

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

999

- 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.

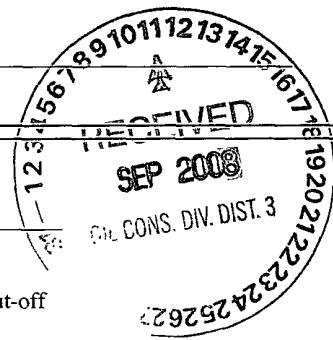
1.  
Operator: McElvain Oil & Gas Properties, Inc. OGRID #: 22044  
Address: 1050 17<sup>th</sup> Street, Suite 1800, Denver, CO 80265  
Facility or well name: THIRLAWAY 1  
API Number: 30-039-24180 OCD Permit Number: \_\_\_\_\_  
U/L or Qtr/Qtr G Section 36 Township 24N Range 7W County: Rio Arriba  
Center of Proposed Design: Latitude 36.27135 N Longitude 107.52584 W NAD: ☐ 1927 ☒ 1983  
Surface Owner: ☐ Federal ☐ State ☒ Private ☐ Tribal Trust or Indian Allotment

2.  
☐ **Pit:** Subsection F or G of 19.15.17.11 NMAC  
Temporary: ☐ Drilling ☐ Workover  
☐ Permanent ☐ Emergency ☐ Cavitation ☐ P&A  
☐ Lined ☐ Unlined Liner type: Thickness \_\_\_\_\_ mil ☐ LLDPE ☐ HDPE ☐ PVC ☐ Other \_\_\_\_\_  
☐ String-Reinforced  
Liner Seams: ☐ Welded ☐ Factory ☐ Other \_\_\_\_\_ Volume: \_\_\_\_\_ bbl 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: 35 bbl Type of fluid: Water  
Tank Construction material: Fiberglass  
☐ 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 4' field fence

7.

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

- ☐ Screen ☐ Netting ☒ Other Wire Mesh
- ☐ Monthly inspections (If netting or screening is not physically feasible)

8.

**Signs:** Subsection C of 19.15.17.11 NMAC

- ☐ 12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers
- ☒ Signed in compliance with 19.15.3.103 NMAC

9.

**Administrative Approvals and Exceptions:**

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

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

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

10.

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

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

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

11.

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

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

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

12.

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

- ☐ Geologic and Hydrogeologic Data (only for on-site closure) - based upon the requirements of Paragraph (3) of Subsection B of 19.15.17.9
- ☐ Siting Criteria Compliance Demonstrations (only for on-site closure) - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☐ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

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

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

13.

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

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

14.

**Proposed Closure:** 19.15.17.13 NMAC**Instructions:** Please complete the applicable boxes, Boxes 14 through 18, in regards to the proposed closure plan.

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

☐ Alternative

Proposed Closure Method: ☒ Waste Excavation and Removal

☐ Waste Removal (Closed-loop systems only)

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

☐ In-place Burial ☐ On-site Trench Burial

☐ Alternative Closure Method (Exceptions must be submitted to the Santa Fe Environmental Bureau for consideration)

15.

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

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

16.

**Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:** (19.15.17.13.D NMAC)

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

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

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

Will any of the proposed closed-loop system operations and associated activities occur on or in areas that *will not* be used for future service and operations?

☐ Yes (If yes, please provide the information below) ☐ No

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

☐ Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC

☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

17.

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

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

Ground water is less than 50 feet below the bottom of the buried waste.

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

☐ Yes ☐ No

☐ NA

Ground water is between 50 and 100 feet below the bottom of the buried waste

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

☐ Yes ☐ No

☐ NA

Ground water is more than 100 feet below the bottom of the buried waste.

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

☐ Yes ☐ No

☐ NA

Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).

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

☐ Yes ☐ No

Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.

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

☐ Yes ☐ No

Within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application.

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

☐ Yes ☐ No

Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended.

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

☐ Yes ☐ No

Within 500 feet of a wetland.

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

☐ Yes ☐ No

Within the area overlying a subsurface mine.

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

☐ Yes ☐ No

Within an unstable area.

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

☐ Yes ☐ No

Within a 100-year floodplain.

- FEMA map

☐ Yes ☐ No

18.

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

☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC

☐ Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC

☐ Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements of 19.15.17.11 NMAC

☐ Construction/Design Plan of Temporary Pit (for in-place burial of a drying pad) - based upon the appropriate requirements of 19.15.17.11 NMAC

☐ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC

☐ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC

☐ Waste Material Sampling Plan - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC

☐ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings or in case on-site closure standards cannot be achieved)

☐ Soil Cover Design - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC

☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

19.

**Operator Application Certification:**

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

Name (Print): Deborah K Powell Title: Engineering Tech Supervisor

Signature: Deborah K Powell Date: 9-10-08

e-mail address: DebbyP@McElvain.com Telephone: 303-893-0933

20.

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

OCD Representative Signature: Jonathan P. Kelly Approval Date: 4/25/2012

Title: Deputy Oil & Gas Inspector, District #3 OCD Permit Number: \_\_\_\_\_

21.

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

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

☐ Closure Completion Date: \_\_\_\_\_

22.

**Closure Method:**

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

23.

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

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

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

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

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

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

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

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

24.

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

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

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

25.

**Operator Closure Certification:**

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

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

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

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

All distances must be from the outer boundaries of the Section.

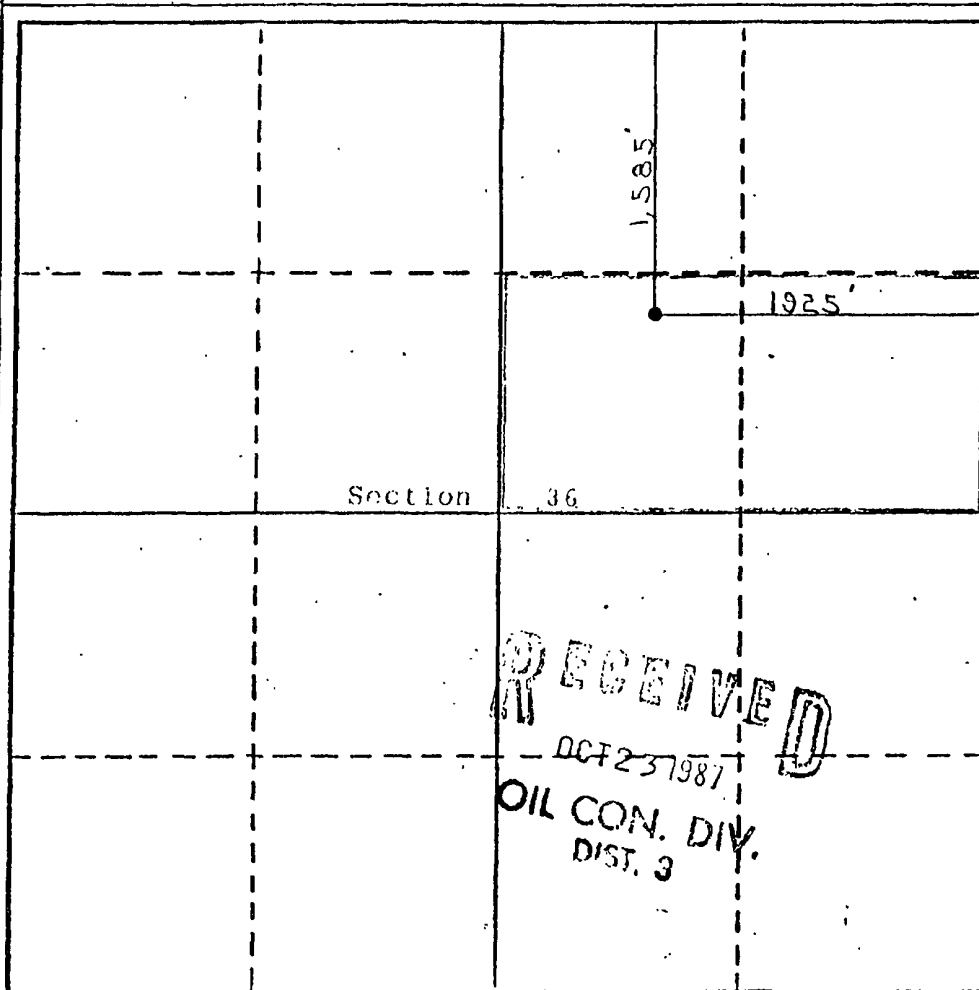
Operator T.H. McElvain Oil & Gas Prop.		Lease Thirlaway		Well No. #1
Unit Letter G	Section 36	Township T24N	Range R7W	County RIO ARRIBA
Actual Footage Location of Well:				
1585 feet from the North line and		1925 feet from the East line		
Ground Level Elev. 6710	Producing Formation Gallup	Pool Escrito Gallup	Dedicated Acreage: 80 Acres	

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty). n/a
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc? n/a

☐ Yes ☐ No If answer is "yes," type of consolidation \_\_\_\_\_

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) \_\_\_\_\_

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Division.



CERTIFICATION

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

*George B. Broome*  
Name  
George B. Broome

Position  
Geological Engineer

Company  
T H McElvain Oil & Gas Prop.

Date  
October 20, 1987

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 knowledge and belief.

Date Surveyed  
September 20, 1987

Registered Professional Engineer,  
and/or Land Surveyor  
*R. Howard Daggett*

R. Howard Daggett  
Certificate No.  
I.S. # 9818 Professional  
Land Surveyor

0 500 600 80 1200 1600 1800 2400 2600 2000 1500 1000 500 0

**New Mexico Office of the State Engineer  
POD Reports and Downloads**

Township: 24N Range: 07W Sections:

NAD27 X: Y: Zone: ☐ Search Radius:

County: ☐ Basin: ☐ Number: Suffix:

Owner Name: (First) (Last) ☐ Non-Domestic ☐ Domestic  
☒ All

**POD / Surface Data Report**

**Avg Depth to Water Report**

**Water Column Report**

**Clear Form**

**iWATERS Menu**

**Help**

**WATER COLUMN REPORT 09/08/2008**

(quarters are 1=NW 2=NE 3=SW 4=SE)  
(quarters are biggest to smallest)

POD Number	Tws	Rng	Sec	q	q	q	Zone	X	Y	Depth Well	Depth Water	Water Column
<u>SJ 00681 37</u>	24N	07W	15	1	1	2				190		
<u>SJ 00681 39</u>	24N	07W	18	2	2	4				1825	500	132
<u>SJ 01131</u>	24N	07W	19	4	1					1700	400	130
<u>SJ 01335</u>	24N	07W	31	1						185		

Record Count: 4

*New Mexico Office of the State Engineer*  
**POD Reports and Downloads**

Township: 24N Range: 06W Sections:

NAD27 X: Y: Zone: ☐ Search Radius:County: ☐ Basin: ☐ Number: Suffix:Owner Name: (First) (Last) ☐ Non-Domestic ☐ Domestic  
☒ All

POD / Surface Data Report

Avg Depth to Water Report

Water Column Report

Clear Form

iWATERS Menu

Help

WATER COLUMN REPORT 09/08/2008

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are biggest to smallest)

POD Number	Tws	Rng	Sec	q	q	q	Zone	X	Y	Depth Well	Depth Water	Water Column
<u>SJ 00681 14</u>	24N	06W	24	4	3					127		

Record Count: 1



**New Mexico Office of the State Engineer  
POD Reports and Downloads**

Township: 23N Range: 07W Sections:

NAD27 X: Y: Zone: ☐ Search Radius:

County: ☐ Basin: ☐ Number: Suffix:

Owner Name: (First) (Last) ☐ Non-Domestic ☐ Domestic  
☒ All

POD / Surface Data Report

Avg Depth to Water Report

Water Column Report

Clear Form

iWATERS Menu

Help

**WATER COLUMN REPORT 09/08/2008**

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are biggest to smallest)

POD Number	Tws	Rng	Sec	q	q	q	Zone	X	Y	Depth Well	Depth Water	Wate Colun
<u>SJ 01507</u>	23N	07W	10	4	3	3				1709	900	80
<u>SJ 02233</u>	23N	07W	15	2	1	1				1100		
<u>SJ 02233 CLW223636</u>	23N	07W	15	2	1	1				1100		

Record Count: 3

**New Mexico Office of the State Engineer  
POD Reports and Downloads**

Township: 23N Range: 06W Sections:

NAD27 X: Y: Zone: ☐ Search Radius:

County: ☐ Basin: ☐ Number: Suffix:

Owner Name: (First) (Last) ☐ Non-Domestic ☐ Domestic  
☒ All

**WATER COLUMN REPORT 09/08/2008**

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are biggest to smallest)

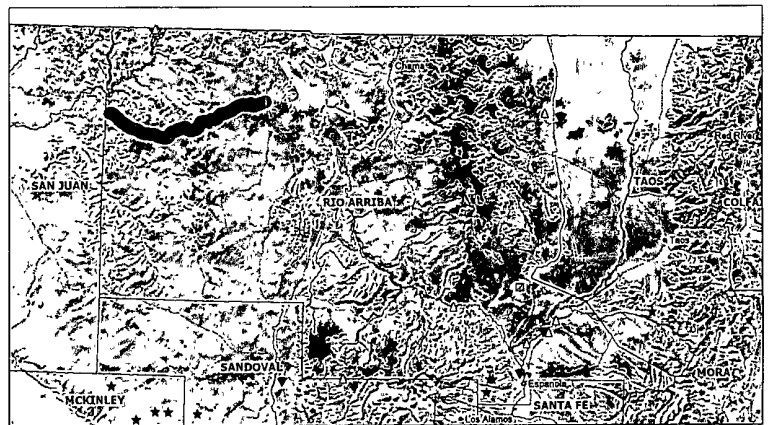
POD Number	Tws	Rng	Sec	q	q	q	Zone	X	Y	Depth Well	Depth Water	Water Column
SJ 01156	23N	06W	18	1	2	2				1500	200	1300
SJ 01506	23N	06W	22	3	1	1				280		

Record Count: 2

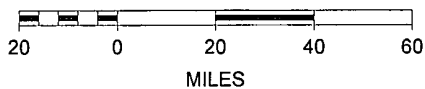
# Rio Arriba Mines, Mills And Quarries Web Map

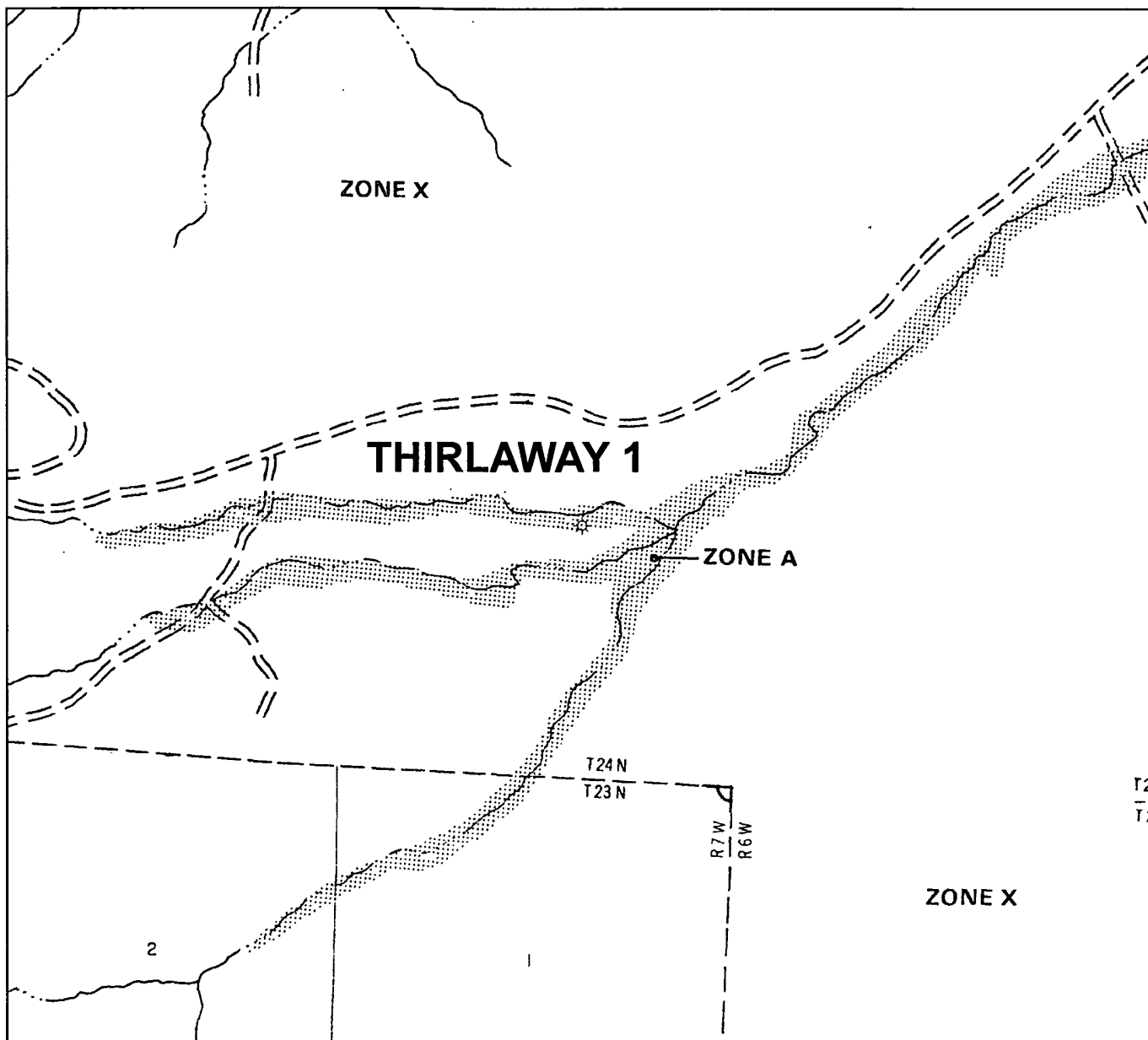
## Mines, Mills & Quarries Commodity Groups

-  **Aggregate & Stone Mines**
-  **Coal Mines**
-  **Industrial Minerals Mines**
-  **Industrial Minerals Mills**
-  **Metal Mines and Mill Concentrate**
-  **Potash Mines & Refineries**
-  **Smelters & Refinery Ops.**
-  **Uranium Mines**

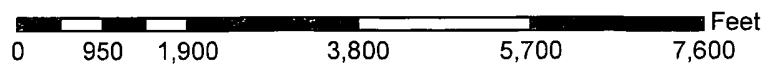


SCALE 1 : 2,371,842





1:24,000



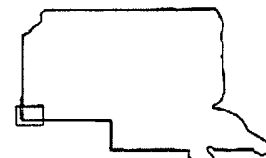
NATIONAL FLOOD INSURANCE PROGRAM

**FIRM**  
FLOOD INSURANCE RATE MAP

**RIO ARriba COUNTY,  
NEW MEXICO**  
UNINCORPORATED AREAS

PANEL 900 OF 1325

(SEE MAP INDEX FOR PANELS NOT PRINTED)



PANEL LOCATION

**COMMUNITY-PANEL NUMBER**

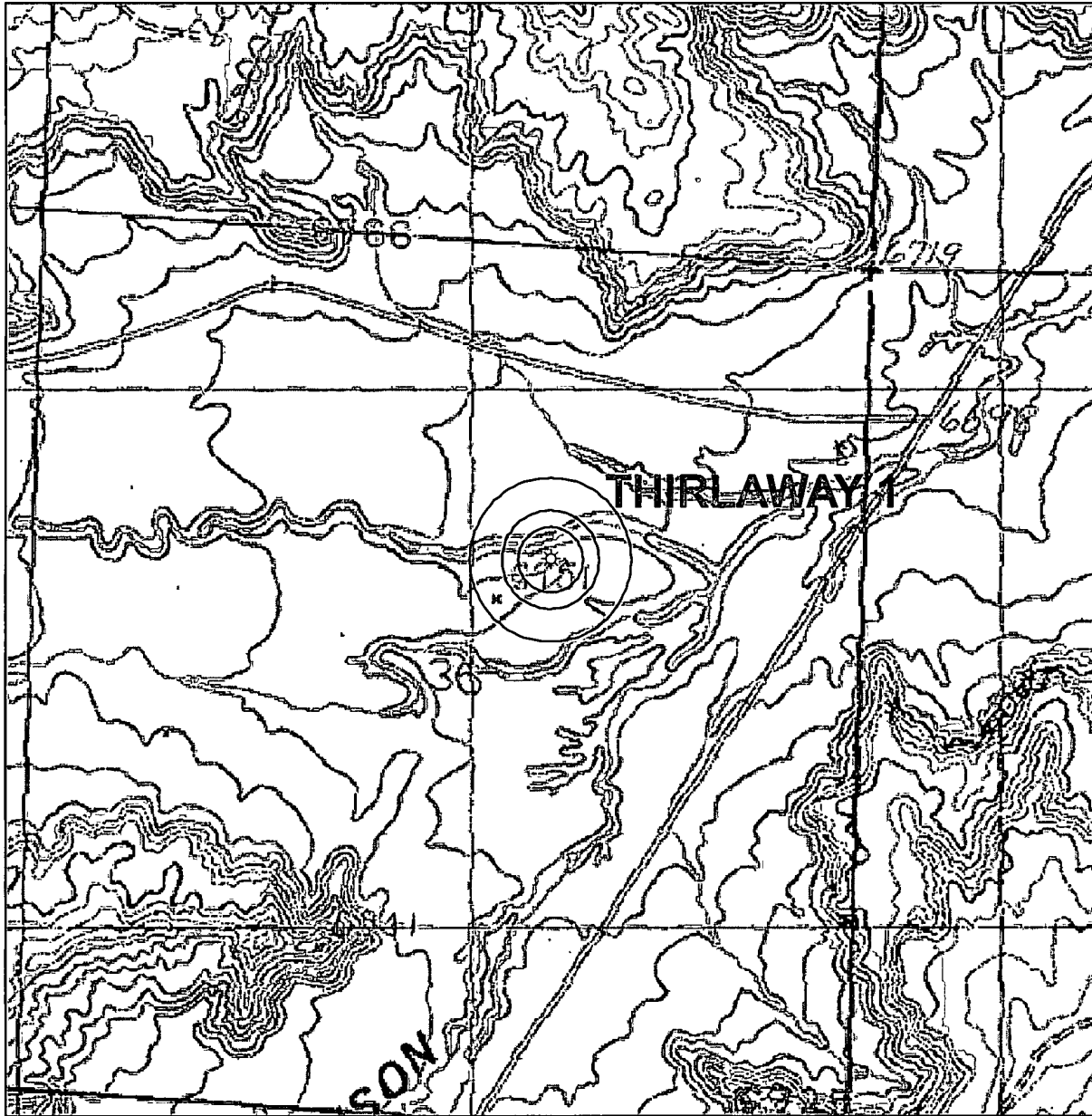
350049 0900 B

**EFFECTIVE DATE:**

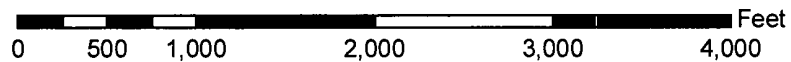
JANUARY 5, 1989





Federal Emergency Management Agency



1:12,000

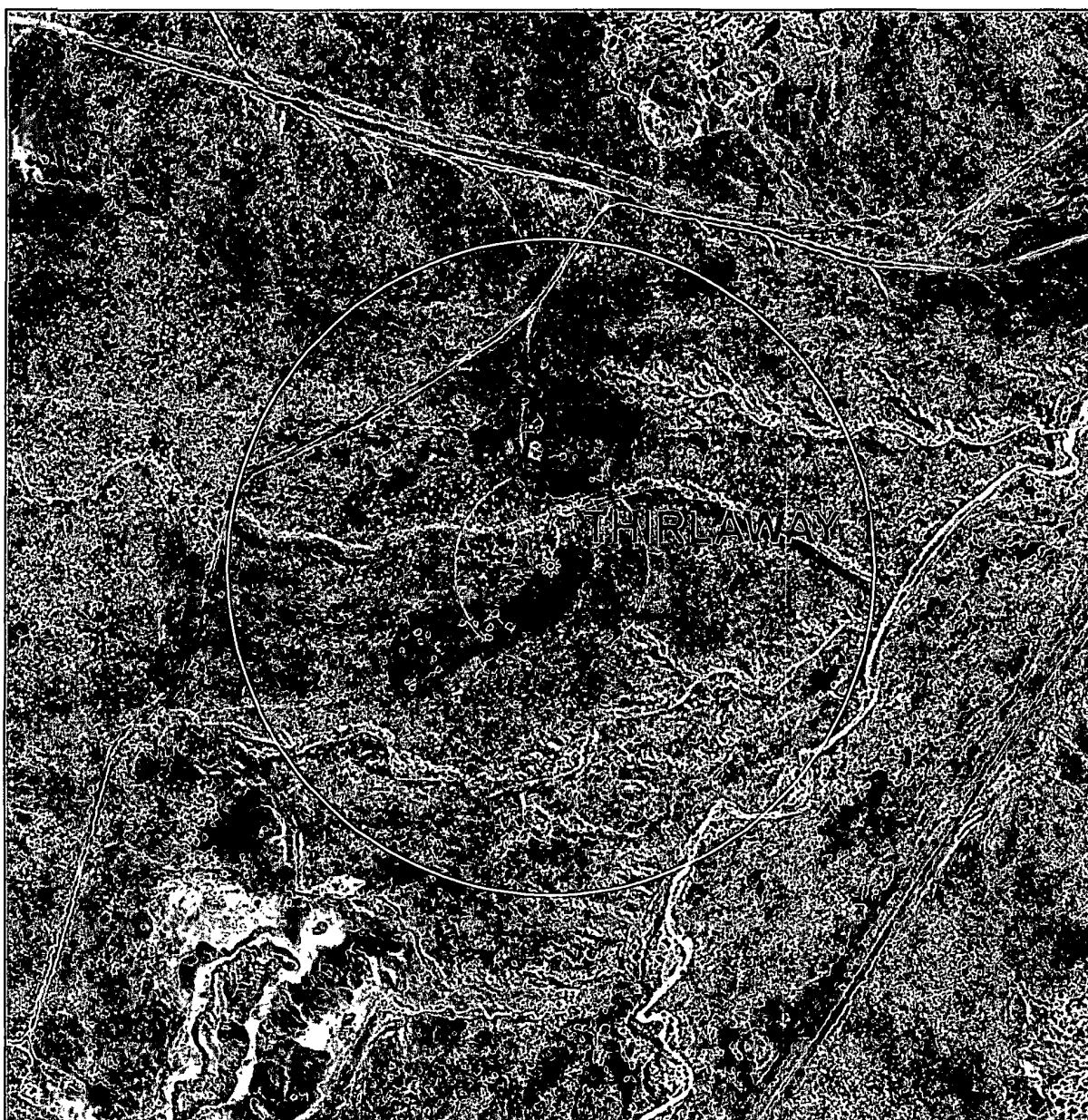


### Legend

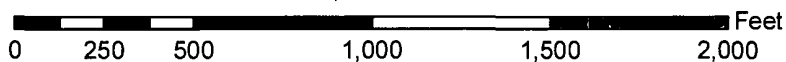
-  McElvain Well & 200' Radius
-  McElvain Well & 300' Radius
-  McElvain Well & 500' Radius

Source: USGS 1:24,000 Scale  
Topographic Map Series



San Juan Basin  
New Mexico  
Township 24N 7W  
Section 36



1:6,000

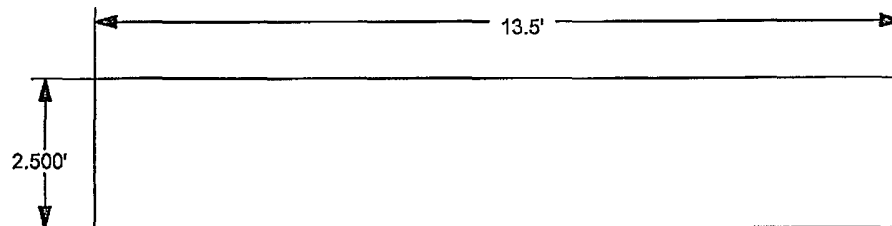
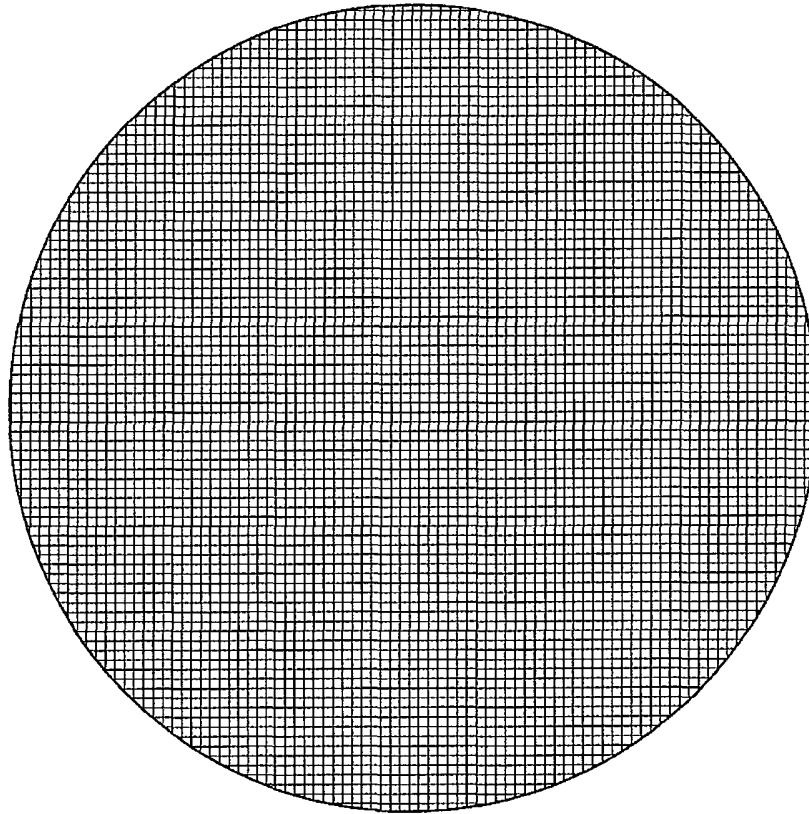



### Legend

-  McElvain Well & 300' Radius
-  McElvain Well & 1000' Radius

Aerial Source: NM Resource Geographic Information System  
Program made available by the Univeristy of New Mexico  
and the State of New Mexico 2005-2006 vintage Digital  
Orthophoto Quarter-Quadrangles were derived from  
the New Mexico Statewide Orthophotography Project.  
Source imagery flown at 35,000' above average ground.

San Juan Basin  
New Mexico  
Township 24N 7W  
Section 36



  
*McElwain Oil & Gas Properties, Inc*  
13.5' X 2.5' 60 BBL Single wall Fiberglass  
Pit Tank with Nylon Mesh cover  
9-4-2008

THIRLAWAY #1

### **Siting Criteria Compliance Demonstrations**

Thirlaway #1 well is not located in an unstable area. The location is not over a mine and is not on the side of a hill. The location of the excavated pit material is not located within 300' of any continuously flowing watercourse or 200' from any other water course.



**McElvain Oil & Gas Properties, Inc.**  
**San Juan Basin**  
**Below Grade Tank Design and Construction**

In accordance with Rule 19.15.17 NMAC the following describes the as-built construction of the Below Grade Tank on the McElvain Oil & Gas Properties, Inc (MOG) Thirlaway #1 well located in the SWNE of Sec 36, T24N, 7W.

**As-built Installation:**

1. The existing tank pit consists of an approximate 17 foot by 17 foot by 2 foot earth walled hole into which a 13.5 foot by 2.5 foot fiberglass, open sided, 60 bbl tank without leak detection is installed.
2. There is a wire mesh covering on the top of the below grade tank.
3. The tank pit is surrounded by a 30ft X 30ft X 2ft berm that is contained within a 50 ft X 140 ft berm that encloses the tank battery to prevent overflow or surface water run-on.
4. A general location sign is displayed on site.
5. The pit tank is fenced with 4 foot field fence with a top rail.

**McElvain Oil & Gas Properties, Inc.**  
**San Juan Basin**  
**Below Grade Tank Maintenance and Operating Plan**

In accordance with Rule 19.15.17 NMAC the following describes the below grade tank operation and maintenance plan for the McElvain Oil & Gas Properties, Inc (MOG) on the Thirlaway #1 well located in the SWNE of Sec 36, T24N, 7W.

**General Plan:**

1. MOG shall operate and maintain the below grade tank to contain liquids and solids and prevent contamination of fresh water to protect the public health and environment.
2. MOG shall not allow a below grade tank to overflow or allow surface water run-on to enter the below grade tank.
3. MOG shall continuously remove any visible or measurable layer of oil from the fluid surface of a below grade tank in an effort to prevent significant accumulation of oil over time.
4. MOG shall inspect the below grade tank monthly and maintain a written record of each inspection for five years.
5. MOG shall maintain adequate freeboard to prevent overtopping of the below grade tank.

**McElvain Oil & Gas Properties, Inc.**  
**San Juan Basin**  
**Closure Plan**

In accordance with Rule 19.15.17.1 NMAC the following procedure describes the closure plan for the McElvain Oil & Gas Properties, Inc (MOG) below grade tank on the Thirlaway #1 well located in the SWNE of Sec 36, T24N, 7W.

**Closure Requirements:**

1. MOG shall close the below grade tank within the time periods provided in 19.15.17.13 NMAC or by an earlier date that the division requires because of imminent danger to fresh water, public health, or the environment.
2. MOG shall close an existing below grade tank that does not meet the requirements of Paragraph (1) through (4) of Subsection I of 19.15.17.11 NMAC or is not included in Paragraph (5) of Subsection I of 19.15.17.11 NMAC within five years after June 16, 2008 if not retrofitted to comply with Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC.
3. MOG shall close a permitted below grade tank within 60 days of cessation of the below ground tank's operation or as required by the transitional provisions of Subsection B of 19.15.17.17 NMAC in accordance with a closure plan that the appropriate division district office approves. The closure report will be filed on C-144.
4. All liquids will be removed from the temporary permit prior to closure and the liquids disposed of in a division approved facility.
5. MOG shall remove the below grade tank and dispose of it in a division approved facility or recycle, reuse, or reclaim it in a manner that the appropriate division district office approves.
6. MOG will remove any on-site equipment associated with the below grade tank unless the equipment is required for some other purpose.
7. MOG shall test the soils beneath the below grade tank to determine whether a release has occurred. MOG shall collect a five point composite sample and individual grab samples from any area that is wet, discolored, or showing other evidence of a release. The samples will be analyzed for BTEX, TPH, and chlorides to demonstrate that the benzene concentration as determined by EPA SW-846 methods 8021B or 8260B or other EPA method that the division approves, does not exceed 50 mg/kg; the TPH concentration as determined by EPA method 418.1 or other EPA method that the division approves does not exceed 100 mg/kg; and the chloride concentration as determined by EPA

method 300.1 or other EPA method that the division approves does not exceed 250 mg/kg or the background concentration, whichever is greater. MOG shall notify the division of its results on form C-141.

8. If MOG or the division determines that a release has occurred, then MOG shall comply with 19.15.3.116 NMAC and 19.15.1.19 NMAC as appropriate.
9. If contamination is confirmed by field sampling, MOG will follow the Guidelines For Remediation Of Leaks, Spills, and Releases NMOCD August 1993 when remediating identified contaminants.
10. If the sampling program demonstrates that a release has not occurred or that any release does not exceed the concentrations specified in Paragraph (4) of Subsection E of 19.15.17.13 NMAC, then MOG shall backfill the excavation with compacted, non-waste containing, earthen material; construct a division-prescribed soil cover; re-contour, and re-vegetate the site.
11. Notice of closure will be given to the Aztec Division office between 72 hours and one week of closure via email or verbally. The notification of closure will include the following:
  - Operator's name
  - Location by Unit Letter, Section Township, and Range.
  - Well name and API number
12. All closure activities will include proper documentation and be available for review upon request and will be submitted to OCD within 60 days of closure of the blow grade tank. The closure report will be filed on C-144 and incorporate the following:
  - Details on capping and covering where applicable
  - Inspection reports
  - Sampling results
13. The site will be re-contoured to match the surrounding area. Natural drainages will be unimpeded and erosion control will be utilized where necessary.
14. MOG shall seed the disturbed areas the first growing season with a division approved seed mixture after pit closure. Seeding will be accomplished by drilling on the contour whenever possible or by other division approved methods. Repeat seeding or planting will be continued until successful vegetative growth occurs.
15. A minimum of four feet of cover shall be achieved and the cover shall include one foot of suitable material to establish vegetation at the site, or the thickness of the topsoil native to the area , whichever is greater.

16. The surface owner shall be notified of MOG's closing of the below grade tank as per the approved closure plan using certified mail with return receipt requested.

# Hydrogeological Report For

## Thirlaway #1

RCVD NOV 26 '08  
OIL CONS. DIV.

### Surface Formation:

DIST. 3

San Jose Formation

### Regional and Local Geology

The Tertiary San Jose Formation is a fluvial and alluvial deposit of Eocene age and is the youngest bedrock unit of the Tertiary in the San Juan Basin (Baltz, 1967). The San Jose is the surface formation in most of the central basin, to the eastern margin of the basin. Where it is buried, it is unconformably overlain by Quaternary sediments. It rests on an erosional surface over the Tertiary Nacimiento Formation south of the Colorado-New Mexico state line, and lies over the Cretaceous-Tertiary Animas north of the state line (Fassett, 1974). The San Jose has been differentially eroded, deeply in places, and has produced a varied to rugged physiography and a thickness range of less than 200' in the south to nearly 2700' in the eastern part of the basin (Stone et al., 1983).

The San Jose has been subdivided into four members (Baltz, 1967) for the eastern region of the basin but they are not easily discernable in this area. Instead, the San Jose exhibits a (sometimes inter-tonguing) sandy, muddy, sandy, muddy sequence in ascending order where the sandy zones are consolidated and can be considered an aquifer in some areas. The sandy zones are conglomeratic sandstone with numerous thin beds of clay, shale and mudstone. They were deposited in fluvial and alluvial environments. Overlying each of the two sandy members are sandy- to silty-mudstones containing thin lenses of poorly consolidated sandstone, claystone, and an abundance of swelling clays (Stone et al., 1983). The muddy zones act as a confinement layer over each sand zone.

### Hydraulic Properties

Tertiary and Quaternary hydrologic properties, regional flow patterns and water quality do not vary significantly from unit to unit. Where pumping levels and drilling depths are economically feasible and where water quality is suitable, the San Jose, Nacimiento and Animas Formations are a source of water for public-supply, commercial, private-domestic and livestock use. Water in the San Jose, Nacimiento and Animas Formations occurs under both water table and artesian conditions. Recharge to the aquifers is from infiltration of precipitation and stream flow on outcrops, and from vertical upward leakage of water from underlying strata (Levings et al., 1990). Rates of such leakage, however, are very low except in areas of intense fracturing (Stone et al., 1983).

The sandier zones of the San Jose Formation are less interconnected in the eastern-most portion of the basin than in the area of this well; and therefore, would be more laterally extensive (fewer limited compartments). Stone et al. (1983) reported that one of the sandier zones to the east may yield 30 to 60 gallons per minute, with specific capacity of 0.23 gpm per foot of drawdown at 1 hour of pumping. The zone will yield water suitable for livestock and industrial use. Stone et al. (1983) also reported that the aquifers of Tertiary rocks yield water that is characteristically high in ions of sodium and sulfate. The removal of iron may be required.

### Hydrology & Conclusion

A records search of the NM Office of the State Engineer iWaters database was conducted in a 4-township area centered on the section in which lies the Thirlaway #1 well location, 27N 4W section 36. Four wells with depth to water records were identified: 200', 400', 500', and 900'. Topography is responsible for great varying depths to water in this area. Two wells in 24N 7W were found with depth to water at 400' and 500'. Both wells were within 20'-80' of the valley floor in Crow Canyon, which lies at the base of Crow Mesa in the Escrito Field. One well in 23N 6W was located, approx. 40' above the base

of Escrito Canyon, and measured a depth to water at 200'. The fourth well, in 23N 7W measured a depth to water at 900'. No water wells exist in section 36 24N 7W.

The Thirlaway #1 well site lies on the floor of Johnson Canyon, another part of a large tributary system in this part of the San Juan Basin. Based on the other water wells in the area, all also on valley/canyon floors, depth to water in the Thirlaway #1 is concluded to be no less than 200'.

## References

Baltz, E.H., 1967, Stratigraphy and Regional Tectonic Implications of Part of Upper Cretaceous Rocks, East-Central San Juan Basin, New Mexico, USGS Professional Paper 552, 101p.

Fassett, J.E., 1974, Cretaceous and Tertiary Rocks of the Eastern San Juan Basin, in Guidebook of Ghost Ranch, Central-Northern New Mexico, New Mexico Geological Society, 25<sup>th</sup> Field Conference, 404p.

Levings, G.W., Craig, S.D., Dam, W.L., Kernodle, J.M., and Thorn, C.R., 1990, Hydrogeology of the San Jose, Nacimiento, and Animas Formations in the San Juan Structural Basin, New Mexico, Colorado, Arizona, and Utah, USGS Hydrologic Investigations Atlas HA-720-A, 2 sheets.

Scholle, P.A., 2003, Geologic Map of New Mexico 1:500,000, NM Bureau of Geology and Mineral Resources, published in cooperation with the USGS, 2 sheets.

Stone, W.J., Lyford, F.P., Frenzel, P.F., Mizell, N.H., and Padgett, E.T., 1983, Hydrogeology and water resources of San Juan Basin, New Mexico, New Mexico Bureau of Mines and Mineral Resources, Hydrologic Report 6, 70p.

BGT Closure Sampling Required by NMOCD

Components	Method	Limit
Benzene	EPA SW-846 8021B or 8260B	0.2 mg/Kg
BTEX	EPA SW-846 8021B or 8260B	50 mg/Kg
TPH	EPA SW-846 418.1	100 mg/Kg
Chlorides	EPA 300.1	250 mg/Kg