District I
1625 N French Dr , Hobbs, NM 88240
District II
1301 W Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S St Francis Dr , Santa Fe, NM 87505

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

Form C-144
July 21, 2008

For temporary pits, closed-loop systems, and below-grade tanks, submit to the appropriate NMOCD District Office.
For permanent pits and exceptions submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.

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

Type of action: ☒ Permit of a pit, closed-loop system, below-grade tank, or proposed alternative method
☐ Closure of a pit, closed-loop system, below-grade tank, or proposed alternative method
☒ Modification to an existing permit
☐ Closure plan only submitted for an existing permitted or non-permitted pit, closed-loop system, below-grade tank, or proposed alternative method

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

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

1.
Operator: Murchison Oil &Gas, Inc OGRID #: 15363
Address: 1100 Mira Vista Blvd., Plano, Texas 75093-4698
Facility or well name: Polar Bear State Com #4H
API Number: 30-015-40130 OCD Permit Number: 212746
U/L or Qtr/Qtr H Section 1 Township 17S Range 28E County: Eddy
Center of Proposed Design: Latitude 32.866091 Longitude 107.12179 NAD: ☐1927 ☒ 1983
Surface Owner: ☐ Federal ☒ State ☐ Private ☐ Tribal Trust or Indian Allotment

RECEIVED
APR 25 2012
NMOCD ARTESIA

2.
☒ **Pit:** Subsection F or G of 19.15.17.11 NMAC
Temporary: ☒ Drilling ☐ Workover
☐ Permanent ☐ Emergency ☐ Cavitation ☐ P&A
☒ Lined ☐ Unlined Liner type: Thickness 20 mil ☒ LLDPE ☐ HDPE ☐ PVC ☐ Other
☒ String-Reinforced
Liner Seams. ☒ Welded ☒ Factory ☐ Other Volume: See Plates Dimensions: L x W x D

3.
☐ **Closed-loop System:** Subsection H of 19.15.17.11 NMAC
Type of Operation ☐ P&A ☐ Drilling a new well ☐ Workover or Drilling (Applies to activities which require prior approval of a permit or notice of intent)
☐ Drying Pad ☐ Above Ground Steel Tanks ☐ Haul-off Bins ☐ Other
☐ Lined ☐ Unlined Liner type: Thickness mil ☐ LLDPE ☐ HDPE ☐ PVC ☐ Other
Liner Seams: ☐ Welded ☐ Factory ☐ Other

4.
☐ **Below-grade tank:** Subsection I of 19.15.17 11 NMAC
Volume: bbl Type of fluid:
Tank Construction material:
☐ Secondary containment with leak detection ☐ Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off
☐ Visible sidewalls and liner ☐ Visible sidewalls only ☐ Other
Liner type: Thickness mil ☐ HDPE ☐ PVC ☐ Other

5.
☐ **Alternative Method:**
Submittal of an exception request is required. Exceptions must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

6.

Fencing: Subsection D of 19.15.17.11 NMAC *(Applies to permanent pits, temporary pits, and below-grade tanks)*

☐ Chain link, six feet in height, two strands of barbed wire at top *(Required if located within 1000 feet of a permanent residence, school, hospital, institution or church)*

☒ Four foot height, four strands of barbed wire evenly spaced between one and four feet

☐ Alternate. Please specify_____

7.

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

☐ Screen ☐ Netting ☐ Other Not Applicable

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

8.

Signs: Subsection C of 19.15 17.11 NMAC

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

☒ Signed in compliance with ~~19.15.3.103 NMAC~~ 19.15.16.8 NMAC

9.

Administrative Approvals and Exceptions:

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

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

☒ Administrative approval(s): Requests must be submitted to the appropriate division district or the Santa Fe Environmental Bureau office for consideration of approval.

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

10.

Siting Criteria (regarding permitting): 19.15.17.10 NMAC

Instructions: The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Applicant must attach justification for request. Please refer to 19.15.17.10 NMAC for guidance. **Siting criteria does not apply to drying pads or above-grade tanks associated with a closed-loop system.**

Ground water is less than 50 feet below the bottom of the temporary pit, permanent pit, or below-grade tank. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells **SEE FIGURE**	☐ 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 **SEE FIGURES**	☐ Yes ☒ No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. *(Applies to temporary, emergency, or cavitation pits and below-grade tanks)* - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image **SEE FIGURES**	☐ Yes ☒ No ☐ NA
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. *(Applies to permanent pits)* - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image **SEE FIGURES**	☐ Yes ☐ No ☒ NA
Within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site **SEE FIGURES**	☐ 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. **SEE FIGURE** - Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☒ No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site **SEE FIGURE 5**	☐ Yes ☒ No ☐ Yes ☒ No
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division **SEE FIGURE**	☐ Yes ☒ No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map **SEE FIGURE**	☐ Yes ☒ No
Within a 100-year floodplain. - FEMA map **SEE FIGURE**	

11.
Temporary Pits, Emergency Pits, and Below-grade Tanks Permit Application Attachment Checklist: Subsection B of 19.15.17 9 NMAC
Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Hydrogeologic Report (Below-grade Tanks) - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
- ☒ Hydrogeologic Data (Temporary and Emergency Pits) - based upon the requirements of Paragraph (2) of Subsection B of 19.15.17.9 NMAC
- ☒ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☒ Design Plan - based upon the appropriate requirements of 19.15 17.11 NMAC
- ☒ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☒ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

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

12.
Closed-loop Systems Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC
Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Geologic and Hydrogeologic Data (only for on-site closure) - based upon the requirements of Paragraph (3) of Subsection B of 19.15.17.9
- ☐ Siting Criteria Compliance Demonstrations (only for on-site closure) - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Design Plan - based upon the appropriate requirements of 19.15.17 11 NMAC
- ☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☐ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

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

☐ Previously Approved Operating and Maintenance Plan API Number: _____ *(Applies only to closed-loop system that use above ground steel tanks or haul-off bins and propose to implement waste removal for closure)*

13.
Permanent Pits Permit Application Checklist: Subsection B of 19.15.17.9 NMAC
Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Hydrogeologic Report - based upon the requirements of Paragraph (1) of Subsection B of 19.15.17.9 NMAC
- ☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Climatological Factors Assessment
- ☐ Certified Engineering Design Plans - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Dike Protection and Structural Integrity Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Leak Detection Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Liner Specifications and Compatibility Assessment - based upon the appropriate requirements of 19.15 17.11 NMAC
- ☐ Quality Control/Quality Assurance Construction and Installation Plan
- ☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☐ Freeboard and Overtopping Prevention Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Nuisance or Hazardous Odors, including H_2S, Prevention Plan
- ☐ Emergency Response Plan
- ☐ Oil Field Waste Stream Characterization
- ☐ Monitoring and Inspection Plan
- ☐ Erosion Control Plan
- ☐ Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17 13 NMAC

14.
Proposed Closure: 19.15 17.13 NMAC
Instructions: Please complete the applicable boxes, Boxes 14 through 18, in regards to the proposed closure plan.

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

Proposed Closure Method:
- ☐ Waste Excavation and Removal
- ☐ Waste Removal (Closed-loop systems only)
- ☒ On-site Closure Method (Only for temporary pits and closed-loop systems)
  - ☒ In-place Burial ☐ On-site Trench Burial
- ☐ Alternative Closure Method (Exceptions must be submitted to the Santa Fe Environmental Bureau for consideration)

15.
Waste Excavation and Removal Closure Plan Checklist: (19.15.17.13 NMAC) ***Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.***

- ☐ Protocols and Procedures - based upon the appropriate requirements of 19.15 17.13 NMAC
- ☐ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC
- ☐ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings)
- ☐ Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC
- ☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

16.
Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only: (19.15.17.13.D NMAC)
Instructions: Please indentify the facility or facilities for the disposal of liquids, drilling fluids and drill cuttings. Use attachment if more than two facilities are required.

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

Will any of the proposed closed-loop system operations and associated activities occur on or in areas that *will not* be used for future service and operations?
☐ Yes (If yes, please provide the information below) ☐ No

Required for impacted areas which will not be used for future service and operations:
☐ Soil Backfill and Cover Design Specifications - - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC
☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

17.
Siting Criteria (regarding on-site closure methods only): 19.15.17.10 NMAC
Instructions: Each siting criteria requires a demonstration of compliance in the closure plan. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17.10 NMAC for guidance.

Ground water is less than 50 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☒ No ☐ NA
Ground water is between 50 and 100 feet below the bottom of the buried waste - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☒ No ☐ NA
Ground water is more than 100 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☒ Yes ☐ No ☐ NA
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☒ No
Within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☒ No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☒ No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	☐ Yes ☒ No
Within a 100-year floodplain. - FEMA map	☐ Yes ☒ No

18.
On-Site Closure Plan Checklist: (19 15.17.13 NMAC) ***Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.***
☒ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
☒ Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC
☐ Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Construction/Design Plan of Temporary Pit (for in-place burial of a drying pad) - based upon the appropriate requirements of 19.15.17.11 NMAC
☒ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
☒ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC
☒ Waste Material Sampling Plan - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC
☒ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings or in case on-site closure standards cannot be achieved)
☒ Soil Cover Design - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
☒ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC
☒ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

19.
Operator Application Certification:

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

Name (Print): Gregg Boans Title: Production Superintendent

Signature: [signature] Date: 4-25-2012

e-mail address: Gboans@jdmii.com and r@rthicksconsult.com Telephone: 575-361-4962 – (Hicks 505-266-5004)

20.
OCD Approval: ☒ Permit Application (including closure plan) ☐ Closure Plan (only) ☐ OCD Conditions (see attachment)

OCD Representative Signature: Signed By [signature] **Approval Date:** MAY 10 2012

Title: _____ **OCD Permit Number:** 212746

21.
Closure Report (required within 60 days of closure completion): Subsection K of 19.15.17.13 NMAC

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

☐ **Closure Completion Date:** _____

22.
Closure Method:

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

☐ If different from approved plan, please explain.

23.
Closure Report Regarding Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:

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

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

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

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

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

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

24.
Closure Report Attachment Checklist: ***Instructions: Each of the following items must be attached to the closure report. Please indicate, by a check mark in the box, that the documents are attached.***

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

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

25.
Operator Closure Certification:

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

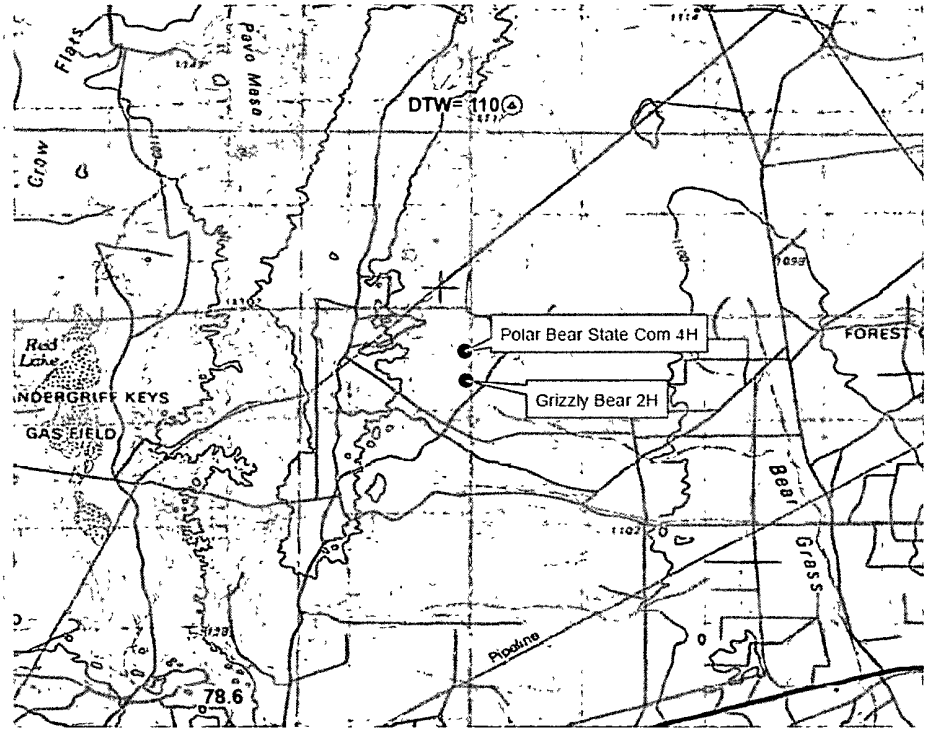
Name (Print): _____ Title: _____

Signature: _____ Date: _____

e-mail address: _____ Telephone: _____

March 2012

C-144 Permit Package for Polar Bear State Com #4H Section 1 T17S R28E Eddy County NM



Prepared for
Murchison Oil & Gas, Inc.
Plano, 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

April 25, 2012

Mr. Mike Bratcher
NMOCD District 2
811 South First Street
Artesia, New Mexico 88210
Via E-mail

RE: Polar Bear State Com 4H, 30-015-40130
Unit H Section 1 T17S R28E

Dear Mike:

For the above-referenced temporary pit, attached are:

1. A C-144 Form (a modification of an existing EZ Permit)
2. Supplemental information to support the C-144
3. A C-102 and copy of maps showing the proposed location of the temporary pit

Please note that this submittal:

A. Includes a provision for a cell of the temporary pit for holding make-up water and flow-back stimulation fluids. Because this cell is multi-use, the C-144 checks only the box for a drilling pit in order to avoid two separate submissions.
B. States that our intension is to close the pit in-place. However, the closure plan does include a provision to use on-site trench burial. If trench burial is necessary, we will notify NMOCD and convert the fluid storage cell to a burial trench in a manner that is consistent with NMOCD Rules.

As shown below, we are sending a copy of this application to the State Land Office to serve as notice to the surface owner of the intention to dispose of drilling waste on-site. As always, thanks for your help.

Sincerely,
R.T. Hicks Consultants

Randall Hicks

Copy: Murchison Oil and Gas, Inc.

New Mexico State Land Office
PO Box 1148
Santa Fe, NM 87504-1148

C-144 and
Site Specific Information for
Drilling Pit

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

Hydrogeologic Report

The information identified in item 10, "Siting Criteria" of the C-144 is attached as: are:

1. Figure 1a– Groundwater Geologic Map with depth to groundwater data from the OSE and USGS databases and Open File Report 95[1]. Please note
   a. The location of the temporary pits is in the center of the red, orange, yellow and green distance circles
   b. Water wells in the OSE database are shown as blue circles with their OSE permit number, depth to groundwater and date of measurement – some OSE wells are mis-located in the WATERS database and the plotted location of well RA 9342 is not consistent with the topographic map data or air photographic data.
   c. Many water wells are not included in the OSE database
   d. Water wells in the USGS Database are shown in green triangles with depth to water and the year of measurement
   e. Water well data from Open File Report 95 are shown as open blue circles with depth to water measurements
2. Appendix SSI-A contains information from Open File Report 95
3. Figure 1b – Groundwater Elevation and Geology Map with the calculated groundwater elevations
4. Figure 1c – Groundwater Elevation Map from Open File Report 95
5. Figure 2- USGS topographic map of the area. These maps show
   a. locations of any significant watercourses (blue lines in some drainages),
   b. mapped surface water, which is limited to the closed depression west of the proposed well
   c. the location of the temporary pits in the center of the colored distance circles.
6. Figure 3 – 2011 aerial photograph showing
   a. Surface water as presented in Figure 2
   b. the absence of structures other than oil and gas features
7. Figure 4 - is a map that also shows the location of the nearest incorporated municipal boundary (Artesia), about 16 miles east of the temporary pit location
8. Figure 5 – from http://107.20.228.18/Wetlands/WetlandsMapper.html# showing that wetlands are identified as not being in the area directly surrounding the site.
9. Figure 6 – shows the location of the nearest identified mines (caliche pits), which are shown as green circles. No subsurface mines were identified in the area.
10. Figure 7 – shows the area in relation to identified unstable areas, identified as the purple karst area on the right of the map
11. Figure 8 FEMA map – The full-scale index map defines Section 1, the area around the pit, as Zone X, unshaded, indicating the area is a minimal flood risk.

Siting Criteria Compliance Demonstration

As designated in the C-144 the location of the pit and on-site closure meet the criteria of NMOCD Rules. We believe the data presented in Figures 1-8 and Appendix SSI-A and the results of our site visit demonstrate that the following statements are true:

[1] http://geoinfo.nmt.edu/publications/openfile/details.cfml?Volume=95

1. Groundwater is GREATER than 100 feet below the bottom of the temporary pit and on-site closure method

The three databases present several data points in the area of interest that demonstrate that the depth to groundwater is greater than 100 feet. Please note that the topography of the area varies significantly as does the geology of the general area.

As shown in Figures 1a and 1b, accumulation of alluvial sediments(Qa) overlying relatively low permeability bedrock (e.g. Rustler Formation, Pr on the figures) occurs in Bear Grass Draw. Here, shallow groundwater may be expected within the alluvium, probably at elevations of about 3520 feet asl.

West of the location is a closed drainage basin in which the Rustler Formation (Pr) is exposed at the surface. Figures 1a and 1b present the geologic map showing the north-south contact between the Rustler Formation and the older alluvium (Qoa) is near the center of Section 1 and is about ½ mile wide (east-west). Figure 2 shows this contact is characterized by a break in slope and the air photograph of Figure 3 shows the red Quaternary piedmont deposits within the bottom of the closed basin.

Within this closed basin are several surface water bodies (stock ponds or small lakes shown in Figures 2 and 5). In Section 2, west of the location, a windmill is adjacent to a surface water body (see Figures 2 and 5). The depth to groundwater near these recharge areas (surface water) is relatively shallow. As Appendix SSI-A shows, the elevation of groundwater at the well in Section 2 T17S R28E, about one mile west of the location, is about 3550 feet asl.

The proposed well is located on a thin veneer of older alluvium (Qoa) that is underlain by the Rustler or possibly the lower portion of the Santa Rosa Sandstone. Regardless of what formation underlies the older alluvium, groundwater (if present) will occur in the more permeable units (sandstone/limestones) of the Rustler or in the Santa Rosa Sandstone. If groundwater resides in the Rustler, the groundwater elevation is correlated to the elevation of the recharge area in Section 2 T17S R28E, and is about 3550 as discussed above. The nearest recharge area of the Santa Rosa is about 6 miles north and is also at an elevation of about 3500 feet asl.

Figure 1b shows the measured groundwater elevation in wells nearest to the proposed location. Elevations are 3527 feet asl (east toward Bear Grass Draw) and 3540 feet asl, due south of the location. All of these data support a conclusion that the elevation of groundwater beneath the proposed location is no higher than 3550 feet asl. Figure 1c, which is a portion of the potentiometric surface map in Open File Report 95, projects the elevation of groundwater beneath Section 1 T17S R28E as about 3550 feet asl.

Based upon the geology of the area (dip of the strata) and the location of the Santa Rosa Sandstone recharge area, we conclude that the Santa Rosa is not saturated beneath the proposed location. Based upon the geology of the area and the lithology of the Rustler, we conclude that groundwater is confined within the more permeable sandstone lenses that are surrounded by the red clay of the Rustler. The depth to the confined groundwater potentiometric surface in the

Rustler is about 118 feet at the Polar Bear State Com 2H. The ground surface elevation of the proposed well is 3668 feet asl (see attached survey data) and the reserve pit is not 18 feet deep.

2. **The pit, excavated material and on-site closure is NOT within 300 feet of a continuously flowing watercourse, or within 200 feet of any other significant watercourse or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).**

Figures 2 and the results of our site visit confirm this statement. The topographic map of Figure 2 shows an identified drainage (blue dashed line) about 1500 feet southeast of the location.

3. **The pit, excavated material and on-site closure is NOT within 300 feet of a permanent residence, school, hospital, institution, or church in existence at the time of initial application.**

Figures 2-3 and our site visit confirm this statement.

4. **The pit, excavated material and on-site closure is NOT within 500 feet of a private, domestic fresh water well or spring used by less than five households for domestic or stock watering purposes, it is NOT within 1,000 feet of any other fresh water well or spring.**

Figures 1-3 and our site visit support this statement.

5. **The pit, excavated material and on-site closure is NOT 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.**

Figure 4 confirms this statement.

6 **The pit, excavated material and on-site closure is NOT within 500 feet of a wetland.**

Figure 5 and our site visit confirm this statement.

7. **The pit, excavated material and on-site closure is NOT within an area overlying a subsurface mine.**

Figure 6 confirms this statement. All of the mines shown on Figure 6 are surface mines and are typically caliche pits.

8. **The pit, excavated material and, on-site closure is NOT within an unstable area.**

Figure 7 confirms this statement

9. **The pit, excavated material and on-site closure is NOT within a 100-year floodplain.**

The site visit confirms this statement. The FEMA map shows the site is located in Zone X, indicating the area is minimal flood hazard.

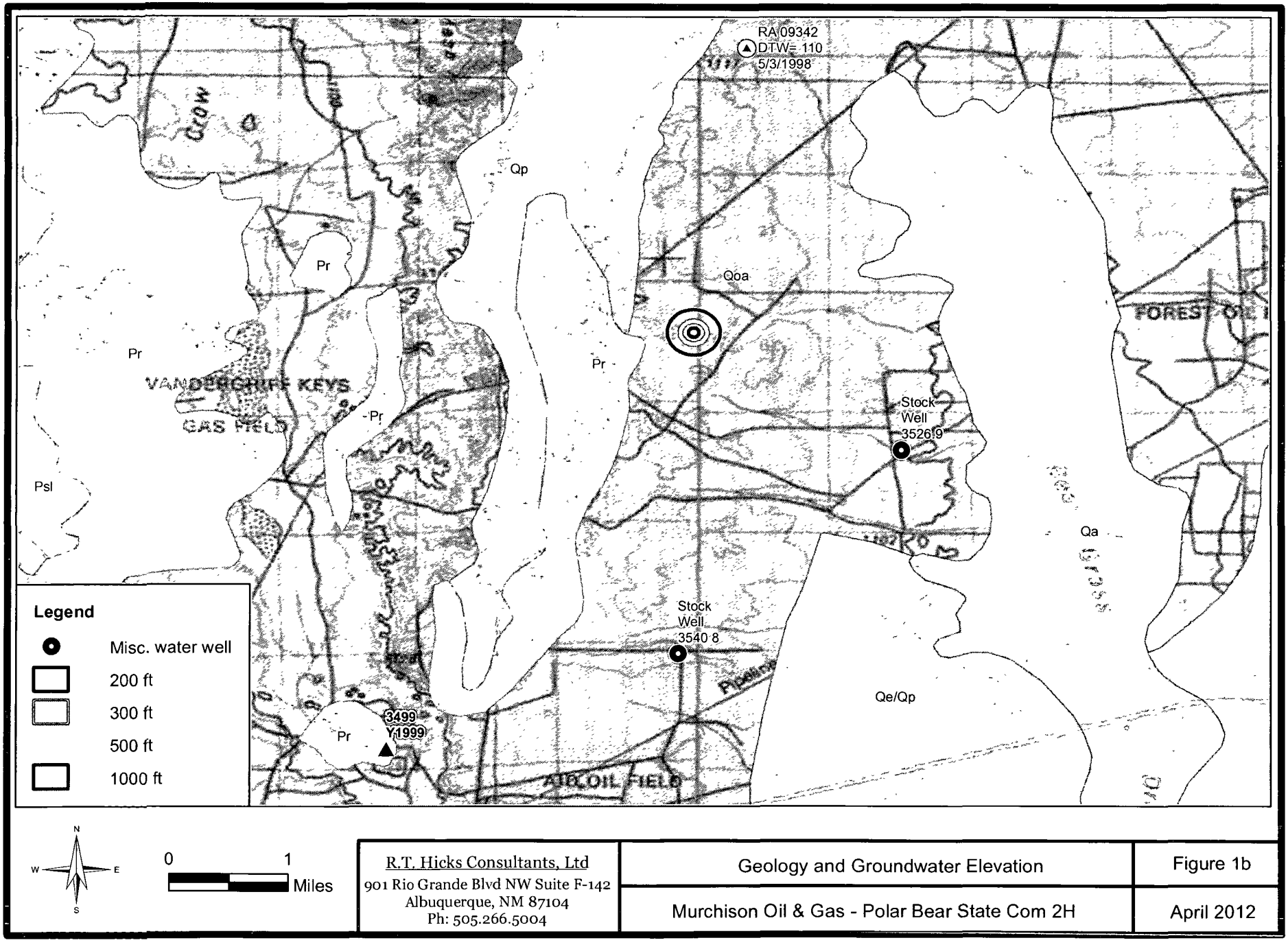
Design of Temporary Pit

Plates SSI-1, SSI-2 and SSI-3 show the design features of the temporary pit. The Design and Construction Plan is included in this submission.

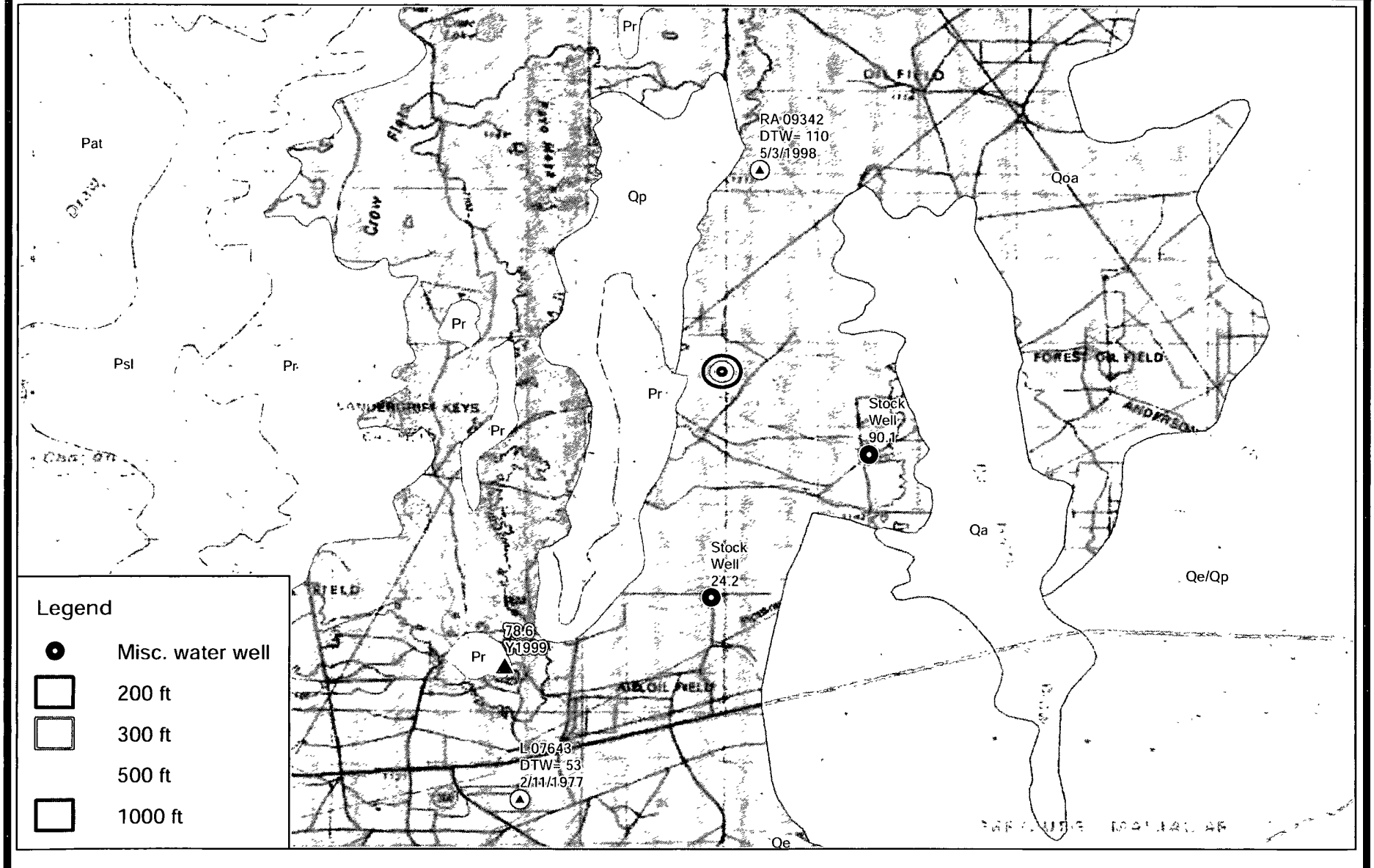
Site Specific Information Figures

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

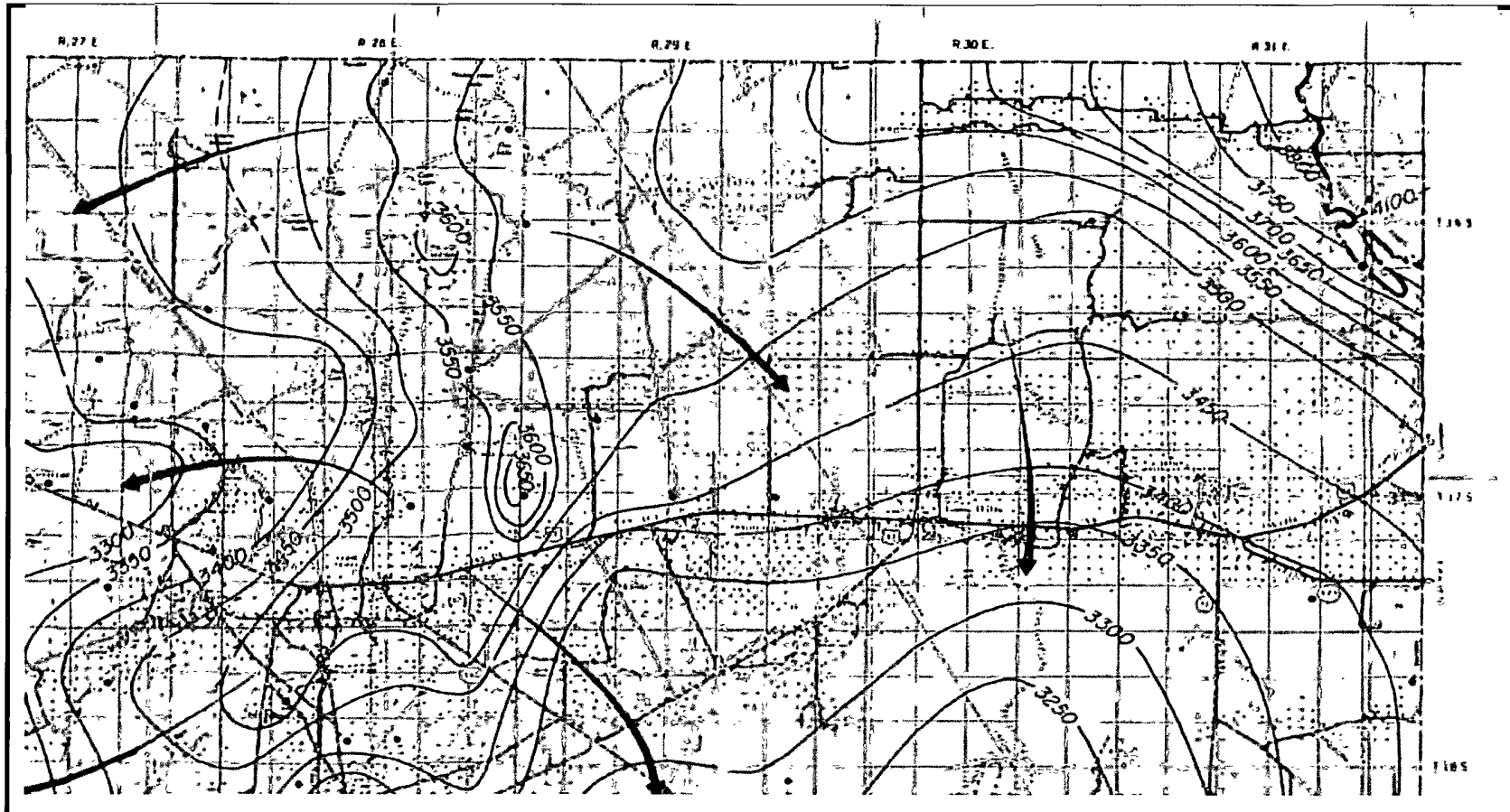
R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Geology and Groundwater Elevation	Figure 1b
	Murchison Oil & Gas - Grizzly Bear 2H	Arpil 2012



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Geology and Groundwater Elevation	Figure 1b
	Murchison Oil & Gas - Polar Bear State Com 2H	April 2012



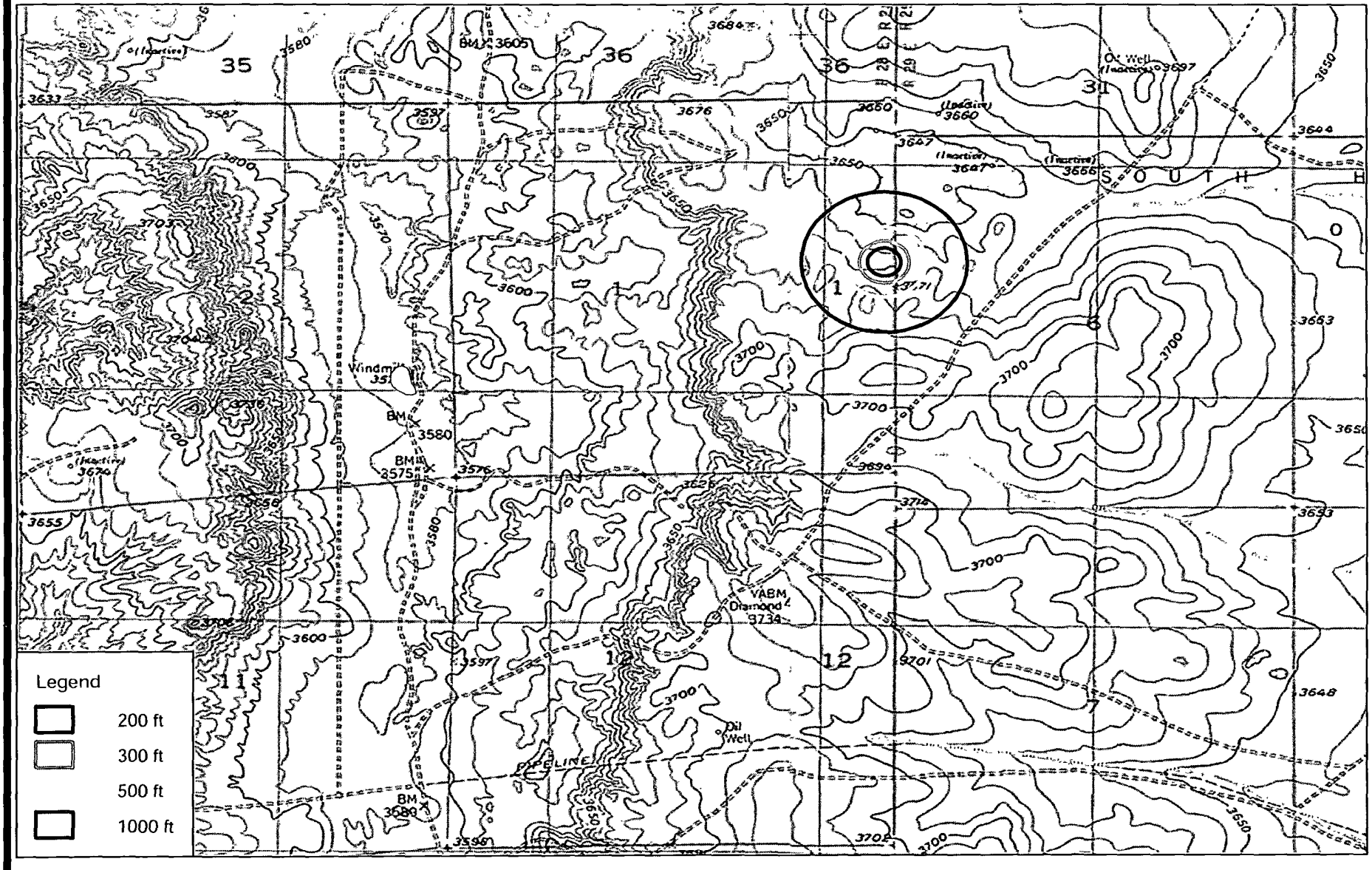
R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Geology and Depth to Groundwater	Figure 1a
	Murchison Oil & Gas - Polar Bear State Com 2H	April 2012



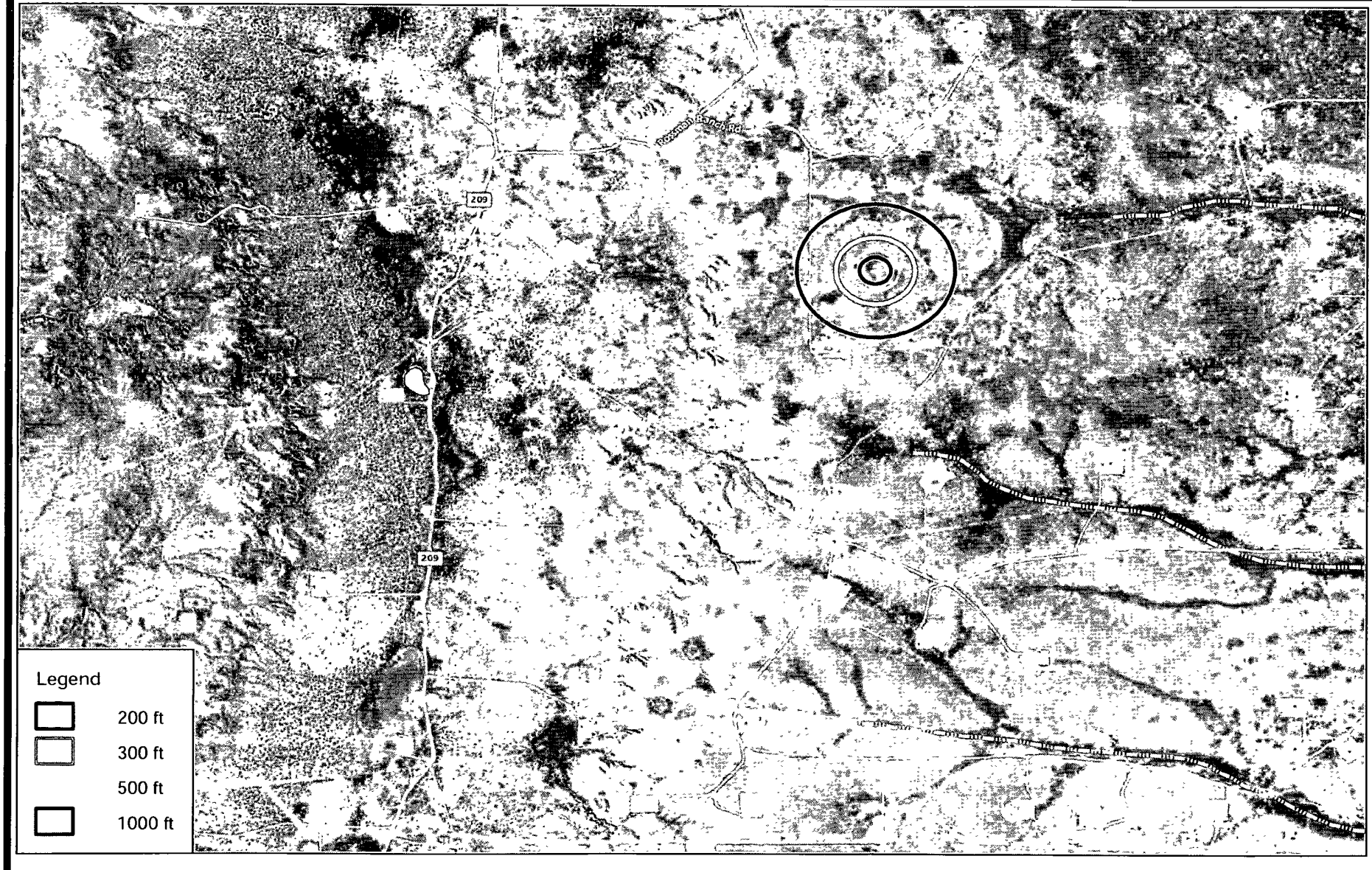
Section 1 T17S R28E outlined in red

Source NMBMMR Open File Report 95

R.T. Hicks Consultants Albuquerque, NM	Groundwater Elevation Map	Figure 1c
	Murchison Oil & Gas - Polar Bear State Com 2H	April 2012



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Topography and Surface Water	Figure 2
	Murchison Oil & Gas - Polar Bear State Com 2H	April 2012



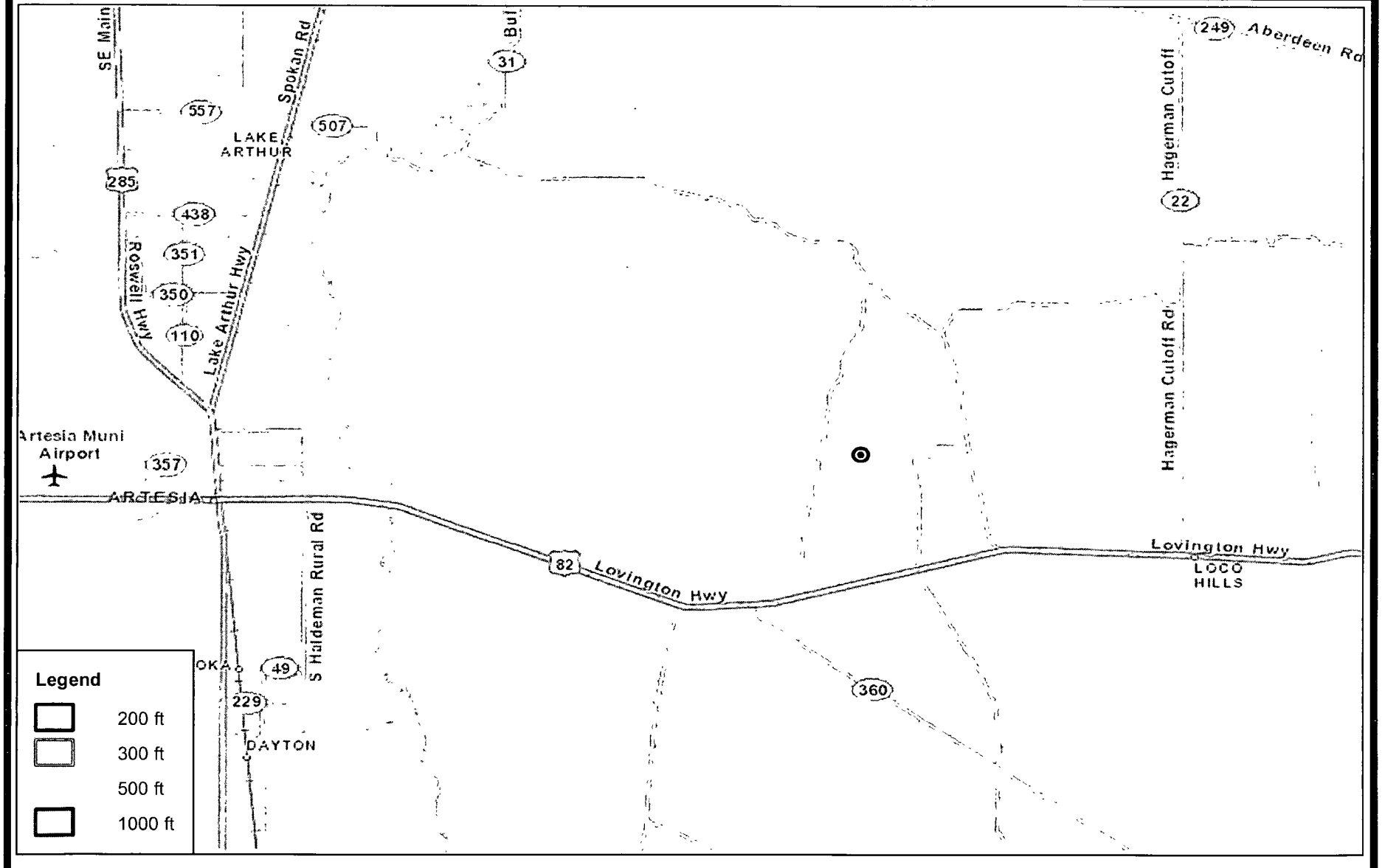
R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

Recent Air Photograph and Surface Water

Figure 3

Murchison Oil & Gas - Polar Bear State Com 2H

April 2012



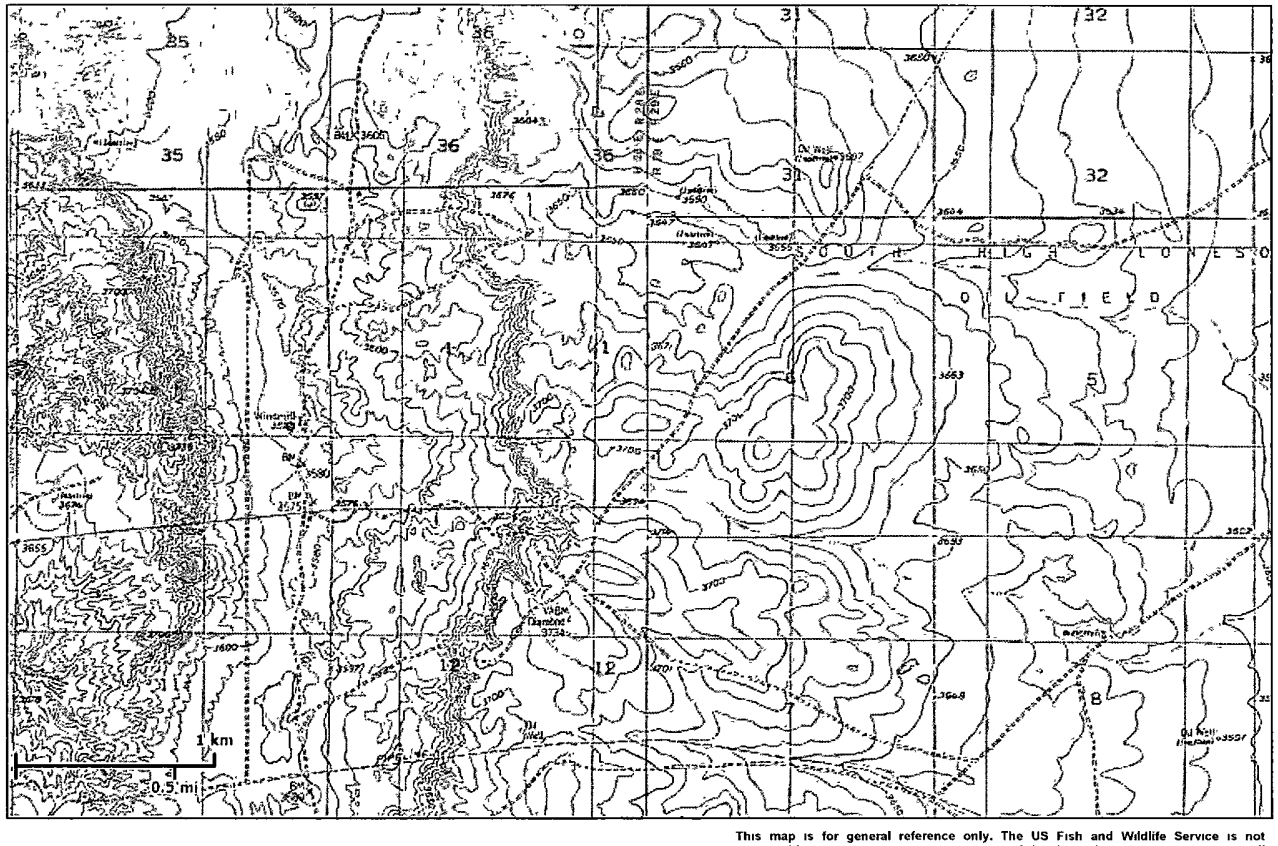
R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Nearest Incorporated Municipality	Figure 4
	Murchison Oil & Gas - Polar Bear State Com 2H	April 2012

U.S. Fish and Wildlife Service

National Wetlands Inventory

Wetlands near Section 1 T17S R28E

Apr 19, 2012



Wetlands

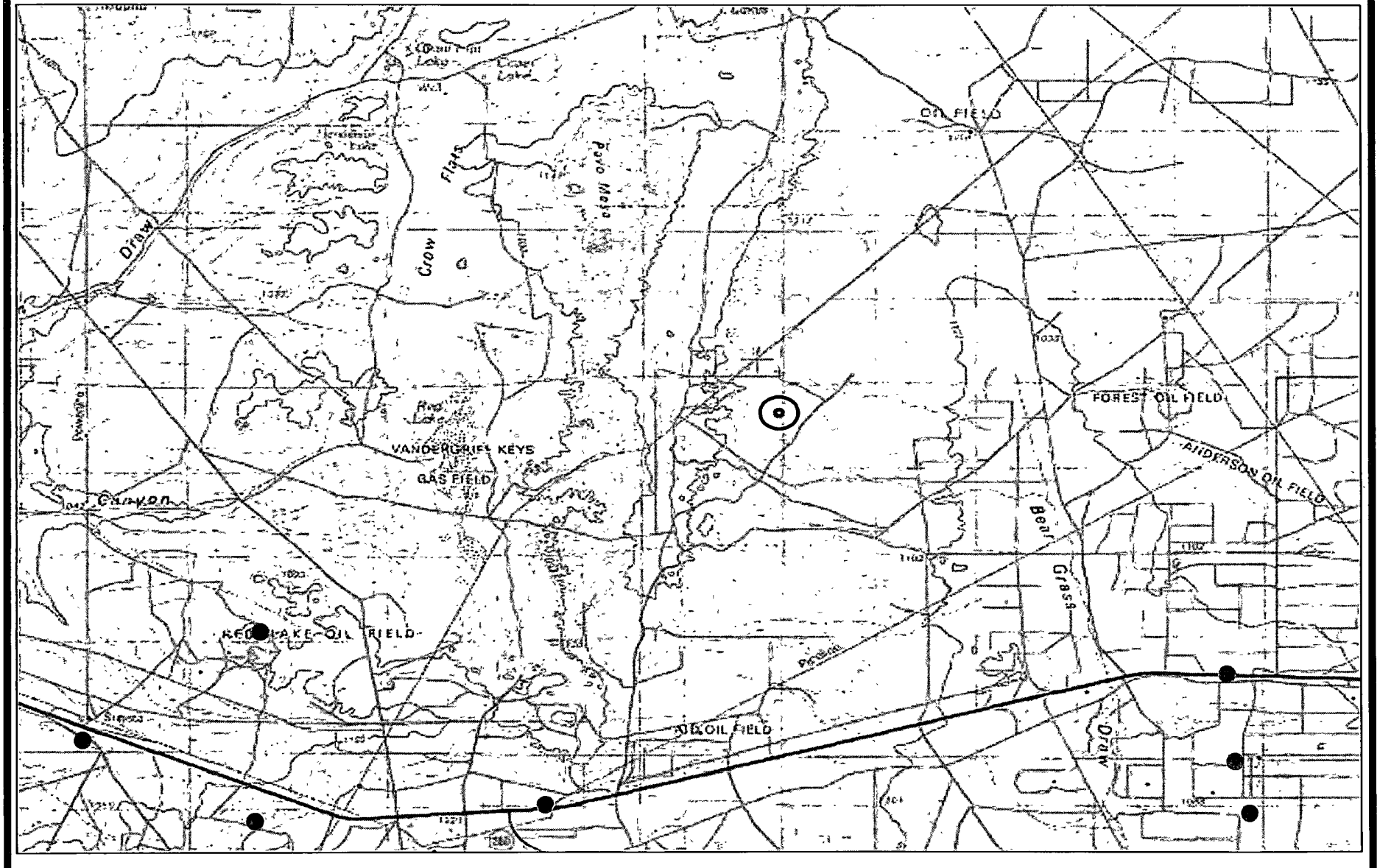
- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

Riparian

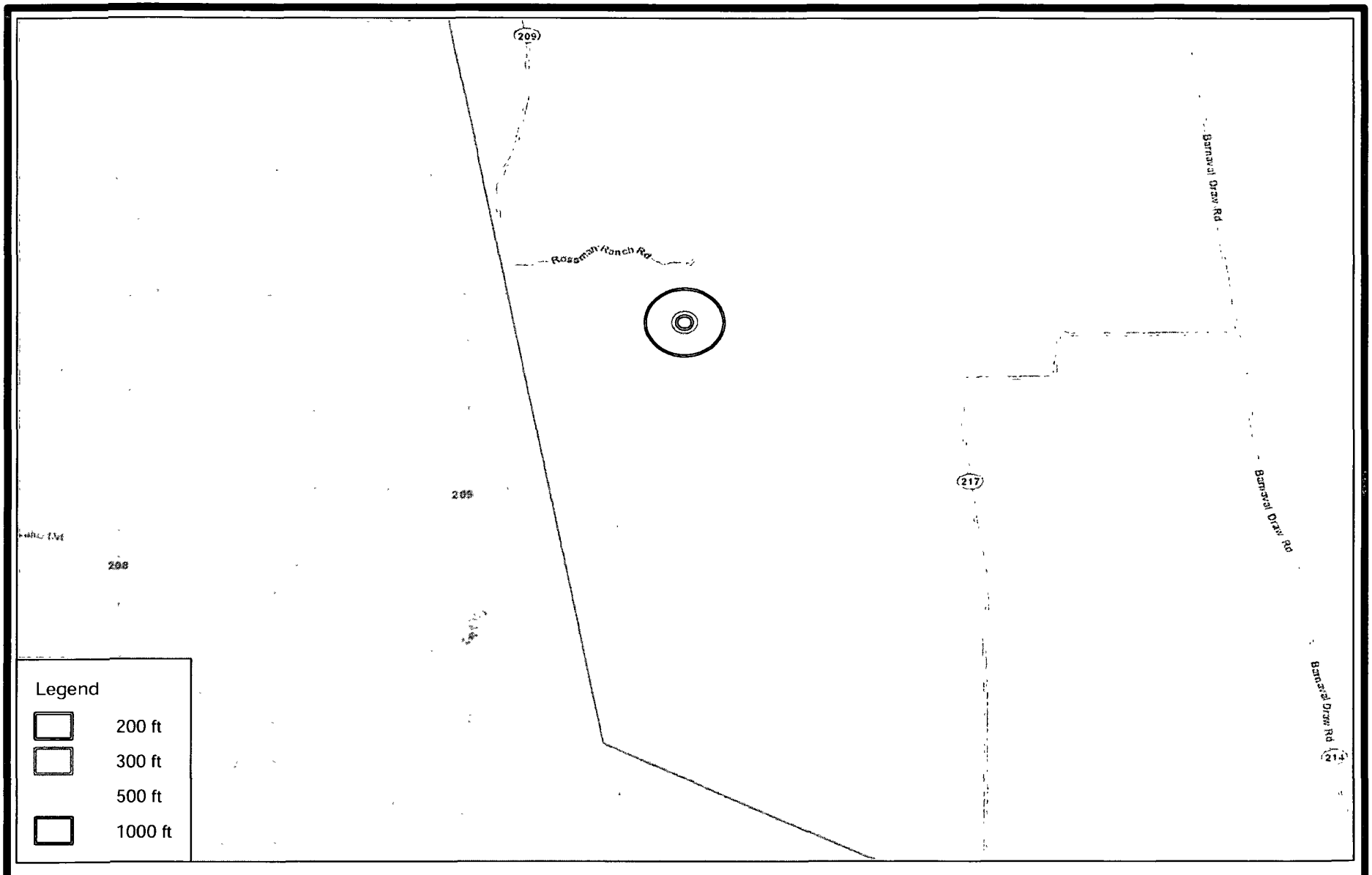
- Herbaceous
- Forested/Shrub

User Remarks: Figure 5

Murchison Oil & Gas, Inc.

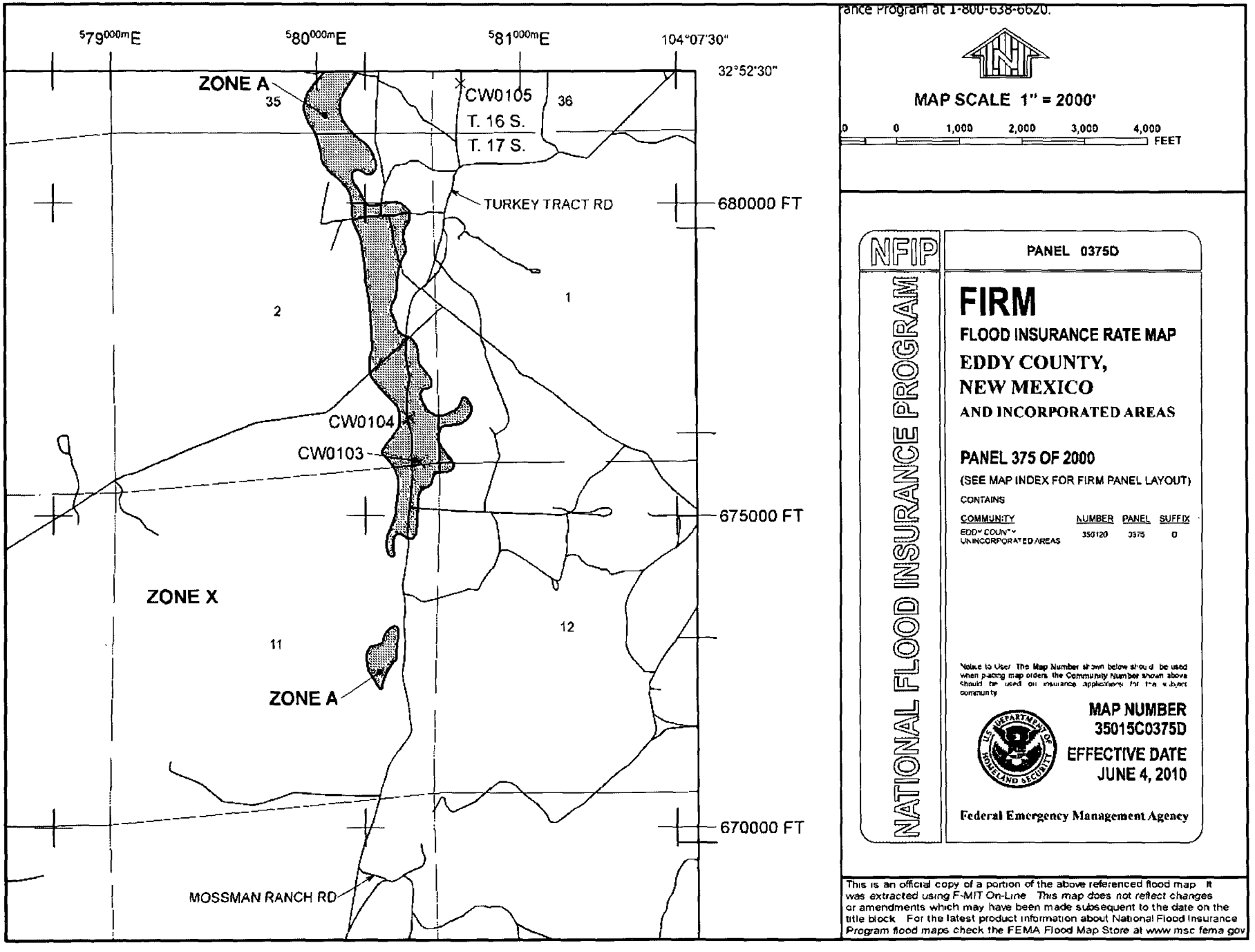


R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Nearest Mines (Green Circles = Caliche Pits)	Figure 6
	Murchison Oil & Gas - Polar Bear State Com 2H	April 2012



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Karst Map	Figure 7
	Murchison Oil & Gas - Polar Bear State Com 2H	April 2012

Figure 8


ance Program at 1-800-638-6620.
MAP SCALE 1" = 2000'
0 0 1,000 2,000 3,000 4,000
FEET
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0375D
FIRM
FLOOD INSURANCE RATE MAP
EDDY COUNTY,
NEW MEXICO
AND INCORPORATED AREAS
PANEL 375 OF 2000
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS
COMMUNITY NUMBER PANEL SUFFIX
EDDY COUNTY UNINCORPORATED AREAS 350120 0375 D
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community
MAP NUMBER
35015C0375D
EFFECTIVE DATE
JUNE 4, 2010
Federal Emergency Management Agency
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov
579000mE
580000mE
581000mE
104°07'30"
32°52'30"
ZONE A
35
CW0105
T. 16 S.
T. 17 S.
36
TURKEY TRACT RD
680000 FT
2
1
CW0104
CW0103
675000 FT
ZONE X
11
12
ZONE A
670000 FT
MOSSMAN RANCH RD

Site Specific Information Plates

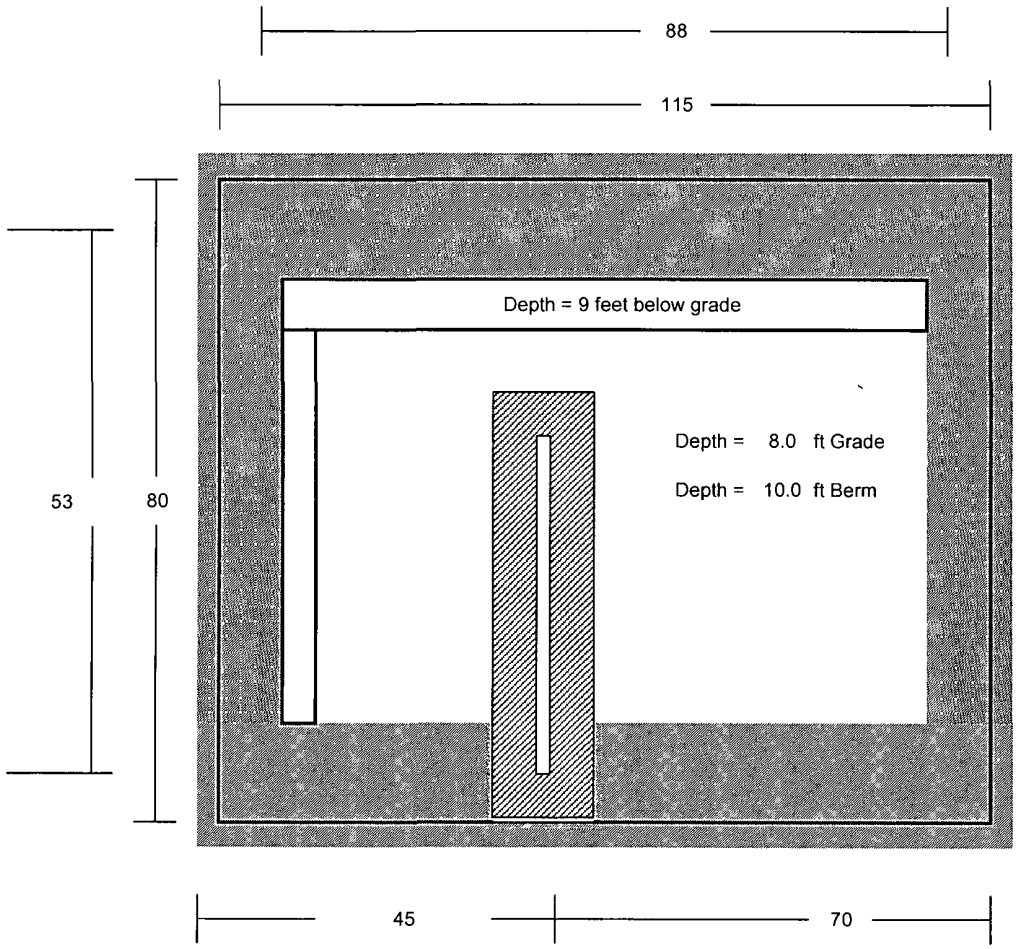
R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

	Below Grade	Below Top of Berm
Average Pit Depth =	8	10

Single Pit Length (top of berm) =	80
Single Pit Width (top of berm) =	115
Single Pit Length (floor) =	53
Single Pit Width (floor) =	88

Pit Capacity (total) =	11,213	bbls
Single Pit Cap To Grade (2 feet freeboard) =	8,047	bbls
Pit Cap (to 4 feet below grade) =	5,369	bbls

Slope of Single Pit
1.0 ft Ver 1 5 ft Horizontal



All Distances Shown
In Feet

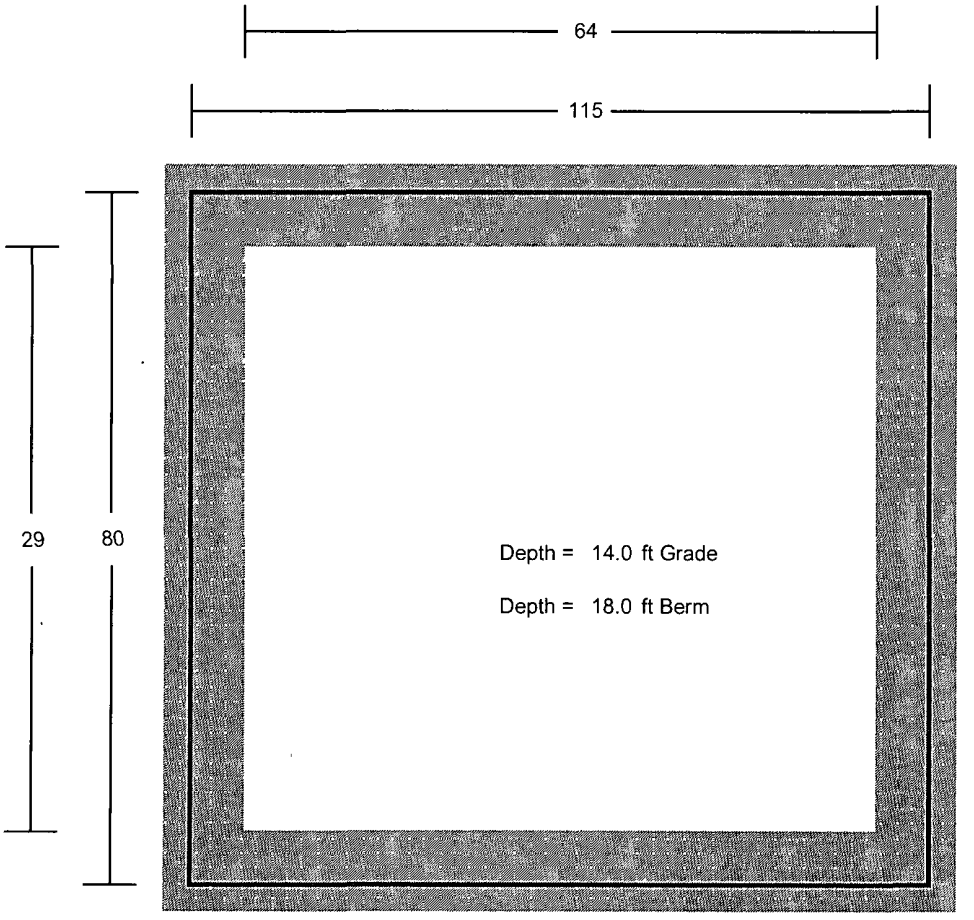
Length of Divider/Bem on Pit Floor = 40 +/- feet

RT Hicks Consultants, Ltd.	Single Horseshoe Reserve Pit Design	Plate SSI-1
	Murchison Oil and Gas, Inc Polar Bear State Com 2H	23-Apr-12

	Below Grade	Below Top of Berm
Average Pit Depth =	14	18

Fluids Pit Length (top of berm) =	80	Fluids Pit Capacity (total) =	15,720 bbls
Fluids Pit Width (top of berm) =	115	Fluids Pit Cap. To Grade (2 feet freeboard) =	12,649 bbls
Fluids Pit Length (floor) =	29	Fluids Pit Cap. (to 4 feet below grade) =	14,279 bbls
Fluids Pit Width (floor) =	64		

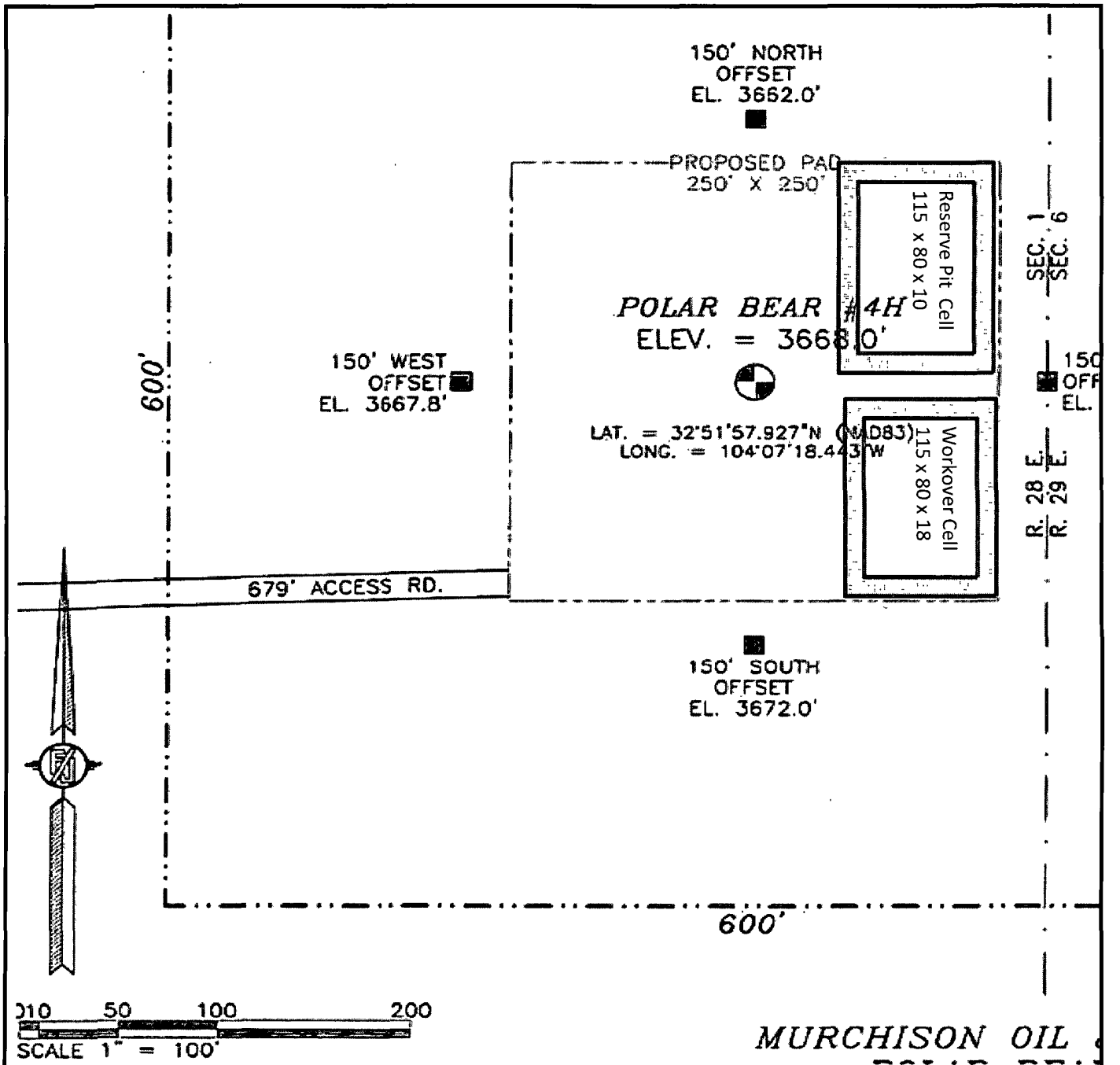
Slope of Outer Pit
1.0 ft Vert : 1.5 ft Horizontal



All Distances Shown In Feet

Distance between Fluids Storage Pit and Reserve Pit = 15 feet from top of berm to top of berm

RT Hicks Consultants, Ltd	Fluids Storage(Workover) Pit Design	Plate SSI- 2
	Murchison Oil and Gas, Inc. Polar Bear State Com 2H	23-Apr-12



R.T. Hicks Consultants Albuquerque, NM	Pit Layout	Plate SSI-3
	Murchison - Polar Bear State Com 2H	April 2012

Appendix SSI-A

Groundwater Data from NMBMMR Open File Report 95

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

Records of wells from Eddy County, New Mexico

Location	Well Status	Altitude (feet)	Depth of Well(ft.)	Depth to Water(ft.)	Aquifer	Date of Measurement	Remarks
16.27.27.133	Domestic		180	70	Qtal ?	Apr.,1963	
27.331	Irrigation	3493	1070	27	Ckbf	Jan.,1963	
36.212	Stock	3454	61.4	47.1	Ckbf	Oct.13,1977	S.C.>8000;17°C
16.28. 3.210	Stock	3576	30.0	8.17		Oct.14,1977	S.C.4600;17°C
12.212	Stock	3579	49.8	47.22		Oct.14,1977	S.C.4100;21°C
16.30.24.122	Stock	3828	380.1	330.69		Oct.17,1977	S.C.1560;21.5°C
16.31. 2.122	Stock		320	290+	Ogll ?	Dec.9,1948	
2.12124	Stock/Domestic	4116		304.618	Ogll	Mar.30,1971	
14.24444	Stock	4396		297.40	Ogll	Mar.30,1971	
14.300	Stock			113.4	Dckm ?	Dec.9,1948	
22.44414	Stock	4250	167	153.40	Ogll	Mar.30,1971	
23.443	Stock	4240	161.8	155.02			
17.27. 3.120	Aband. Stock			130+	Ckbf	Dec.1,1948	
5.444		3354	80	30		Oct.16,1952	
11.110	Stock			18.1	Ckbf ?	Dec.1,1948	
12.413	Irrigation	3472	250	115			
16.344	Domestic		1042	260		Apr.,1954	
16.344	Domestic	3435		182.36		Jan.,1960	
16.344	Domestic	3260	1220	175		Jan.18,1966	
17.4	Domestic	3386	300	90		Mar.15,1960	
18.234	Domestic	3312	138	111	Qtal	Feb,1963	
32.313		3420		78.16		Jan.12,1973	
32.32		3444	330	140		Aug.,1956	
32.320		3420		92.68		Jan.9,1964	
17.28. 2.240	Stock			27.6	Dckm ?	Dec.1,1948	

Records of wells from Eddy County, New Mexico

Location	Well Status	Altitude (feet)	Depth of Well(ft.)	Depth to Water(ft.)	Aquifer	Date of Measurement	Remarks
17.28.14.220	Stock/domestic			80	Dckm ?		
19.200	Stock			224.3	Ckbf/Rslr	Dec.2,1948	
22.230	Abandoned stock			45.5	Rslr/Dckm	Dec.1,1948	
24.224	Stock	3565	33.88	24.2		Oct.14,1977	
17.29. 8.231	Stock	3617	92.7	90.13		Oct.14,1977	
22.110	Stock	3550		79.7	Dckm ?	Nov.29,1948	
29.400	Stock			210	Dckm ?	Dec.3,1948	
17.31.34.000	Stock			271+	Dckm	Dec.6,1948	
18.27. 8.240	Unused	3505		181.40		Jan.9,1964	
8.244	Industrial	3513	381	325 ?		Apr.,1951	Oil test
10.200	Unused	3470		46.92		Jan.9,1964	
10.214	Industrial	3493	130	50		Jul.,1958	Oil test
28.13	Domestic/stock	3377	120	100		May,1960	
28.140	Unused	3415		91.37		Jan.9,1964	
33.42	Stock	3447	90	49.3		Sep.,1969	
18.28. 8.330	Stock			81.6	Ckbf/Rslr	Dec.3,1948	
30.110	Stock/domestic	3560		137.1	Ckbf ?	Dec.2,1948	
18.29.24.142	Windmill	3436		156.44		Oct.18,1977	S.C.2600; 21°C
24.23311	Windmill	3436		160.20	Trsc	Apr.8,1971	
24.300	Stock	3430		158.3	Dckm	Apr.28,1950	
34.324	Stock	3440	250	230		Mar.,1960	Yield: 63gpm
18.30.21.4200	Open cased hole	3495		266.48	Trcl	Dec.9,1965	
22,2220	Open cased hole	3430		239.26	Trcl	Apr.8,1971	
26.4140	Stock	3430	223.0	201.67	Trcl	Dec.14,1977	S.C. 1100
31.323	Observation	3370	161.0	157.80		Nov.18,1977	
32.32422	Windmill	3380		161.28	Trcl	Apr.8,1971	
32.413	Abandoned windmill	3370	266	158.77		Oct.18,1977	
18.31. 1.44432	Windmill	3797		460.42	Trcl	Apr.7,1971	
12.223	Stock	3795	480+	453.39		Oct.18,1977	
12.23144	Stock	3775	600	435.34	Trcl	Apr.7,1971	

Records of wells from Eddy County, New Mexico

Location	Well Status	Altitude (feet)	Depth of Well(ft.)	Depth to Water(ft.)	Aquifer	Date of Measurement	Remarks
18.31.14.22133	Open cased hole	3731	400	377.30	Trcl	Apr.6,1971	
35.31324	Domestic	3631	300	261.08	Trcl	Apr.5,1971	
19.27.13.310	Dug well	3450	75	60.7	Ckbf	Sep.3,1948	Very small yield
14.242	Stock/Domestic	3450	95 ?	82.4	Ckbf	Jan.20,1950	North well of 3
16.13	Stock	3342	926	18		Jan.,1969	
19.28. 2.122	Stock	3460	160	128.3	Rslr ?	Dec.13,1948	Yield: 1gpm(est.)
2.23311	Domestic/Stock	3439		153.84	Rslr	Apr.2,1968	
5.21114	Windmill	3547	160.0	150.62	Rslr	Jan.28,1971	
5.411		3530	312	145		Nov.,1969	
9.31	Stock	3545	365	265		May,13,1966	Yield: 60gpm;after 24 hrs. pumping
13.210	Stock	3370		154.5	Rslr	Dec.3,1948	Yield: 3gpm
13.21441	Stock	3369	160	153.02	Rslr	Feb.1,1971	Yield:½(est.)
18.120	Stock	3502		82.8	Ckbf ?	Sep.3,1948	
18.11	Stock	3490	93	74		Mar.,1972	
18.12113	Stock	3505	100	88.31	Rslr	Jan.28,1971	
19.11	Stock	3495	100	91		Mar.,1972	
24.32233	Windmill	3351		130.10	Rslr	Feb.1,1971	
33.210	Stock	3345	170	123.41	Rslr ?	Dec.21,1948	
33.21422	Windmill	3545	125	121.07	Rslr	Jan.28,1971	
36.43233	Windmill	3292	87	71.75	Rslr	Feb1,1971	
19.29.10.43211	Stock	3370	153.0	145.84	Rslr	Feb.1,1971	
13.410	Stock	3310	250	123.2	Rslr/Dckm	Dec.21,1948	
13.41224	Windmill	3310		113.03	Rslr	Dec.9,1965	
13.412243	Open cased hole	3311		110.64	Rslr	Feb. 1, 1971	
20.220	Stock	3305		62.9	Rslr ?	Dec. 13,1948	Yield: 2gpm(est.)
20.24111	Windmill	3305		66.87	Rslr	Feb.1,1971	
23.23144	Windmill	3268	85.0	68.91	Rslr	Feb.1,1971	
25.232	Stock	3355	125.7	64.03		Oct.18,1977	Yield: 1gpm(est.) S.C.2950;21°C
19.30. 9.441	Industrial	3358	300		Rslr		Yield:500gpm; 21°C.
17.441	Stock	3329		142.70	Trsc	Feb. 1,1971	

Records of wells from Eddy County, New Mexico

Location	Well Status	Altitude (feet)	Depth of Well(ft.)	Depth to Water(ft.)	Aquifer	Date of Measurement	Remarks
19.30.25.1122	None			22.98		Dec.16,1977	Abandoned windmill
25.12133	Stock	3239		19.53	Trsc	Feb.1,1971	Windmill
25.123	Observation	3245	42.0	22.73		Nov.18,1977	Abandoned windmill
19.31.27.21144	Open cased hole	3573		142.71	Trsc	Feb.1,1971	
27.23344	Oil test	3573		143		Feb.1,1971	Abandoned
28.330	Domestic	3480		180	Dckm	Nov.29,1948	
28.333		3442		110.07		Dec.14,1977	
28.3332	Domestic/stock	3483	200.0	186.87		Dec.15,1977	S.C.2200
28.33433	Stock	3442	180	108.21	Trsc	Feb.1,1971	Abandoned
31.132		3397	4,103	632.55	Cplm	May, 1973	
33.110	Abandoned	3450	160	100.7	Dckm	Nov.29,1948	North well of 3
33.142	Domestic/stock	3455	250	140		Sep.30,1959	
20.26.36.411	Stock	3240		120.0	Clbd	Oct.6,1948	Yield: 1½gpm
20.27. 1.110	Stock	3367	200+	186.0	Clbd	Sep.7,1948	Yield: 1gpm
2.42	Stock	3365	145	145+			Dry hole
14.42	Stock	3315	81	66		May, 1972	
21.	Domestic	3238	171	150		Feb.,1963	
29.440	Stock	3190	125	75.5	Clbd	Oct.6,1948	Yield: 2½gpm
20.28.14.123		3246	171	140		Oct.24,1973	Yield: 40gpm
28.200	Stock	3225		30.5	Rslr ?	Jan.20,1950	
36.140	Stock	3210		19.1	Rslr ?	Dec.27,1948	
20.29. 3.433	Stock	3300		91.9	Dckm/Rslr	Dec.13,1948	
3.434	Stock, windmill	3300	95.8	88.34		Dec.15,1977	S.C.2300
16.434	Abandoned	3259	103.1	52.28		Dec.15,1977	
20.311	Stock	3246	62.8	43.76		Dec.15,1977	S.C.2700
35.24		3330	339	157		Aug.20,1967	

Records of wells from Eddy County, New Mexico

Location	Well Status	Altitude (feet)	Depth of Well(ft.)	Depth to Water(ft.)	Aquifer	Date of Measurement	Remarks
20.30. 3.223	Stock	3175		6.0	Qtal	Dec. 23, 1948	
3.424	Stock	3185		8.5	Qtal	Dec.23,1948	
5.310	Stock	3184		3.5	Qtal	Dec.23,1948	
7.112	Stock	3227	42.8	27.24		Dec. 15,1977	S.C.2600
16.420	Stock	3220		29.9	Dckm ?	May 1,1950	
17.433	Aband.	3215	66.0	26.35		Dec.15,1977	
20.120	Domestic	3210	90	29.3	Dckm ?	Dec.22,1948	Yield: 5gpm(est.)
20.130	Domestic	3210	60	45.3	Dckm ?	Dec.22,1948	
20.142	Aband.	3205	63.3	10.48		Dec.15,1977	
21.434	Industrial	3335	335	150		Jan.16,1974	Yield: 15gpm(est.) Oil test
31.214	None	3298	180.1	100.95		Oct.16,1977	S.C.8000;20°C
32.341		3365		327.32	Cplm	Sep.,1974	
33.32	Industrial	3330	235	195		Mar.31,1967	Oil test
33.440	Stock.	3380	240+	203.8	Dckm ?	Dec.27,1948	
20.31.13.42	Stock,Aband.	3427	32.5	1.1		Oct.5,1977	S.C.8000;70°F
13.440	Stock	3450		203.8	Dckm ?	Dec.22,1948	
15.130	Stock	3450	70 ?	63.1	Dckm ?	Dec.22,1948	
16.24	Stock	3458	110.0	61.0	Dckm ?	Oct.5,1977	Aband.
21.26.23.133	Irrigation	3144.35	418	41.04	Clbd	Jan.21,1970	
24.424	Irrigation	3154.94	320	50.26	Tnsl	Jan.10,1975	
25.344	Domestic,Irrigation	3124.65		17.60	Tnsl	Jan.16,1974	
36.212.	Irrigation	3123.26	200	23.56	Vlfl	Jan.10,1975	
21.27. 1.420	Stock	3180	30	12.7	Rslr/Qtal	Dec.27,1948	Yield: 1gpm(est.)
5.411		3280	2565	199.31	Cplm	Sep.,1974	
6.140	Stock	3190		34.1	Clbd ?	Sep.3,1948	

Records of wells from Eddy County, New Mexico

Location	Well Status	Altitude (feet)	Depth of Well(ft.)	Depth to Water(ft.)	Aquifer	Date of Measurement	Remarks
21.27. 9.330	Stock	3220		81.4	Qtal	Jan.25,1950	
9.333	Domestic	3226	92	80		Apr.,1966	
19.		3116	95	33		Feb.,1959	
19.334	Irrigation	3137.01	320	30.25	Tnsl	Feb.18,1975	Yield: 1200gpm
20.220	Stock	3210	126		Rslr ?		
23.330	Stock	3230.2	2565	160.86	Cplm	Mar.,1974	
25.233	Domestic/Stock	3141	270	80		May 29,1975	Yield: 10gpm
28.331	Domestic/Stock	3150	350	40			
29.311	Unused irrigation	3116.28	236	16.50	Clbd	Jan.3,1962	
29.321	Domestic/Stock	3115	269	7.5	Clbd ?	Oct. 15, 1947	
29.322	Domestic	3150	90	31		Mar.,1956	
29.331	Domestic/Irrigation	3110	268	1.1	Clbd	Feb.,6,1947	
29.343	Stock/Irrigation	3109		13.7	Clbd ?	Oct.13,1947	
29.423	Stock	3150	150	41.3	Rslr ?	Nov.15,1949	
29.434	Irrigation	3120	324	24.76	Clbd	Jan.13,1964	
30.341	Domestic/Stock	3117		16.0	Clbd ?	Oct. 10,1947	
30.431	Irrigation	3115	186	7.0	Clbd		Yield: 1000gpm
30.440		3113	76	14.7	Qtal	Oct.20,1947	
30.442	Domestic	3115.48	256	12.78	Cptn	Jan.10,1975	
30.443	Irrigation	3115		15.5	Qtal ?	Oct. 10, 1947	
31.111	Irrigation	3115		8.4	Clbd	Oct.20,1947	
31.112	Irrigation	3114.85		15.30	Vlfl	Jan.3,1962	
31.211	Irrigation/Domestic	3116.07	220	13.91	Tnsl	Jan.14,1974	
31.212	Domestic/Irrigation	3120	250	10.4	Clbd	Oct.9,1947	
31.212	Potash Refining	3120	315	7.6	Clbd	Jan.17,1950	Yield: 1000gpm

Generic Plans for Temporary Pits

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

Temporary Pit Design Plan

Plates SSI-1, SSI-2 and SSI-3 within the Site Specific Information Section show the layout of the temporary pit proposed for this project. However, field conditions will determine the final configuration of the pits.

The design calls for two pits or cells: a standard reserve pit/cell and a fluid storage cell. The fluid storage cell will hold water for use in drilling and/or stimulation. The fluid storage cell of the temporary pit will hold stimulation flow-back for treatment then re-use in drilling or stimulation. The fluid storage cell will not receive drilling waste solids (cuttings/mud). As described in the closure plan, the fluid storage cell is separate from the drilling pit/cell and may be converted to a burial trench in a manner consistent with NMOCD Rules. However, as the closure plan states, closure "in-place" is anticipated.

The operator will ensure that the temporary storage of fluids, fluid reuse or fluid disposal will be conducted in a manner approved by the division that prevents the contamination of fresh water and protects public health and the environment.

Design Plan- Operator Instructions

1. The design will contain liquids and solids and prevent contamination of fresh water and protect public health and the environment.
2. The design prevents run-on of surface water.
3. The operator will post an upright sign in compliance with 19.15.16.8 NMAC. The operator will post the sign in a manner and location such that a person can easily read the legend. The sign will provide the following information: the operator's name; the location of the site by quarter-quarter or unit letter, section, township and range; and emergency telephone numbers.
4. The pit will be completely fenced at all times excluding drilling and workover/stimulation operations. During drilling or workover operations, the operator is not required to fence the edge of the pit adjacent to the drilling or workover rig.
5. The operator will maintain the fences in good repair from beginning of pit use to the time of pit closure.
6. The drilling and lining contractor will provide for devices to protect the liner from any fluid force or mechanical damage at any point of discharge into or suction from the lined temporary pit.
7. The operator or operator's representative will inspect the pit before and after lining to ensure that construction of the temporary pit
    a. Has not penetrated any solution features such as fissures, tubes or caves
    b. Can prevent unauthorized releases and ensure the confinement of liquids
    c. is consistent with the design criteria of Plate 1 or any agreed alteration to meet field conditions
    d. meets the prescriptive mandates outlined below

Construction Plan- Construction Contractor Instructions

A. Prior to constructing the pit the qualified contractor will examine Plate SSI-1 and SSI-2 and provide the operator (or operator's representative) with a written affirmation of their understanding of the design.

B. The contractor will strip and stockpile the topsoil for use as the final cover or fill at the time of closure (see Plate SSI-2).
C. 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.
D. The interior slopes of the drilling pit will be no steeper than 1.5 horizontal feet to 1 vertical foot (1.5H:1V) and interior berms will be no steeper than 1.5H:1V. The interior slope of the fluid storage cell will be no steeper than 1.5H:1V; therefore we see administrative approval of this slope.
E. Pit walls will be walked down by a crawler type tractor following construction.
F. As necessary, a berm or ditch will surround the temporary pit to prevent run-on of surface water.
G. The exterior walls of the reserve (drilling) pit will be two feet above the lowest natural grade before removal of topsoil and leveling the pad. Therefore, all of the fluid will be stored in the cut of the pit, not in the fill.
H. The exterior walls of the workover pit (cell) may be greater than two-feet above the lowest natural grade.

Construction Plan- Liner Contractor Instructions

I. Install a geomembrane liner.
II. The geomembrane liner will consist of 20-mil string reinforced LLDPE or equivalent liner material that the appropriate division district office approves. 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.
III. Minimize liner seams and orient them up and down, not across a slope.
IV. Use factory welded seams where possible.
V. Prior to any field seaming, the contractor will overlap liners four to six inches and orient seams parallel to the line of maximum slope, *i.e.*, oriented along, not across, the slope. The contractor will minimize the number of welded field seams in corners and irregularly shaped areas. Field seams will be welded by qualified personnel.
VI. Avoid excessive stress-strain on the liner.
VII. Geotextile will be placed under the liner where needed to reduce localized stress-strain or protuberances that may otherwise compromise the liner's integrity.
VIII. Anchor the edges of all liners in the bottom of a compacted earth-filled trench. The anchor trench will be at least 18 inches deep.
IX. Install any devices used 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.
X. Fence the pit in a manner that prevents unauthorized access. The contractor will fence the pit to exclude livestock with a four foot fence that has at least four strands of barbed wire evenly spaced in the interval between one foot and four feet above ground level.

Operating and Maintenance Plan

The operator will operate and maintain the pit to contain liquids and solids. The operator will maintain the integrity of the liner to prevent contamination of fresh water and protect public health and the environment as described below.

1. If feasible, the operator will recycle, reuse or reclaim of all 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.
2. If re-use is not possible, fluids will be sent to disposal at division-approved facility.
3. The operator will not discharge into or store any hazardous waste in the pit.
4. If any pit liner's integrity is compromised, or if any penetration of the liner occurs above the liquid's surface, then the operator will notify the appropriate division district office within 48 hours (phone or email) of the discovery and repair the damage or replace the liner.
5. If the pit develops a leak or if any penetration of the pit liner occurs below the liquid's surface, then the operator will remove all liquid above the damage or leak line within 48 hours, notify the district office within 48 hours (phone or email) of the discovery and repair the damage or replace the pit liner.
6. The injection or withdrawal of liquids from the pit will be accomplished through a header, diverter or other hardware that prevents damage to the liner by erosion, fluid jets or impact from installation and removal of hoses or pipes.
7. The operator will install diversion ditches and berms around the pit as necessary to prevent the collection of surface water run-on.
8. The operator will immediately remove any visible layer of oil from the surface of the temporary pit and maintain on site an oil absorbent boom to contain and remove oil from the pit's surface.
9. Only fluids used or generated during the drilling or workover (stimulation) process will be discharged to the drilling pit (cell). Only fluids generated workover (stimulation) process will be discharged into the workover cell of the temporary pit.
10. The operator will maintain the temporary pit free of miscellaneous solid waste or debris.
11. Immediately after cessation of drilling and stimulation, the operator will remove any visible or measurable layer of oil from the surface of a pit, in the manner described above.
12. The operator will maintain at least two feet of freeboard for the temporary pit.
13. The operator will inspect the temporary pit containing fluids at least daily during drilling and stimulation to ensure compliance with this plan.
14. After drilling and stimulation operations, the operator will inspect the temporary pit weekly so long as free liquids remain in the temporary pit.
15. The operator will maintain a log of such inspections and make the log available for the district office's review upon request.
16. The operator will file a copy of the log with the appropriate division district office when the operator closes the temporary pit.
17. Within 30 days from the date that the operator releases the applicable rig, the operator will remove all free liquids from the
    a. drilling cell of the temporary pit after release of the drilling rig and
    b. workover cell of the temporary pit after release of the stimulation (workover) rig
18. The operator may request an extension of time to hold fluids in the temporary pit.
19. The operator will note the date of the drilling and stimulation rig's release on form C-105 or C-103 upon completion of applicable activities.

Closure Plan- General Conditions

The preferred closure alternative is in-place closure. If the residual solids in the temporary pit do not meet the criteria for in-place closure but meet the criteria for trench burial, the operator will notify NMOCD for permission to proceed with trench burial.

Notifications and Reports

- The operator will notify the landownerby certified mail, return receipt requested, prior to closure, that the operator plans to close the temporary pit.
- The operator of the temporary pit will notify the division district office verbally or by email at least 72 hours, but not more than one week, prior to any closure operation. The notice will include the operator's name and the location to be closed by unit letter, section, township and range, well's name, number, the API number.
- Within 60 days of closure completion, the operator will submit a closure report on form C-144, with necessary attachments to document all closure activities including sampling results; information required by 19.15.17 NMAC; a plot plan; and details on back-filling, capping and covering, where applicable.

Protocols and Procedures

- The operator of the temporary pit will remove all liquids from the temporary pit prior to closure and either:
    - Dispose of the liquids in a division-approved facility, or
    - Recycle, reuse or reclaim the liquids in a manner approved by the district office.
- Except for liquids in the pit that are integral to the closure process, the operator shall remove all free liquids from the temporary pit within 30 days from the date that the operator released the rig. The operator shall note the date of the rig's release on form C-105 or C-103 upon well completion. The operator will request an extension of up to three months from the appropriate division district office if necessary to allow for water re-use.
- The operator will close the temporary pit within six months of the date that the operator releases the rig. An extension not to exceed three months may be requested of the district office.
- The operator will close the pit by an earlier date than the division requires because of imminent danger to fresh water, public health or the environment.
- In the closure report, the operator will certify that all information in the report and attachments is correct and that the operator has complied with all applicable closure requirements and conditions specified in the approved closure plan.
- The operator will provide a plat of the pit location on form C-105 with the closure report within 60 days of closing the temporary pit.

Additional Protocols and Procedures for On-Site Closure

- The C-144 package has been provided to the surface owner as notice of the operator's proposal of an on-site closure as required in 19.15.17.13.F(1)(b).
- Upon receipt of NMOCD approval for on-site closure, the operator will notify the surface owner by certified mail, return receipt requested, that the operator plans to close the pit

and where the operator has approval for on-site closure. Evidence of mailing of the notice will demonstrate compliance with this requirement.

- The operator will place a steel marker at the center of an on-site burial if on-site burial occurs for the temporary pit. The steel marker will be not less than four inches in diameter and will be cemented in a three-foot deep hole at a minimum. The steel marker will extend at least four feet above mean ground level and at least three feet below ground level. The operator name, lease name and well number and location, including unit letter, section, township and range, and that the marker designates an on-site burial location will be welded, stamped or otherwise permanently engraved into the metal of the steel marker.
- The operator will report the exact location of any on-site burial on form C-105 filed with the division.
- The operator will file a deed notice identifying the exact location of any on-site burial with the county clerk in the county. The exact location of any on-site burial will be transmitted to the surface owner by copy of the form C-105 discussed above.

In-place closure is the preferred closure alternative for the temporary pit.If waste sampling results suggest that standards for in-place closure are not met, the operator will implement trench burialafter notification to NMOCD.

Site Reclamation Plan

After the operator has closed the pit, the operator will reclaim the pit location and all areas associated with the pit, including associated access roads to a safe and stable condition that blends with the surrounding undisturbed area. The operator will substantially restore the impacted surface area to the condition that existed prior to oil and gas operations by placement of the soil cover as provided in Subsection H of 19.15.17.13 NMAC, recontour the location and associated areas to a contour that approximates the original contour and blends with the surrounding topography and re-vegetate according to Subsection I of 19.15.17.13 NMAC.

Soil Cover Design Plan

If the operator removes the pit contents or remediates any contaminated soil to the division's satisfaction the soil cover will consist of the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater.

The soil cover for the in-place burial will consist of a minimum of four feet of compacted, non-waste containing, earthen material. The soil cover will include either the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater.

The operator will construct the soil cover to the site's existing grade and prevent ponding of water and erosion of the cover material.

Re-vegetation Plan

1. The first growing season after the operator closes the pit, including access roads, the operator will seed or plant the disturbed areas.
2. The operator will accomplish seeding by drilling on the contour whenever practical.

3. The operator will obtain vegetative cover that equals 70% of the native perennial vegetative cover (un-impacted by overgrazing, fire or other intrusion damaging to native vegetation).
4. The operator will follow surface owner mandates for the seed mixture and maintain that cover through two successive growing seasons.
5. During the two growing seasons that prove viability, there will be no artificial irrigation of the vegetation.
6. The operator will repeat seeding or planting until it successfully achieves the required vegetative cover.
7. If conditions are not favorable for the establishment of vegetation, such as periods of drought, the operator may request that the division allow the operator to delay seeding or planting until soil moisture conditions become favorable or may require the operator to use additional cultural techniques such as mulching, fertilizing, irrigating, fencing or other practices.
8. The operator will notify the division when it has seeded or planted and when it successfully achieves re-vegetation.

In-place Closure Plan

In the event that sampling of the solids in the temporary pitdemonstrates that the pit meets the criteria for in-place closure, the operator will proceed with in-place closure

Siting Criteria Compliance Demonstration for In-Place Burial

The Siting Criteria Compliance Demonstration for the temporary pit (see Site Specific Information) show that the requirements of 19.15.17.10 NMAC are met for in-place closure.

Waste Material Sampling Plan for In-place Burial

Because the groundwater is more than 100 feet below the bottom of the buried waste (see above), the operator will collect at a minimum, a five point, composite sample of the contents of the temporary pit after treatment or stabilization.

The purpose of the sampling the waste material is to demonstrate that after stabilization with three parts clean fill:

- Benzene, as determined by EPA SW 846 method 8021B or 8260B, does not exceed 0.2 mg/kg;
- Total BTEX, as determined by EPA SW-846 method 8021B or 8260B, does not exceed 50 mg/kg;
- The GRO and DRO combined fraction, as determined by EPA SW-846 method 8015M, does not exceed 500 mg/kg;
- TPH, as determined by EPA method 418.1 does not exceed 2,500 mg/kg;
- Chloride, as determined by EPA method 300.1, does not exceed 1,000 mg/kg or the background concentration, whichever is greater.

Protocols and Procedures for In-Place Burial

In addition to the General Conditions Protocols and Procedures and the Additional Protocols and Procedures for On-site Closure listed above, the operator will execute the following steps for in-place closure of the pit.

A. The initial water flow-back from the stimulation process will discharge to the drilling cell of the temporary pit. This water is fresh or slightly brackish. When the flow-back increases in salinity, discharge to the workover cell begins. If oil in the flow-back accumulates in the pit to a measurable thickness, the flow-back is routed to tanks for oil recovery. As the fresh/brackish water moves through the cuttings and residual mud in response to pumping from an underdrain system, this water displaces entrained brine in the cuttings and dissolves any rock salt cuttings, thereby reducing the salinity of these solids. Water pumped by the underdrain system discharges to the workover cell of the temporary pit for disposal or re-use in accordance with NMOCD Rules.
B. The operator will measure the distance between the top of any solids in the pit and existing grade to determine if stabilized waste (see stabilization methods, below) will be at least 4-feet below existing grade to allow installation of the soil cover (see soil cover design, above).
C. The operator will stabilize or solidify the contents of the pit to a bearing capacity sufficient to support the temporary pit's final cover. However, the operator will not mix the pit contents with soil or other material at a mixing ratio of greater than 3:1, (3 parts soil or other material to 1 part temporary pit solids).
D. Cover the geomembrane lined, filled, temporary pit with compacted, non-waste containing, earthen material; construct a division-prescribed soil cover; recontour and re-vegetate the site as described in this plan. Specifically, a 4-foot thick soil cover consistent with NMOCD Rules will be placed over the stabilized waste.
E. Any excess liner above the stabilized waste will be removed for re-use or disposal.

On-Site Trench Burial Plan (after notice to NMOCD)

On-site trench burial will occur only if in-place burial criteria are not met (e.g. chloride concentration limit).

Siting Criteria Compliance Demonstration for In-Place Burial

The Siting Criteria Compliance Demonstration for the temporary pit (see Site Specific Information) show that the requirements of 19.15.17.10 NMAC are met for trench burial.

Protocols and Procedures for On-Site Trench Burial

In addition to the General Conditions Protocols and Procedures listed above, the operator will employ the following steps for On-Site Trench Burial of the pit.

1. The pit liner will be removed above the mud level for re-use if possible. We will use a utility knife and manual power to remove the liner.
2. The operator will stabilize the waste to permit transfer from the pit to the separate trench.
3. The operator will further stabilize or solidify the contents to a bearing capacity sufficient to support the final cover.
4. The operator will not mix the contents with soil or other material at a mixing ratio of greater than 3:1, (3 parts soil or other material to 1 part drilling waste). Specifically, the drilling waste will be stabilized in the pit by adding no more than 3 parts clean fill derived from the excavation of the pit to 1 part drilling waste.
5. After stabilization such that the waste material will support the soil cover, the mixture will be sampled pursuant to NMOCD Rules (see below) and placed in the burial trench.

Construction/Design of Burial Trench

The operator will design and construct on-site trench for closure as specified in 19.15.17.13B.(2) NMAC. Specifically:

I. The operator will excavate a separate trench to an appropriate depth that allows for the installation of the geomembrane bottom liner, burial of the drilling waste, geomembrane liner cover and the division-prescribed soil cover required pursuant to 19.15.17.13.H NMAC.
II. The on-site trench will have a properly constructed foundation and side walls consisting of a firm, unyielding base, smooth and free of rocks, debris, sharp edges or irregularities to prevent the liner's rupture or tear.
III. Geotextile will be placed under the liner where needed to reduce localized stress-strain or protuberances that may otherwise compromise the liner's integrity.
IV. The on-site trench will be constructed with a geomembrane liner that consists of a 20-mil string reinforced LLDPE liner
V. The geomembrane liner is 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.
VI. The contractor for the operator will minimize liner seams and orient them up and down, not across a slope. The operator will use factory welded seams where possible. Prior to field seaming, the operator will overlap liners four to six inches and orient liner seams parallel to the line of maximum slope, *i.e.*, oriented along, not across, the slope. The operator will minimize the number of field seams in corners and irregularly shaped areas.
VII. Qualified personnel will perform field seaming. The contractor will weld field liner seams.
VIII. The contractor for the operator will install sufficient liner material to reduce stress-strain on the liner.
IX. The operator will ensure that the outer edges of all liners are secured for the placement of the excavated waste material into the drilling pit (on-site trench).
X. The contractor for the operator will fold the outer edges of the drilling pit (on-site trench) liner to overlap the waste material in the pit (on-site trench) prior to the installation of the geomembrane cover.
XI. The contractor for the operator will install a geomembrane cover over the waste material in the lined trench. The operator will install the geomembrane cover in a manner that prevents the collection of infiltration water in the lined trench and on the geomembrane cover after the soil cover is in place.
XII. The geomembrane cover will consist of a 20-mil string reinforced LLDPE liner. The geomembrane cover will be composed of an impervious, synthetic material that is resistant to petroleum hydrocarbons, salts and acidic and alkaline solutions. Cover compatibility will comply with EPA SW-846 method 9090A.

Waste Material Sampling Plan for On-Site Trench Burial

Because the ground water is more than 100 feet below the bottom of the buried waste (see previously submitted Supplemental Documentation to C-144), the operator will collect at a minimum, a five point, composite sample of the contents of the portion of the temporary pit

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scheduled for trench burial after treatment or stabilization. The purpose of the sampling after the waste material is stabilized is to demonstrate that:

- The TPH concentration, as determined by EPA method 418.1 or other EPA method that the division approves, does not exceed 2500 mg/kg.
- Using EPA SW-846 method 1312
    - The chloride concentration, as determined by EPA method 300.1 or other EPA method that the division approves, does not exceed 3,000 mg/L or the background concentration, whichever is greater,
    - The concentrations of the inorganic water contaminants specified in Subsection A of 20.6.2.3103 NMAC as determined by appropriate EPA methods do not exceed the standards specified in Subsection A of 20.6.2.3103 NMAC or the background concentration, whichever is greater, and
    - The concentrations of the organic water contaminants specified in Subsection A of 20.6.2.3103 NMAC as determined by appropriate EPA methods do not exceed the standards specified in Subsection A of 20.6.2.3103 NMAC, unless otherwise specified by NMOCD Rules

Confirmation Sampling Plan for On-Site Trench Burial

The operator will test the soils beneath the temporary pit after excavation and prior to trench burial to determine whether a release has occurred. To determine if a release has occurred, the operator and/or qualified contractor will collect, at a minimum:

- A five point, composite sample;
- Individual grab samples from any area that is wet, discolored or showing other evidence of a release.

The operator or qualified contractor will analyze these samples using NMOCD approved EPA methods for:

- Benzene,
- Total BTEX,
- TPH,
- The GRO and DRO combined fraction and
- Chloride

The purpose of this sampling is to demonstrate that:

1. Benzene, as determined by EPA SW-846 method 8021B or 8260B does not exceed 0.2 mg/kg;
2. Total BTEX, as determined by EPA SW-846 method 8021B or 8260B does not exceed 50 mg/kg;
3. The GRO and DRO combined fraction, as determined by EPA SW-846 method 8015M, does not exceed 500 mg/kg;
4. The TPH, as determined by EPA method 418.1 does not exceed 2,500 mg/kg; and
5. Chloride, as determined by EPA method 300.1, does not exceed 1,000 mg/kg or the background concentration, whichever is greater.

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Reporting

The operator shall notify the division of its results of on form C-141. If the operator or the division determines that a release has occurred, then the operator will comply with 19.15.29 NMAC and 19.15.30 NMAC, as appropriate.

Excavation and Removal Closure Plan

IF THE CRITERIA FOR ON-SITE CLOSURE ARE NOT MET, THE OPERATOR WILL ADHERE TO NMOCD RULES AND IMPLEMENT THE FOLLOWING ACTIONS:

Protocols and Procedures for Excavation and Removal

The operator will close the temporary pit by excavating all contents and any synthetic pit liners that cannot be re-used and transferring those materials to one of the division-approved facilities listed below:

Controlled Recovery, Inc.	NM-01-0006
LeaLand, LLC	NM-01-0035

If the sampling program described below demonstrates that a release has not occurred or that any release does not exceed the concentrations specified in Subparagraph (b.ii) of Paragraph (1) of Subsection B of 19.15.17.13 NMAC, then the operator will:

1. Backfill the temporary pit excavation with compacted, non-waste containing, earthen material;
2. Construct a division-prescribed soil cover to existing grade as described in the Soil Cover Plan (above);
3. Recontour and re vegetate the site as described in the Revegetation Plan (above).

Confirmation Sampling Plan for Excavation and Removal

The operator will test the soils beneath the temporary pit after excavation to determine whether a release has occurred. To determine if a release has occurred, the operator and/or qualified contractor will collect, at a minimum:

- A five point, composite sample and;
- Individual grab samples from any area that is wet, discolored or showing other evidence of a release

The purpose of this sampling is to demonstrate that:

- Benzene, as determined by EPA SW-846 method 8021B or 8260B does not exceed 0.2 mg/kg;
- Total BTEX, as determined by EPA SW-846 method 8021B or 8260B does not exceed 50 mg/kg;
- The GRO and DRO combined fraction, as determined by EPA SW-846 method 8015M, does not exceed 500 mg/kg;
- The TPH, as determined by EPA method 418.1 does not exceed 2,500 mg/kg; and
- Chloride, as determined by EPA method 300.1, does not exceed 1,000 mg/kg or the background concentration, whichever is greater.

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Reporting

The operator shall notify the division of its results of on form C-141. If the operator or the division determines that a release has occurred, then the operator will comply with 19.15.29 NMAC and 19.15.30 NMAC, as appropriate.

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
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

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

Form C-102
Revised October 15,2009
Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name

[4] Property Code	[5] Property Name	[6] Well Number
	POLAR BEAR	4H

[7] OGRID No.	[8] Operator Name	[9] Elevation
15363	MURCHISON OIL & GAS, INC.	3668.0

[10] Surface Location

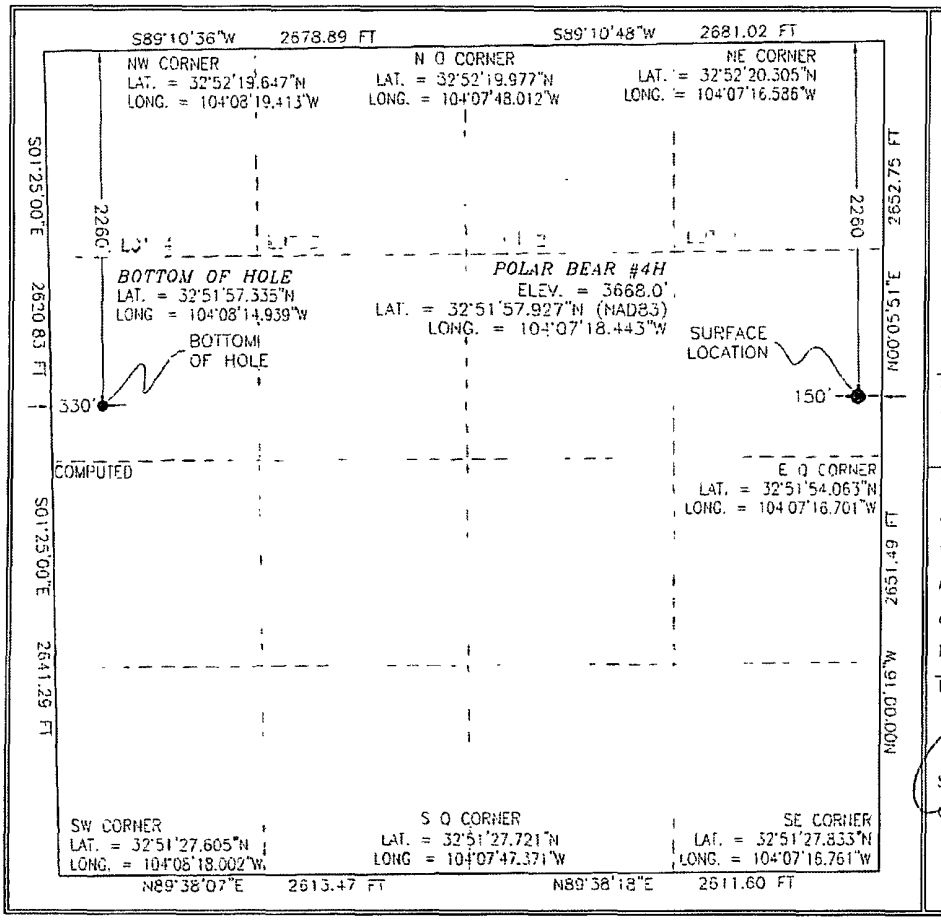
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	1	17 S	28 E		2260	NORTH	150	EAST	EDDY

[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
E	1	17 S	28 E		2260	NORTH	330	WEST	EDDY

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

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



[17] OPERATOR CERTIFICATION

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

Signature Date

Printed Name

[18] SURVEYOR CERTIFICATION

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

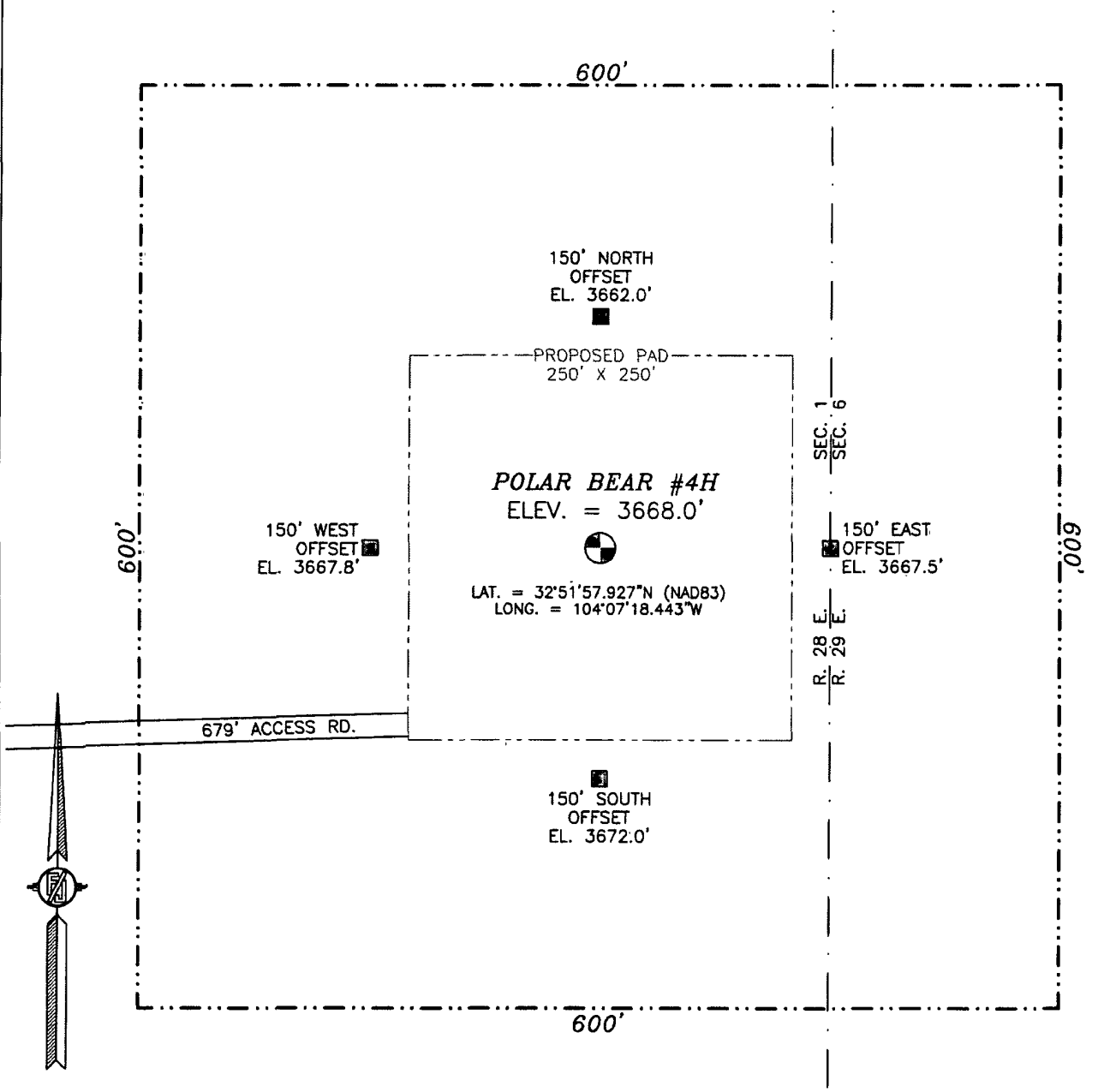
MARCH 27, 2012

Date of Survey

Signature and Seal of Professional Surveyor:

Certificate Number: FILIMON F. JARAMILLO, PLS 12797

SECTION 1, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO



010 50 100 200
SCALE 1" = 100'

DIRECTIONS TO LOCATION
FROM INTERSECTION U.S. HWY 82 (LOVINGTON HWY) AND CR 209 (TURKEY TRACK RD) GO NORTH ON CR 209 5.05 MILES TO END OF PAVEMENT GO RIGHT ON CALICHE ROAD 0.5 MILES THEN TAKE RIGHT 0.35 MILES TAKE RIGHT 0.3 MILES SITE IS 800FT ON LEFT

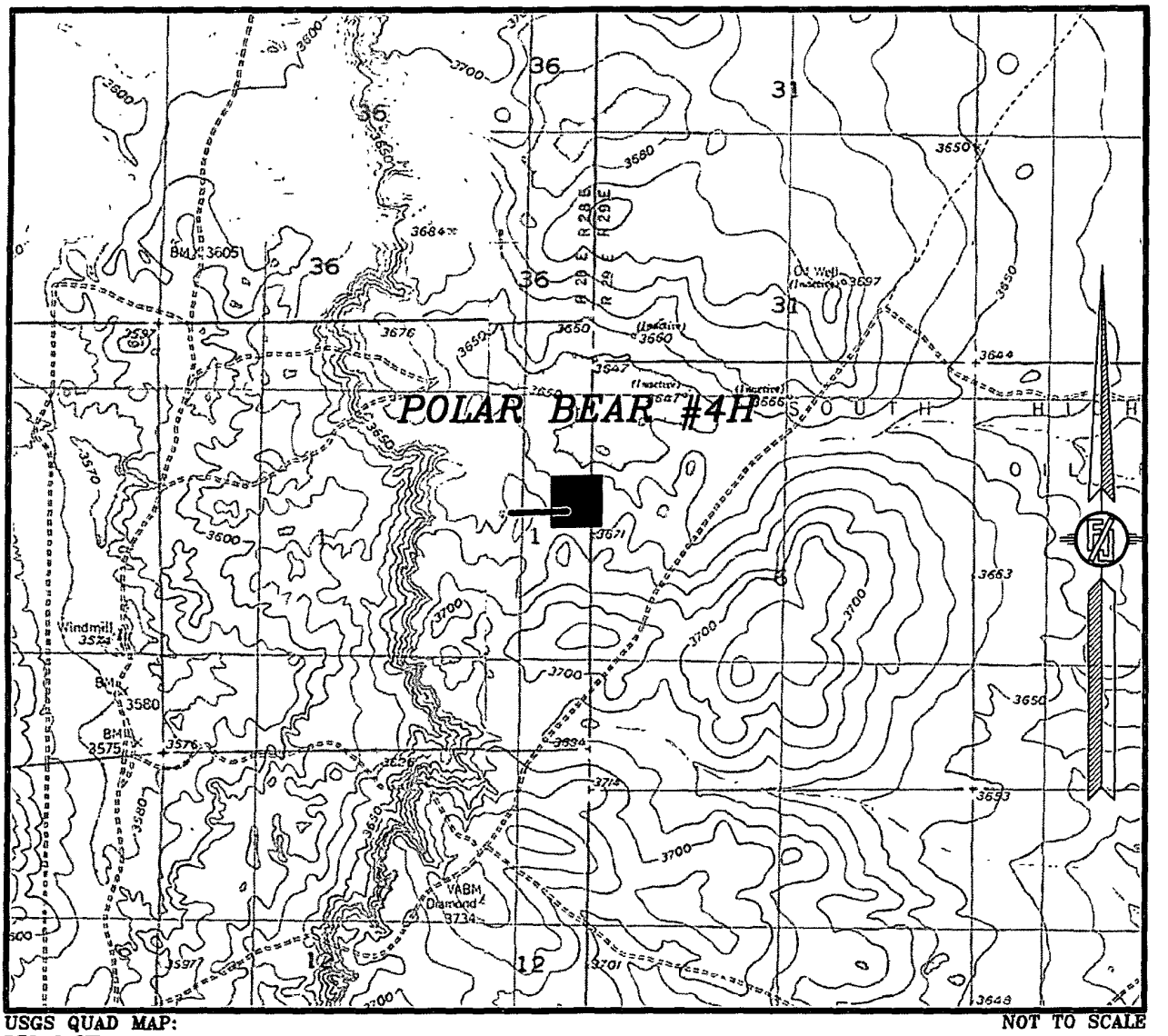
MURCHISON OIL & GAS, INC.
POLAR BEAR #4H
LOCATED 2260 FT. FROM THE NORTH LINE AND 150 FT. FROM THE EAST LINE OF SECTION 1, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

MARCH 27, 2012

SURVEY NO. 903
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

SECTION 1, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

LOCATION VERIFICATION MAP



USGS QUAD MAP:
RED LAKE

NOT TO SCALE

MURCHISON OIL & GAS, INC.
POLAR BEAR #4H
LOCATED 2260 FT. FROM THE NORTH LINE
AND 150 FT. FROM THE EAST LINE OF
SECTION 1, TOWNSHIP 17 SOUTH,
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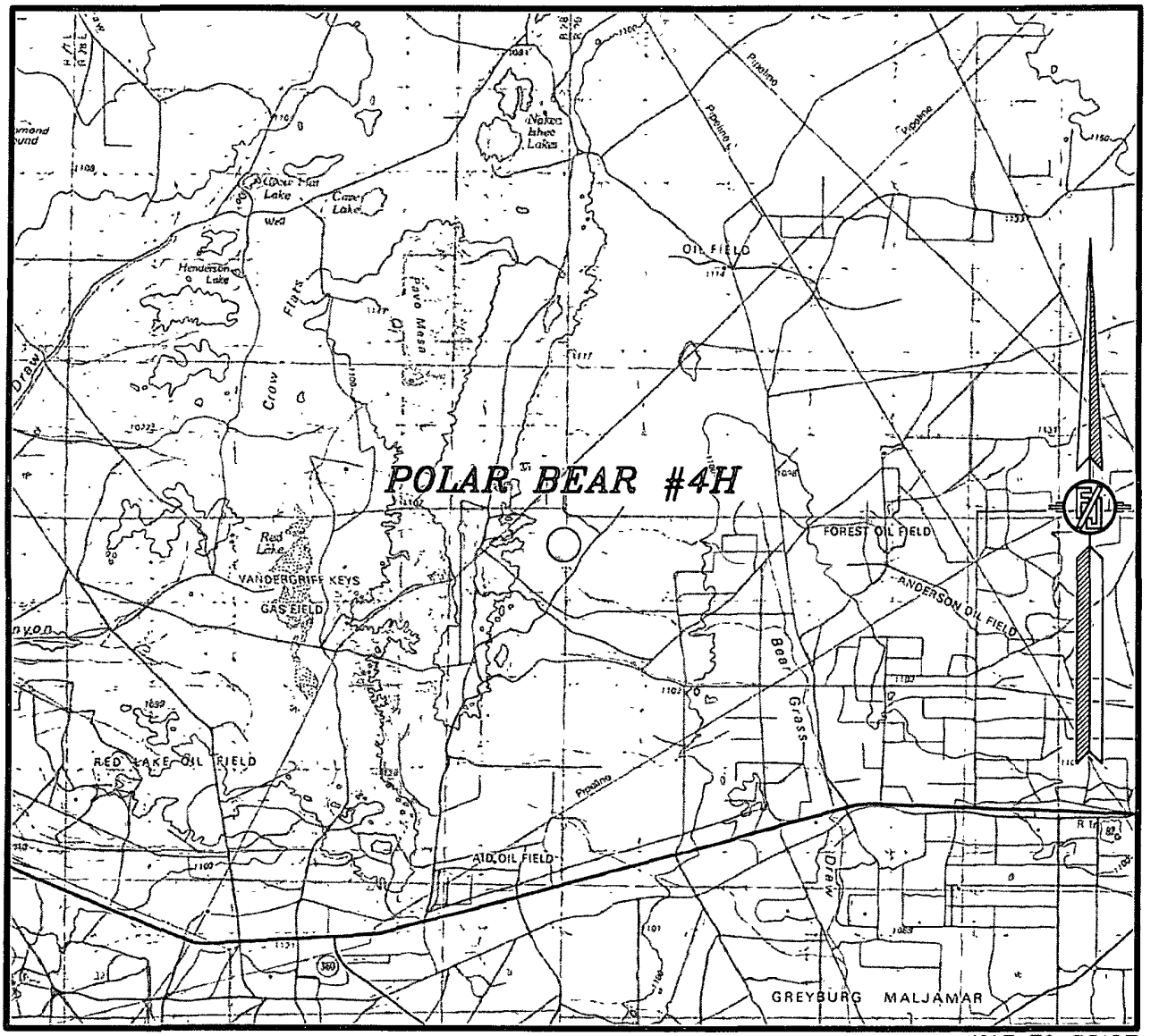
EDDY COUNTY, STATE OF NEW MEXICO

VICINITY MAP



NOT TO SCALE

MURCHISON OIL & GAS, INC.

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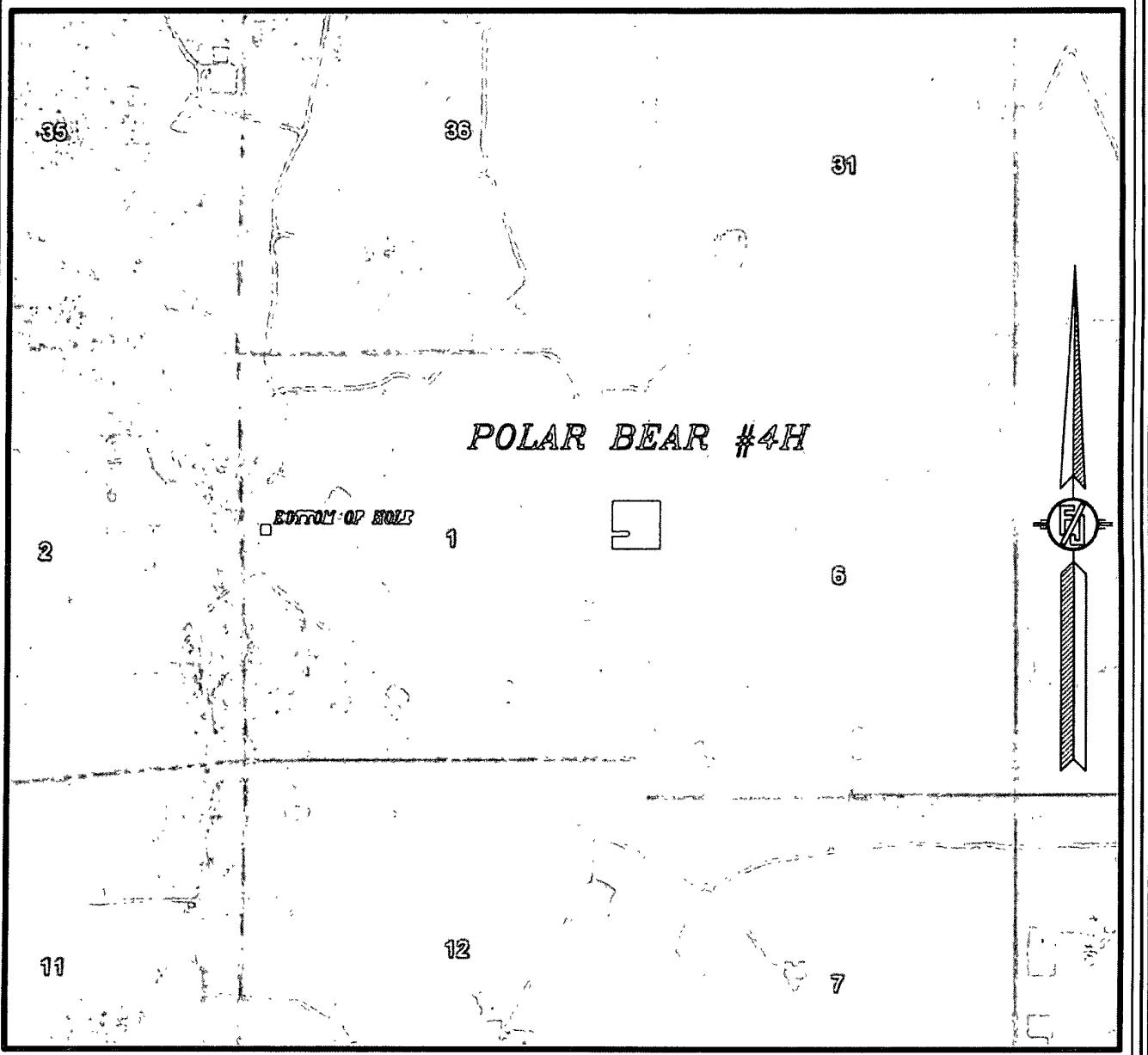
EDDY COUNTY, STATE OF NEW MEXICO

AERIAL PHOTO



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
JUNE 2011

MURCHISON OIL & GAS, INC.
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