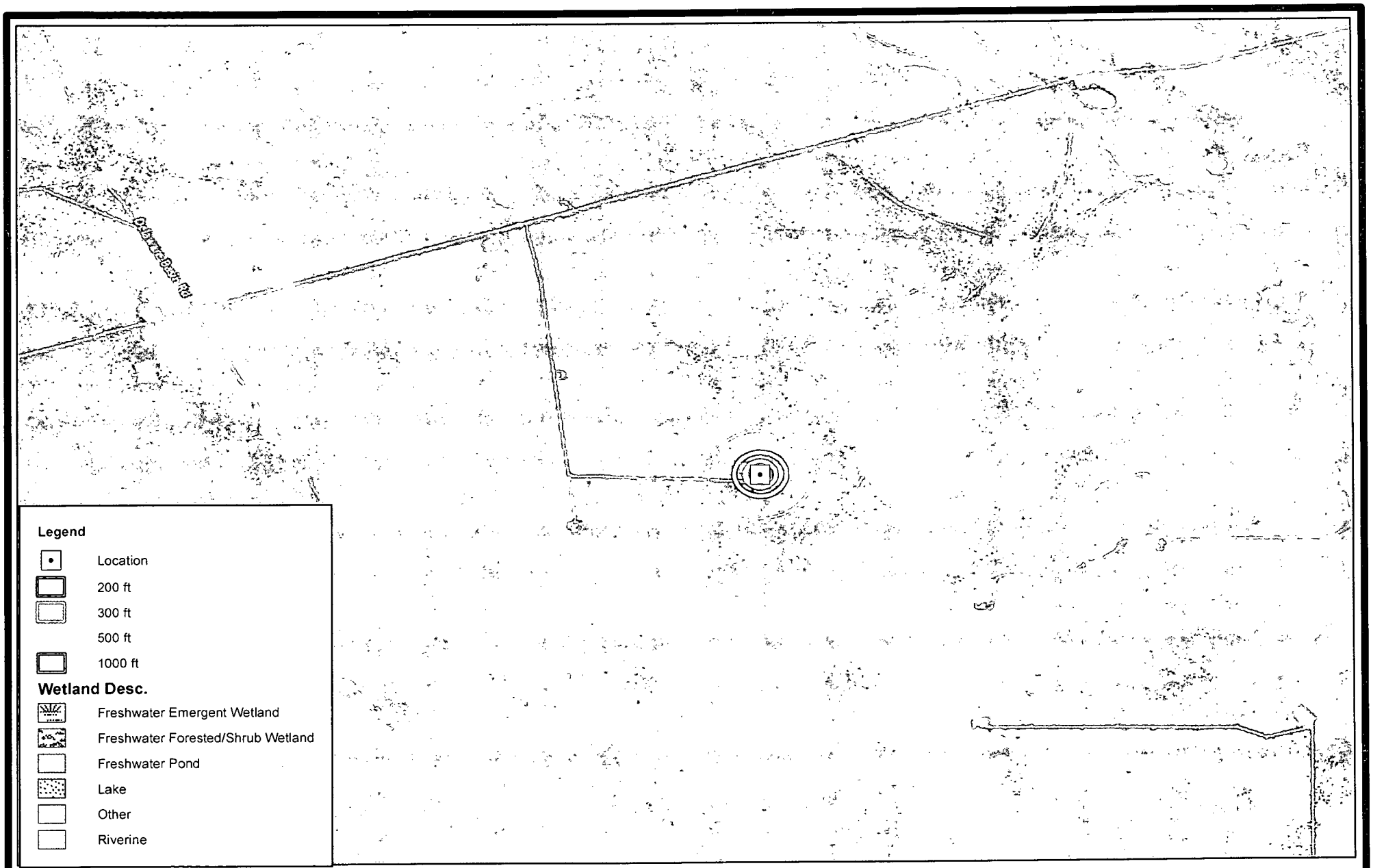
N
W E
S

0 1,000 Feet

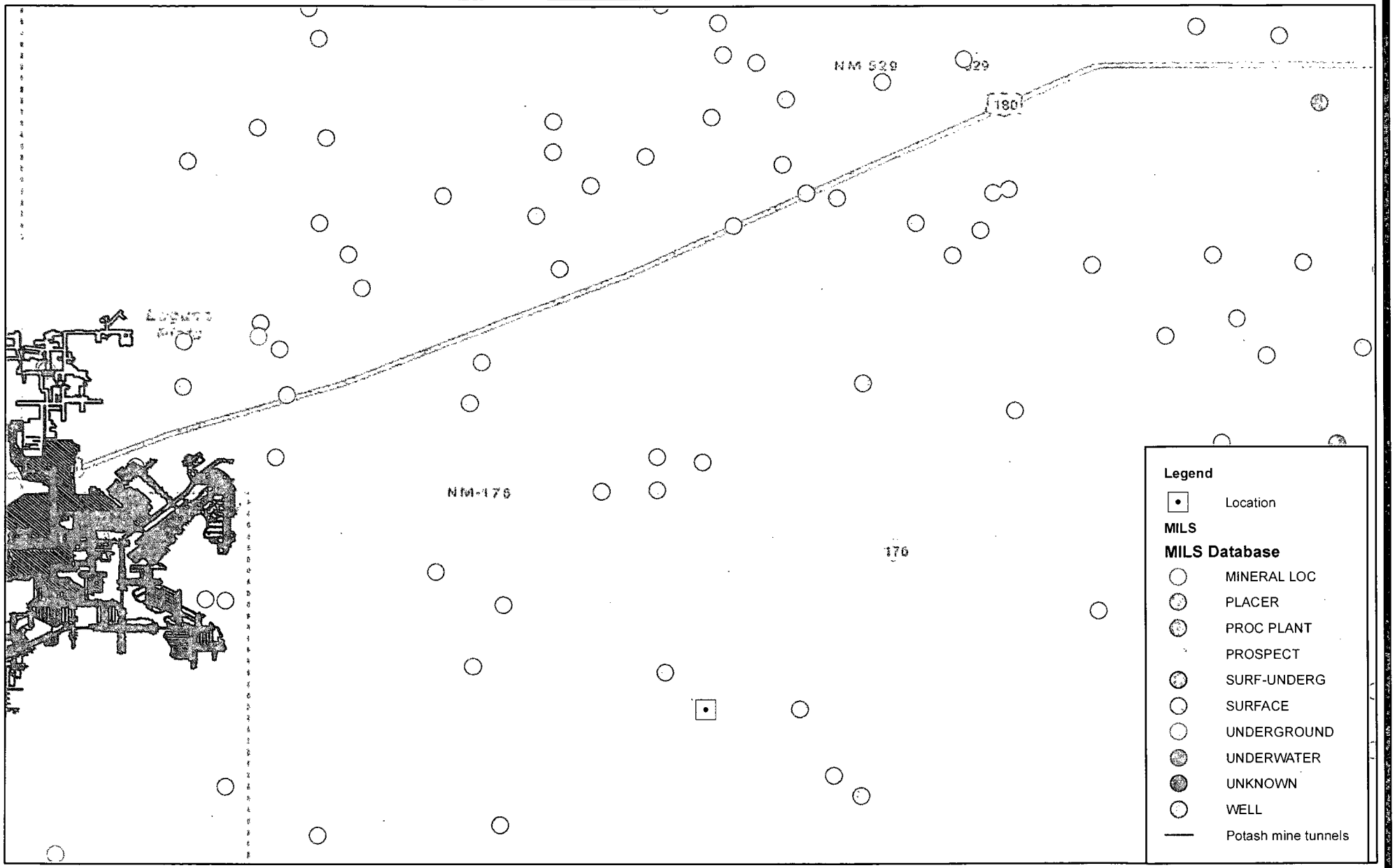
R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Nearest Structures	Figure 4
	Amtex Energy - Merchant State Unit #1	Oct. 2013



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Nearest Municipalities and Wellfields	Figure 5
	Amtex Energy - Merchant State Unit #1	Oct. 2013



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Nearest Wetlands	Figure 6
	Amtex Energy - Merchant State Unit #1	Oct. 2013



N
W E
S

0 4 Miles

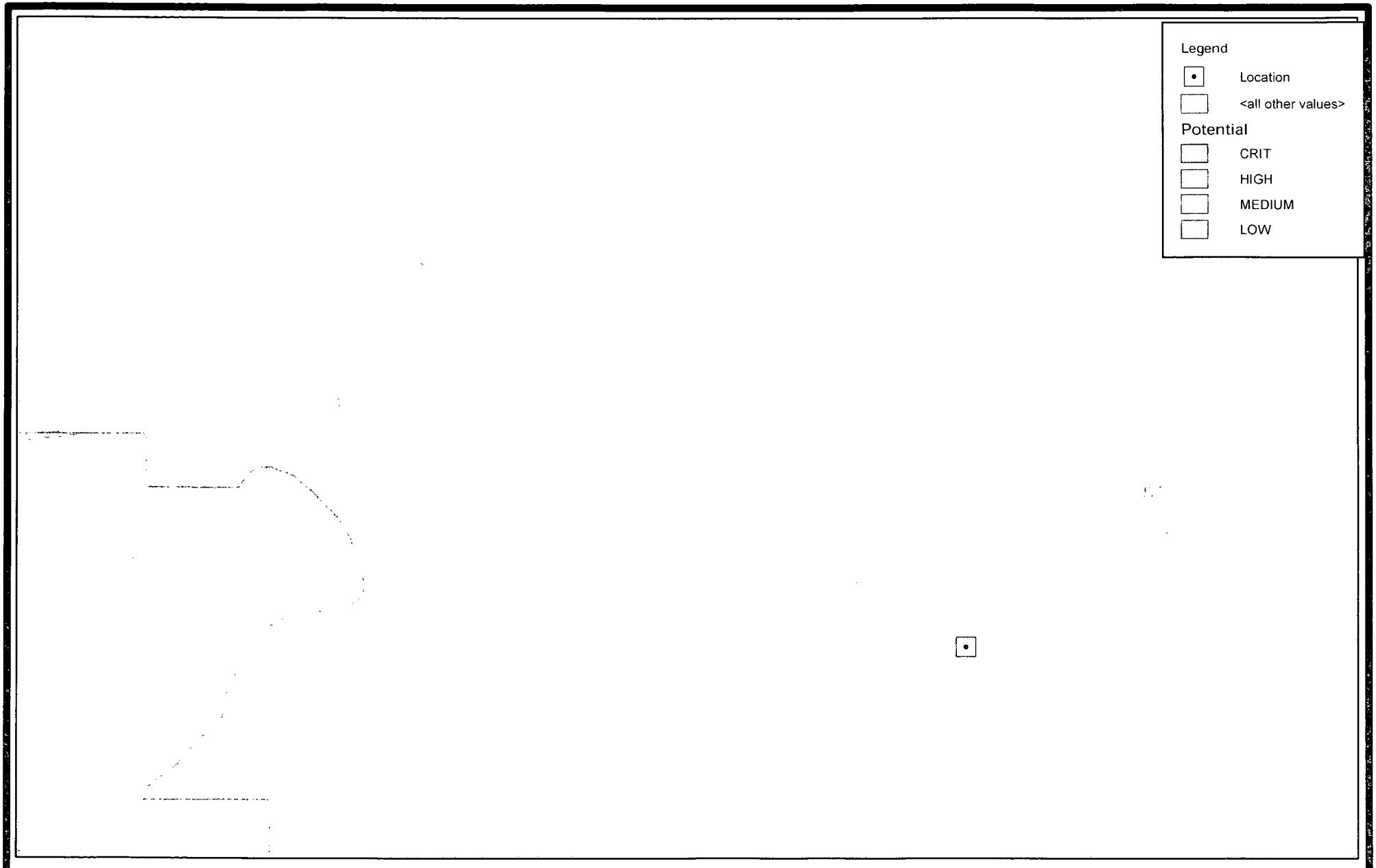
R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

Nearest Mines

Figure 7

Amtex Energy - Merchant State Unit #1

Oct. 2013



N
W
E
S

0 4 Miles

R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

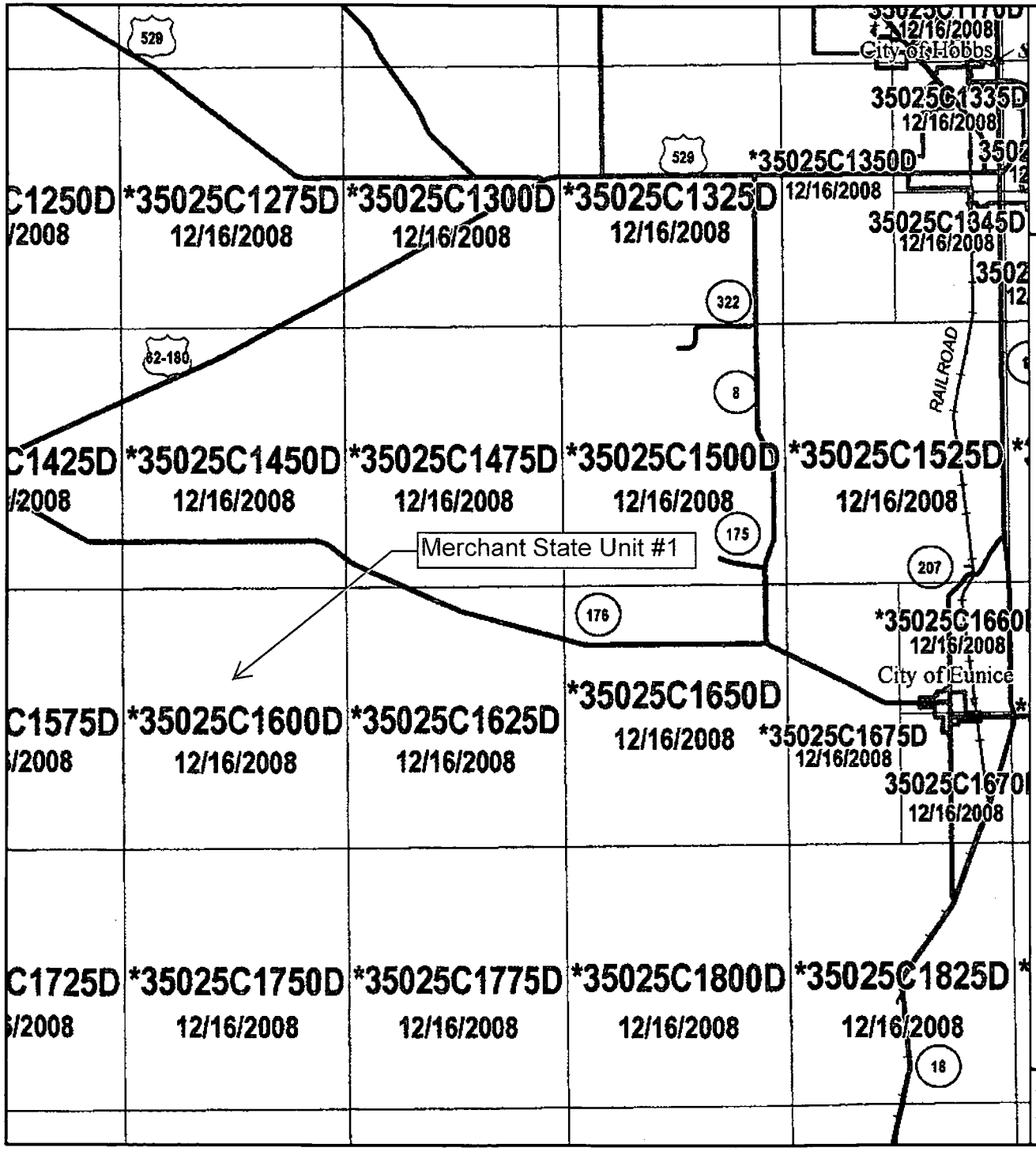
BLM Karst Potential Map

Figure 8

Amtex Energy - Merchant State Unit #1

Oct. 2013

Figure 9 - FEMA Map



NATIONAL FLOOD INSURANCE PROGRAM

MAP INDEX

FIRM

FLOOD INSURANCE RATE MAP

LEA COUNTY,
NEW MEXICO
AND INCORPORATED AREAS

MAP INDEX

PANELS PRINTED: 440, 445, 955, 965, 1165, 1170, 1200, 1335, 1345, 1355, 1365, 1670, 2102

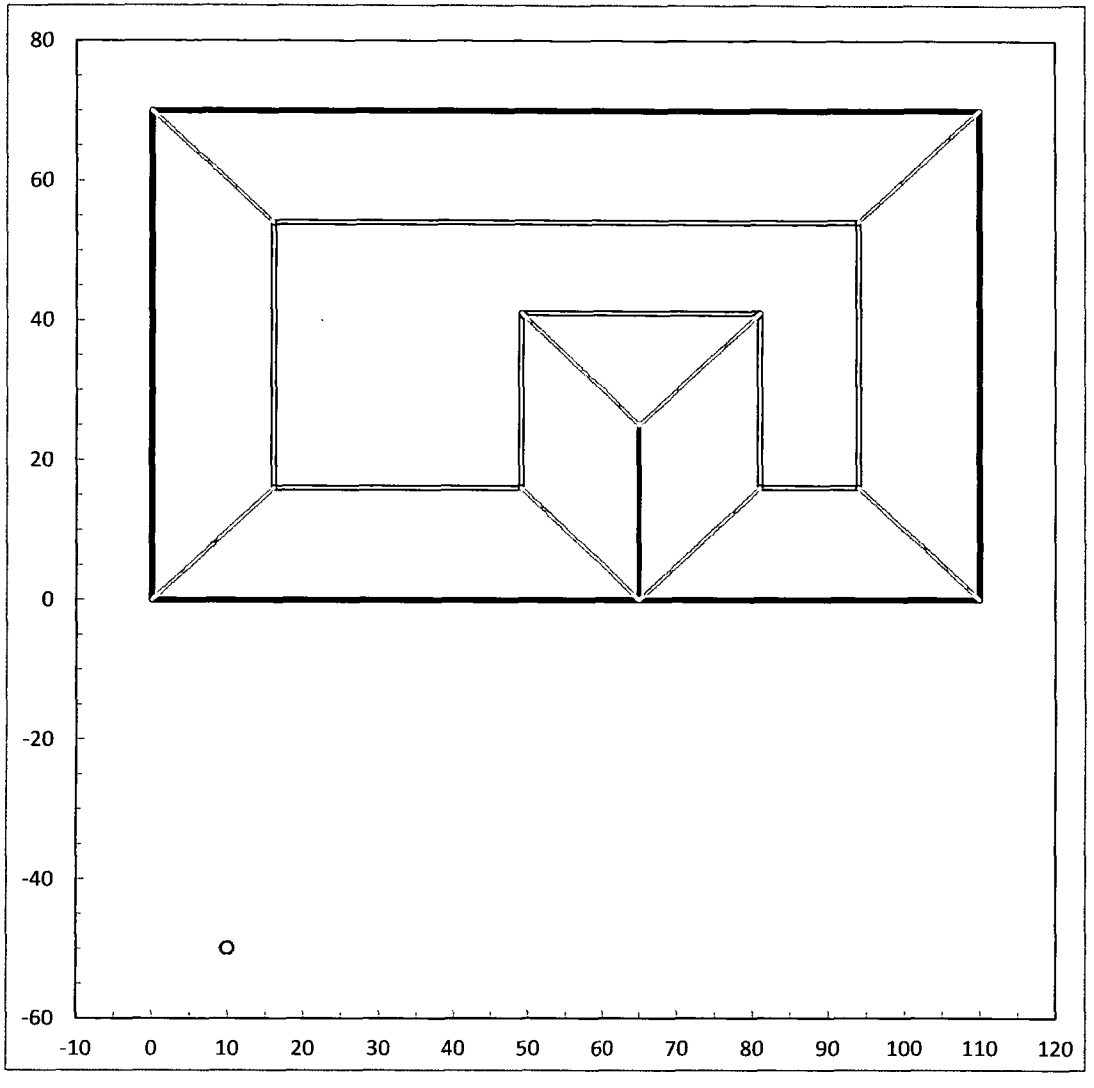
MAP NUMBER
35025CIND0A

EFFECTIVE DATE
DECEMBER 16, 2008

Federal Emergency Management Agency

Site Specific Information Plates

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104



Drilling Cell Dimensions

Drilling Cell Total Width	110.0
Drilling Cell Total Length	70.0
Slopes of Pit Horizontal Distance	2.00
Slopes of Pit Vertical Distance	1.00
Horseshoe divider width at surface	0.0

Inner Horseshoe Dimensions

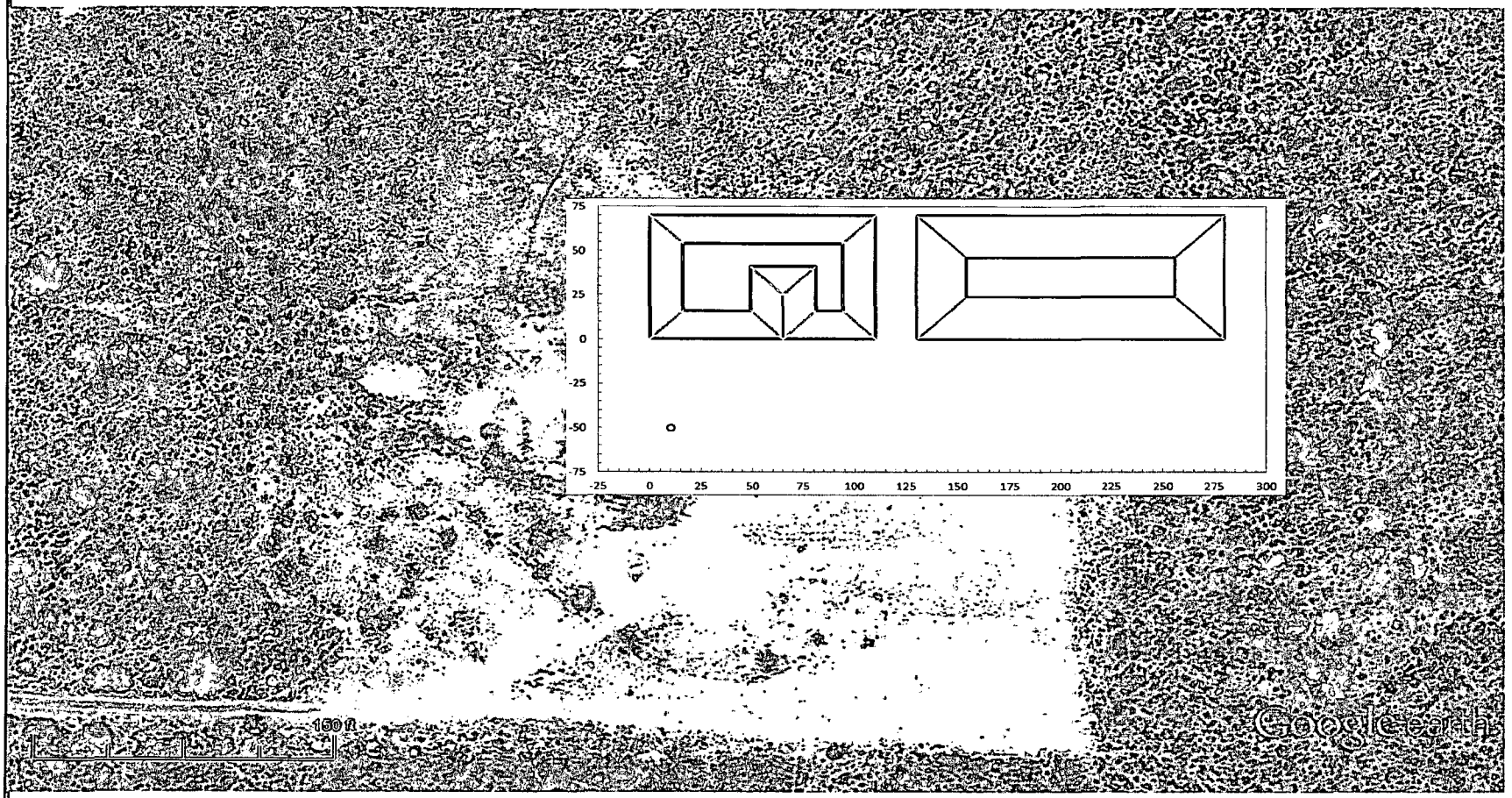
Total Width (left right)	110.0
Total Length (up down)	70.0
Depth	8.0
Length of Divider	25.0
Divider Width	0.0
Width of discharge floor	13.0
Width of suction floor	33.0

Flow-Back/Fluids Cell Dimensions

Width (left-right)	150.0
Length (up-down)	70.0
Depth	12.0

Inner Horeshoe	6784 bbls	**Fluids Cell**	**12,798.07**
Outer Horseshoe	0	**Total Capacity**	**19,582.29**

R.T. Hicks Consultants 901 Rio Grande Blvd. NW Suite F-142 Albuquerque, N. M. 87104	**Drawing of Drilling Cell**	**Plate 1**
	Amtex - Merchant State #1	**Oct- 2013**



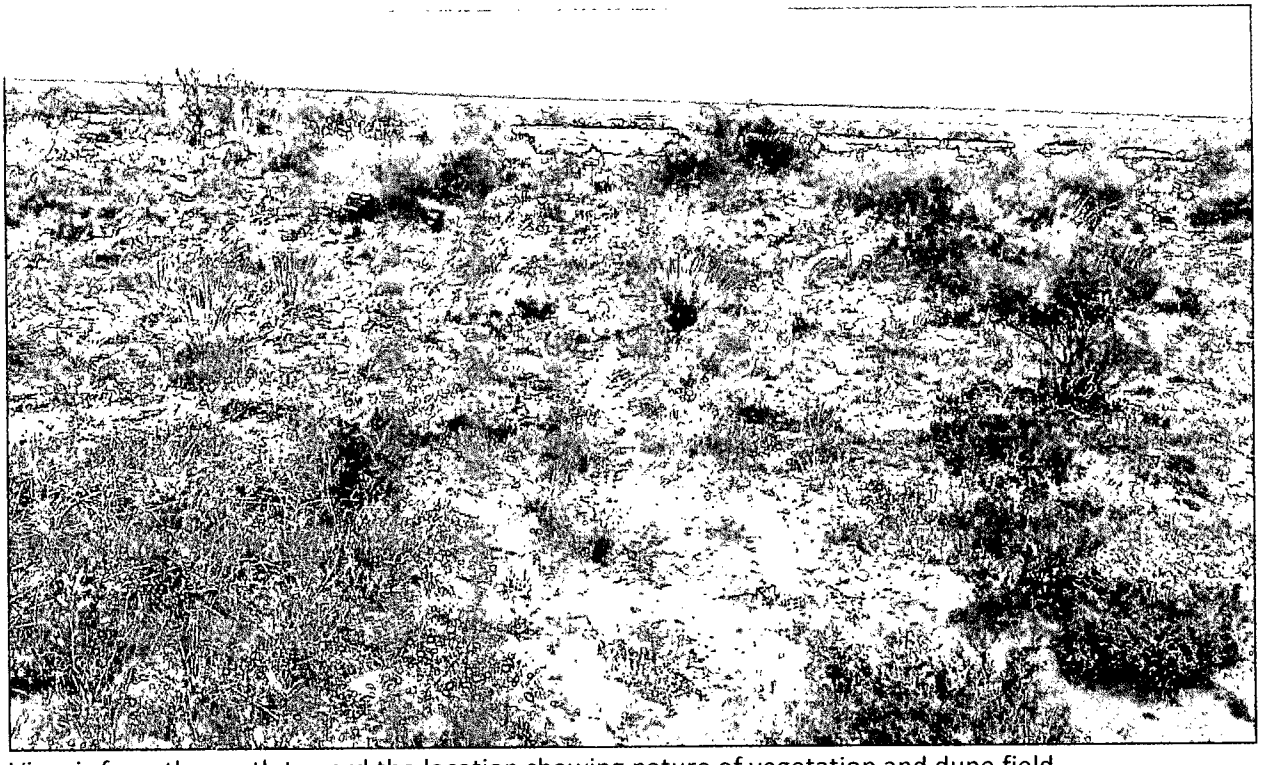
R.T. Hicks Consultants 901 Rio Grande Blvd. NW Suite F-142 Albuquerque, N. M. 87104	**Drawing of Drilling Pit and Well in Relation to Pad**	**Plate 2**
	Amtex - Merchant State #1	**Oct- 2013**

Site Inspection Photographs

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

View from southeast corner of location showing nature of vegetation. Note dunes are present on northeast side of location (upper right of photograph)

Northeast corner of location is the proposed location of the temporary pit. Dune field exists in background.



View is from the north toward the location showing nature of vegetation and dune field.

Appendix A

Survey Information

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

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 Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-025-29991		WILDCAT, WEST GRAMA RIDGE-BONE SPRINGS

Property Code	Property Name	Well Number
	MERCHANT STATE UNIT	1

OGRID No.	Operator Name	Elevation
	AMTEX ENERGY, INC.	3661.4'

Surface Location

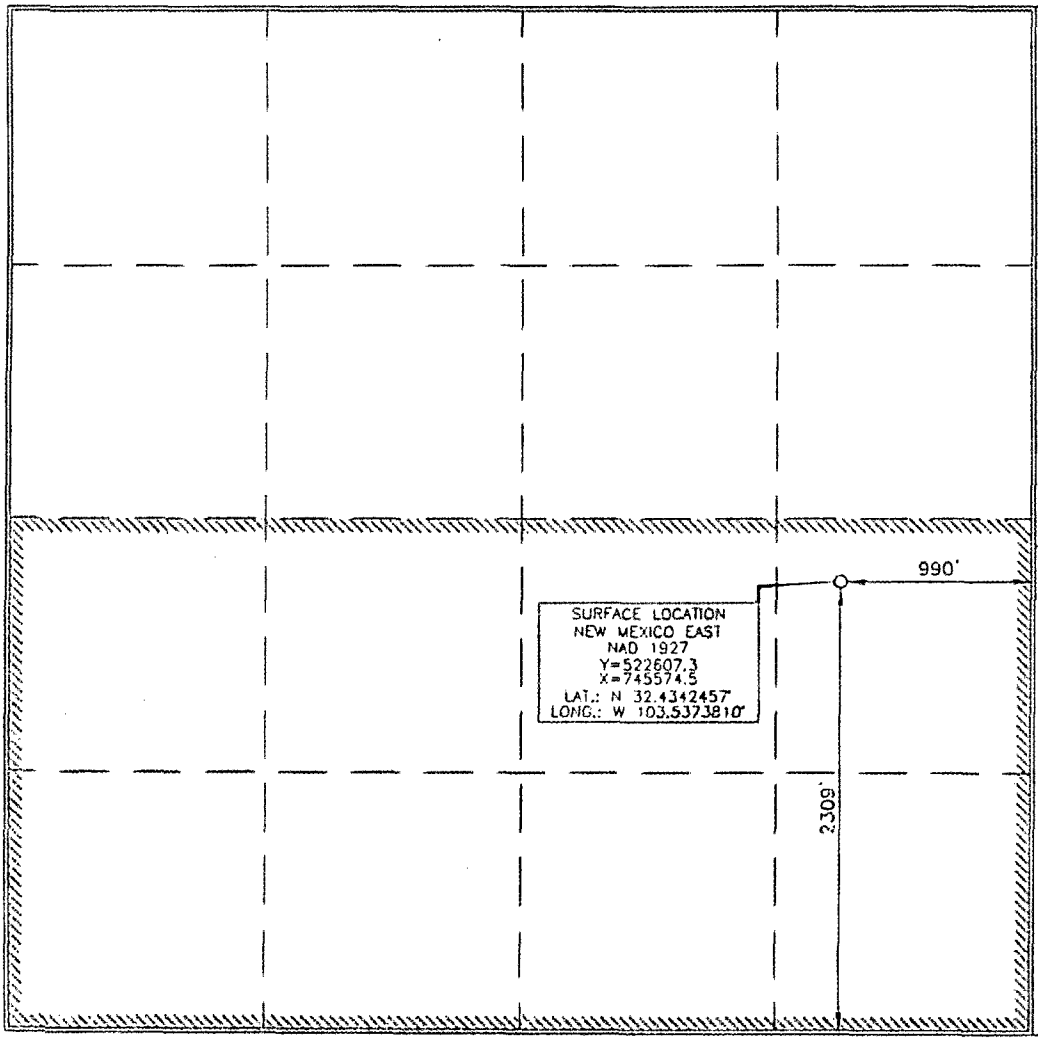
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	35	21 SOUTH	33 EAST, N.M.P.M.		2309'	SOUTH	990'	EAST	LEA

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

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
319.73			

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



OPERATOR CERTIFICATION

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

Signature Date

Printed Name

E-mail Address

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.

AUGUST 16, 2013
Date of Survey

Signature and Seal of Professional Surveyor:

JERRY J. ASH — NEW MEXICO — 15079 — PROFESSIONAL LAND SURVEYOR

8/23/2013

Certificate Number 15079

WO# 130816WL (KA)

Appendix B

Additional Water Well Information

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

Appendix B Summary of Groundwater Data

Well Numbers (see Map)	Well Location			Well Source Information							Groundwater Elevation Data						Gauging Date
	Township (south)	Range (east)	Section	NM-OSE Database	USGS Database	Open File Rpt. 95	GW Report No. 6	USGS Topo Sheet	Aerial Photograph	Field Verification	Surface Elevation (published)	Surface Elevation (Topo Sheet)	Well Total Depth (published)	Depth to Water (published)	Groundwater Elev. (published)	Groundwater Elev. (using topo elev.)	
USGS-773	20	34	34		✓			✓	--	--	3,774	3,774		82.0	3,692	3,692	2/2/96
USGS-772	20	35	33		✓	✓	✓	✓	--	--	3,699	3,699	135	89.2	3,610	3,610	2/2/96
USGS-763	21	33	2		✓	✓		✓	--	--	3,768	3,768	102	87.5	3,681	3,681	2/22/96
CP 00579	21	33	2	✓									125	100			11/22/79
USGS-758	21	33	11		✓	✓		✓	--	--	3,820	3,812	195	142.4	3,678	3,670	2/22/96
CP 00578	21	33	11	✓		✓			✓	--		3,795	165	150		3,645	1/6/79
Misc- 71	21	33	18			✓	✓	✓	--	--	3,900	3,885		143	3,757	3,742	6/21/54
Misc- 72	21	33	18			✓		✓	--	--	3,892	3,882	160	148.43	3,744	3,734	11/16/65
USGS-719	21	33	18		✓	✓		✓	--	--	3,855	3,855	123	115.75	3,739	3,739	2/20/96
Misc-70	21	33	25			✓		✓	--	--	3,666	3,662		58.95	3,607	3,603	2/4/71
USGS-684	21	33	28		✓	✓	✓	✓	--	--	3,688	3,688	224	178.85	3,509	3,509	2/21/96
CP 01043	21	33	33	✓					✓	--		3,665	950	600		3,065	6/22/96
CP 00873	21	33	33	✓					✓	--		3,665	340	180		3,485	1/5/98
CP 00489	21	34	4	✓									125	95			6/22/71
USGS-765	21	34	5		✓			✓	--	--	3,708	3,708		91.1	3,617	3,617	3/13/96
CP 00791	21	34	6	✓									85	55			6/16/93
CP 00611	21	34	6	✓									118	112			3/26/80
CP 00498	21	34	8	✓									145	120			9/30/71
USGS-731	21	34	8	✓	✓	✓	✓	✓	--	--	3,705	3,705	120	101.3	3,604	3,604	2/13/96
USGS-680 (1-6)	21	34	28		✓				✓	✓	3,728			136.6	3,591		2/13/96
USGS-662	21	34	33		✓	✓	✓	✓	--	--	3,641	3,641	92	62.6	3,578	3,578	2/16/96
USGS-626/C 02096	22	32	14	✓	✓			✓	✓	--	3,717	3,718	435	382.65	3,334	3,335	2/20/96
C 02821	22	32	14	✓				✓	✓	--		3,718	540	340		3,378	6/23/01
Dagger Lake	22	33	5						?	--		3,650					
USGS-536	22	33	12		✓						3,531			325	3,206		3/13/96
USGS-629	22	33	13		✓	✓		✓	--	--	3,514	3,515	508	391.13	3,123	3,124	2/20/96
USGS-646	22	34	8		✓			✓	--	--	3,578	3,573	35	30.8	3,547	3,542	2/16/96

✓ Indicates well was verified, (blank) indicates well not verified, and -- indicates no attempt to verify

Generic Plans for Temporary Pits

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

Temporary Pit Design/Construction Plan

Plates 1 and 2 show the design of the temporary pit proposed for this project. Field conditions and the drilling rig layout will determine the final configuration of the pit cells, which will consists of the following:

1. A cell for drilling fluid circulation and cuttings storage consisting of:
    a. An outer horseshoe for fresh water and cut-brine fluid and cuttings
    b. An inner horseshoe for brine and fluid and cuttings
2. A cell for the storage of fresh water (drilling/stimulation) and stimulation flow-back water prior to re-use or disposal (OPTIONAL)

In addition to the commitments listed below, the operator will install a system that can drain water entrained in the drilling waste of the drilling pit. As described in the closure plan, this system of fabric-wrapped perforated pipe and drainage mats lie on the bottom of the drilling cell of the pit – the brine cell and the outer cell. The system will drain to the lowest corner of each cell, generally near the suction area. The exact location will be determined upon completion of the cells. Standpipes rise from the depression and can house a solar-powered pump. The drainage system for the brine cell removes water to an above-ground tank, the fluids cell of the pit, or directly to a truck for re-use or disposal. The drainage system may also be used to introduce fresher water below the residual cuttings/mud, causing the introduced fluid to move upwards through the cuttings/mud and enhance the solids rinsing process. Introduced water can be removed from the pit for re-use via a vacuum truck or recovered from the drainage system at the bottom.

The temporary storage of fluids, fluid reuse or fluid disposal will be conducted in a manner approved by division rules that prevents the contamination of fresh water and protects public health and the environment. This drainage and rinsing system allows the operator to:

- Recover clear water for possible re-use
- Reduce the concentration of constituents of concern in the drilling waste by removing some water entrained in the drilling waste.

Precipitation and the possible addition of relatively fresh water (see closure plan) will rinse the solid drilling waste, causing additional reduction in the constituents of concern as the water is recovered for re-use or disposal.

For any temporary storage of fluids derived from the drilling pit and placed in an above-ground tank, the following will apply:

1. Construction, operation and maintenance of the temporary storage tank(s) will adhere to all applicable NMOCD Rules including but not limited to:
    a. Safety stipulations
    b. Protection from hydrogen sulfide mandates
    c. Signage and identification requirements
    d. Secondary containment requirements for temporary tanks
    e. Applicable netting requirements

2. Any cleaning of the temporary tank(s) will adhere to NMOCD Rules relating to tank cleaning.
3. Transportation of water or drilling fluids derived from the drilling pit will adhere to all applicable NMOCD Rules relating to transportation.
4. Storage of water or drilling fluids in temporary above-ground tanks will also adhere to all applicable Federal mandates.

During final closure of the pit, the tanks and secondary containment system will be removed from the location and the area beneath the tank inspected for any leakage. If any leakage is suspected, the operator will sample the soil beneath the tanks and report any release pursuant to NMOCD Rules.

Finally, we intend to place any temporary tank used in conjunction with the pit drainage system on a 20-mil liner with a berm around it that would allow any inadvertently released fluids to drain or be pumped back into the pit.

Construction/Design Plan of Temporary Pit

Stockpile Topsoil

Prior to constructing the pit the qualified contractor will strip and stockpile the topsoil for use as the final cover or fill at the time of closure.

Signage

The operator will post an upright sign in a conspicuous place in compliance with 19.15.16.8 NMAC as the pit and the well are operated by the same operator. Section 19.15.16.8 states in part:

> 19.15.16.8 SIGN ON WELLS:
> B. For drilling wells, the operator shall post the sign on the derrick or not more than 20 feet from the well.
> C. The sign shall be of durable construction and the lettering shall be legible and large enough to be read under normal conditions at a distance of 50 feet.
> F. Each sign shall show the:
> (1) well number;
> (2) property name;
> (3) operator's name;
> (4) location by footage, quarter-quarter section, township and range (or unit letter can be substituted for the quarter-quarter section);
> and
> (5) API number.

The sign will also provide emergency telephone numbers.

Fencing:

During drilling or workover operations, the operator will not fence the edge of the pit adjacent to the drilling or workover rig.

As the pit is not located within 1000 feet of a permanent residence, school, hospital, institution or church, the operator will fence the pit to exclude livestock with four-wire strands evenly spaced in the interval between one foot and four feet above ground level.

Earthwork

The temporary pit will have a properly constructed foundation and interior slopes consisting of a firm, unyielding base, smooth and free of rocks, debris, sharp edges or irregularities to prevent the liner's rupture or tear.

The slopes of the pit will be no steeper than two horizontal feet to one vertical foot (2H:1V) unless in the transmittal letter the operator requested an alternative to the slope requirement with a demonstration that the pit can be operated in a safe manner to prevent contamination of fresh water and protect public health and the environment.

A berm or ditch will surround the temporary pit to prevent run-on of surface water.

If the transmittal letter identifies concerns relating to the presence of karst and associated instability, during construction of the pit the contractor will compact the earth material that forms the foundation for the pit liner. An expected proctor density of greater than 90% will be achieved by

1. adding water to the earth material as appropriate,
2. compacting the earth by walking a crawler-type tractor down the sides and bottom of the pit
3. repeating this process with a second 6-inch lift of earth material if necessary

Liner Installation

The geomembrane liner will consist of 20-mil string reinforced LLDPE or equivalent liner material identified in the transmittal letter or on Form C-144 (that the appropriate division district office approves through approval of this permit application). The geomembrane liner will be composed of an impervious, synthetic material that is resistant to petroleum hydrocarbons, salts and acidic and alkaline solutions. The liner material will be resistant to ultraviolet light. Liner compatibility will comply with EPA SW-846 method 9090A.

The operator will direct the liner installation contractor to:

1. minimize liner seams and orient them up and down, not across a slope
2. use factory welded seams where possible
3. overlap liners four to six inches and orient seams parallel to the line of maximum slope, i.e., oriented along, not across, the slope, prior to any field seaming
4. minimize the number of welded field seams in comers and irregularly shaped areas
5. utilize only qualified personnel to weld field seams
6. avoid excessive stress-strain on the liner
7. place geotextile under the liner where needed to reduce localized stress-strain or protuberances that may otherwise compromise the liner's integrity
8. anchor the edges of all liners in the bottom of a compacted earth-filled trench that is at least 18 inches deep
9. place additional material (liner, felt, etc.) to ensure that the liner is protected from any fluid force or mechanical damage at any point of discharge into or suction from the lined temporary pit.

A berm or ditch will surround the temporary pit to prevent run-on of surface water. During drilling operations, the operator may elect to remove run-on protection on the pit edge adjacent to the drilling or workover rig provided that the pit is being used to collect liquids escaping from the drilling or workover rig and this additional fluid will not cause a breach of the temporary pit.

The temporary pit will not be used to vent or flare gas and the volume of the temporary drilling pit, including freeboard, will not exceed 10 acre-feet.

Temporary Pit Operating and Maintenance Plan

The operator will maintain and operate the pit in accordance with the following plan to contain liquids and solids and maintain the integrity of the liner to prevent contamination of fresh water and protect public health and the environment.

If feasible, the operator will recycle, reuse or reclaim all drilling fluids in the temporary pit in a manner approved by division rules that prevents the contamination of fresh water and protects public health and the environment. Re-use of drilling fluids and workover fluids (stimulation flow-back) for drilling and stimulation of subsequent wells is anticipated. If re-use is not possible, fluids will be sent to disposal at a division-approved facility.

The operator will not discharge into or store any hazardous waste in the pit.

If the pit develops a leak or if any penetration of the pit liner occurs above the liquid's surface, then the operator will repair the damage or initiate replacement of the liner within 48 hours of discovery or will seek a variance from the division district office within this time period.

If the pit develops a leak or if any penetration of the pit liner occurs below the liquid's surface, then the operator will remove all liquid above the damage or leak line within 48 hours of discovery. The operator will also notify the district division office (19.15.29 NMAC) within this same 48 hours of the discovery and repair the damage or replace the pit liner.

The operator will ensure that the drilling contractor installs and uses 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 during injection or withdrawal of liquids.

During construction, the operator or qualified contractor will install diversion ditches and berms around the pit as necessary to prevent the collection of surface water run-on. As outlined in the Construction and Design Plan, during drilling operations, the edge of the temporary pit adjacent to the drilling or workover rig may not have run-on protection if the operator is using the temporary pit to collect liquids escaping from the drilling or workover rig and run-on will not result in a breach of the temporary pit.

The operator will maintain on site an oil absorbent boom to contain and remove oil from the pit's surface.

The operator will only discharge fluids or mineral solids (including cement) generated or used during the drilling, completion, or workover processes into the pit.

The operator will maintain the temporary pit free of miscellaneous solid waste or debris. Immediately after cessation of drilling or a workover operation, the operator will remove any visible or measurable layer of oil from the surface of the pit.

The operator will maintain at least two feet of freeboard for the temporary pit, except under extenuating circumstances, which will be noted on the pit inspection log as described below.

The operator will inspect the temporary pit containing drilling fluids daily while the drilling rig or workover rig is on site. After the rigs have left the site, the operator will inspect the pit weekly as long as liquids are present in the pit. The operator will maintain a log of the inspections. The operator will make the log available to the division district office upon request.

The operator will remove all free drilling fluids from the surface of the temporary pit within 60 days from the date that the last drilling or workover rig associated with the pit permit is released. The operator will note the date of this release upon Form C-105 or C-103 upon well or workover completion. The operator may request an extension up to two months from the division district office as long as this additional time does not exceed the temporary pit life span (Subsection R of 19.15.17.7 NMAC).

Temporary Pit In-Place Closure Plan

The wastes in the temporary pit are destined for in place burial at the drilling location or, if stated in the permit transmittal letter, a nearby site on the same lease.

The operator will not begin closure operations without approval of the closure plan submitted with the permit application.

Siting Criteria Compliance Demonstration

Compliance with siting criteria is described in the site-specific information appended to the C-144.

Proof of Surface Owner Notice

The application package was transmitted to the surface landowner and OCD via email.

Construction/Design Plan of Temporary Pit

The design and construction protocols for the temporary pit are provided in the design and construction plan and in Plates 1-2. The drainage system described in the design and construction plan (above) is not shown on the Plates but can be important element of the closure plan.

General Protocols and Procedures

- All free liquids from the pit will be recycled or disposed in a manner consistent with OCD Rules.
- Residual drilling fluids will be removed from the pit within 60 days of release of the drilling rig.
- Water derived from the well stimulation program (flow-back or unused fresh water) that is significantly higher quality than the residual drilling fluids *may* discharge into the pit. The fresher water *may* discharge into the drainage system to flow through the solids or onto the solids in the pit.
- A low-flow pump *may* remove water from the drainage system to a tank or a fluids cell of the temporary pit; thereby further rinsing the residual solids in the pit.
- 20-60 days after placement of fresh flow-back water into the drilling cell, any water in the pit will be removed for re-use or disposal.
- The residual drilling mud and cuttings will be stabilized to a capacity sufficient to support the 4-foot thick soil cover.
- The residual pit solids will not be mixed at a ratio greater than 1 part pit solids to 3 parts dry earth material (e.g. subsoil).
- The pit will not be closed until the stabilized pit contents pass the paint filter liquids test.

Waste Material Sampling Plan

Prior to closure, a five-point (minimum) composite sample of the residual solids in the pit will be tested in a laboratory to demonstrate that the stabilized material will not exceed the contaminant concentrations listed in Table II of 19.15.17.13 NMAC mixed in a ratio of 3:1 with the earth material to be used for mixing and stabilization of the residual cuttings and mud.

In-place burial is the selected on-site disposal alternative.

If a concentration of a contaminant within the material mixed at a ratio not exceeding 3:1 is higher than the concentration given in Table II, closure will proceed in accordance with Subsection C of 19.15.17.13 NMAC.

Protocols and Procedures for Earthwork

Stabilization of the residual cuttings and mud is accomplished by mixing dry earth material within the temporary pit footprint. After stabilization the operator or qualified contractor will:

1. Place a geomembrane cover over the waste material in a way to prevent infiltration of water and so that infiltrated water does not collect on the geomembrane cover after the upper soil cover has been placed.
2. Use a geomembrane cover made of 20-mil string reinforced LLDPE liner or an equivalent cover approved by the district office that is composed of an impervious, synthetic material that is resistant to petroleum hydrocarbons, salts and acidic and alkaline solutions and complies with EPA SW-846 Method 9090A.
3. Over the sloping, stabilized material and liner, place the **Soil Cover Design**:
   a. at least 3-feet of compacted, uncontaminated, non-waste containing earthen fill with chloride concentrations less than 600 mg/kg as analyzed by EPA Method 300.0.
   b. either the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater, over the 3-foot earth material.
4. Contour the cover to blend with the surrounding topography and to prevent erosion of the cover and ponding over the cover.

Closure Notice

The operator will notify the surface owner by certified mail, return receipt requested, that the operator plans closure operations at least 72 hours, but not more than one week, prior to any closure operation. The notice will include the well name, API number, and location.

After approval for in-place burial, the operator shall notify the district office verbally and in writing at least 72 hours but not more than one week before any closure operation. Notice will include the operator's and the location of the temporary pit. The location will include unit letter, section number, township and range. If the location is associated with a well, then the well's name, number and API number will be included.

Should onsite burial be on private land, the operator will file a deed notice including exact location of the burial with the county clerk of the county where the onsite burial is located.

Closure Report

Within 60 days of closure completion, the operator will submit a

i. closure report on form C-144, with necessary attachments
ii. a certification that all information in the report and attachments is correct, that the operator has complied with all applicable closure requirements and conditions

specified in the approved closure plan

iii. a plat of the pit location on form C-l05

iv. if burial is in a nearby trench/pit, a separate C-105 showing the exact location

Unless the permit transmittal letter requests an alternative maker to comply with surface landowner specifications, the operator will place at the center of an onsite burial a steel marker that

- is not less than four inches in diameter
- is placed at the bottom of a three-foot deep hole (minimum) that is filled with cement to secure the marker
- is at least four feet above mean ground level
- permanently displays the operator name, lease name, well number, unit letter, section, township and range in welded or stamped legible letters/numbers

Timing of Closure

The operator will close the temporary pit within 6 months from the date the drilling or workover rig was released from the site. This date will be noted on form C-105 or C-103 filed with the division upon the well's or workover's completion.

Reclamation and Re-vegetation Plan

In addition to the area of the in-place burial, the operator will reclaim to a safe and stable condition that blends with the surrounding undisturbed area

1. the pit location not used for burial
2. other areas associated with the in-place burial including access roads

Areas not reclaimed as described herein due to their use in production or drilling operations will be stabilized and maintained to minimize dust and erosion.

As stated above, the soil cover for burial in-place

A. consists of a minimum of three feet of non-waste containing, uncontaminated, earthen material with chloride concentrations less than 600 mg/kg as analyzed by EPA Method 300.0 placed over the liner and stabilized solids

B. is capped by the background thickness of topsoil or 1-foot of suitable material to establish vegetation, whichever is greater

C. blends into surrounding topography

D. is graded to prevent ponding and to minimize erosion

For all areas disturbed by the closure process that will not be used for production operations or future drilling, the operator will

I. Replace topsoils and subsoils to their original relative positions

II. Grade so as to achieve erosion control, long-term stability and preservation of surface

water flow patterns

III. Reseed in the first favorable growing season following closure

Re-vegetation and reclamation plans imposed by the surface owner will be outlined in communications with the OCD.

The operator will notify the division when the surface grading work element of reclamation is complete.

The operator will notify the division when the site meets the surface owner's requirements or exhibits a uniform vegetative cover that reflects a life-form ratio of plus or minus fifty percent (50%) of pre-disturbance levels and a total percent plant cover of at least seventy percent (70%) of pre-disturbance levels, excluding noxious weeds.