

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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

Form C-101
Revised August 1, 2011

Permit

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

¹ Operator Name and Address Read & Stevens, Inc. PO Box 1518, Roswell, NM 88202-1518		² OGRID Number 18917
⁴ Property Code 38921 38921		³ API Number 30-037-20086
⁵ Property Name Frio		⁶ Well No. #1

⁷ Surface Location

UL - Lot K	Section 30	Township 9N	Range 35E	Lot Idn	Feet from 2125	N/S Line South	Feet From 2220	E/W Line West	County Quay
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⁸ Pool Information

Wildcat	
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Additional Well Information

⁹ Work Type New Well	¹⁰ Well Type Oil Well	¹¹ Cable/Rotary Cable/Rotary	¹² Lease Type Private	¹³ Ground Level Elevation 4280
¹⁴ Multiple	¹⁵ Proposed Depth 7200 feet	¹⁶ Formation	¹⁷ Contractor	¹⁸ Spud Date 11/20/2011
Depth to Ground water >100 feet		Distance from nearest fresh water well > 1000 feet		Distance to nearest surface water > 1000 feet

¹⁹ Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	18	13 3/8	48# H40	300		Surface
Int	12.25	8 5/8	32# J55	3700		Surface
Prod	7.875	5.5	17# N80	7200		2700

Casing/Cement Program: Additional Comments

R&S plans to drill and test the granite wash Formation. H2S not reported in area. R&S proposes to drill a 18" hole to 300-350' w/ fresh water, run casing and cement to surface. Surface casing will be set 50 feet into the Bernal Formation, the Santa Rosa/Bernal contact will be determined based upon cuttings returns from the boring. Drill a 12.25" hole to 3700' w/ fresh water, run casing and circulate cement into the surface casing. Drill 7.875" hole to 7200. Run casing and circulate cement to the intermediate casing.

Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Double Ram	3000	3000	Shaffer

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

I further certify that the drilling pit will be constructed according to NMOCD guidelines ☐, a general permit ☐, or an (attached) alternative OCD-approved plan ☒.

Printed name: Randall T. Hicks

Title: Agent

E-mail Address: r@rthicksconsult.com - tcollier@read-stevens.com

Date: November 7, 2011

Phone: 505-266-5004

OIL CONSERVATION DIVISION

Approved By:

Title:

Approved Date: **11/14/2011**

Expiration Date: **11/14/2013**

**OIL CONSERVATION COMMISSION TO BE NOTIFIED
WITHIN 24 HOURS OF BEGINNING OPERATIONS**
Conditions of Approval Attached

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 July 16, 2010
Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-037-20086	² Pool Code	³ Pool Name Wildcat
⁴ Property Code 38921	⁵ Property Name Frio	
⁷ OGRID No. 18917	⁸ Operator Name Read & Stevens, Inc.	
		⁶ Well Number 1
		⁹ Elevation 4280

¹⁰ Surface Location

UL or lot no. K	Section 30	Township 9 N	Range 35 E	Lot Idn	Feet from the 2125	North/South line South	Feet from the 2220	East/West line West	County Quay
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¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
¹² Dedicated Acres 40		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.

¹⁶ 	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: <i>Randall Hicks</i> Date: 11/8/11 Printed Name: Randall Hicks E-mail Address: r@rthicksconsult.com	
	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. Date of Survey: October 26, 2011 Signature and Seal of Professional Surveyor: Certificate Number: 8112	

C-144 and Supplemental Information for Drilling Pit

R.T. Hicks Consultants, Ltd.

901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
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1000 Rio Brazos Road, Aztec, NM 87410
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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: Read & Stevens, Inc. OGRID #: 18917
Address: PO Box 1518, Roswell, NM 88202-1518
Facility or well name: Frio #1
API Number: 30-037-20086 OCD Permit Number: _____
U/L or Qtr/Qtr K Section 30 Township 9N Range 35E County: Quay
Center of Proposed Design: Latitude 34.974547 Longitude -103.269967 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 20 mil ☒ LLDPE ☐ HDPE ☐ PVC ☐ Other _____
☒ String-Reinforced
Liner Seams: ☒ Welded ☒ Factory ☐ Other _____ Volume: 11,500 bbl Dimensions: L 110' x W 90' x D 8'-10'

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 1**

☐ 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 2-3**

☐ 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 2-3**

☐ 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 2-3**

☐ 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 1-3**

☐ Yes ☒ No

☐ 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 4**

- 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

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 7**

☐ Yes ☒ No

Within a 100-year floodplain.

- FEMA map **SEE FIGURE 7**

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 H₂S, 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): Randall Hicks Title: Agent

Signature: [Signature] Date: 11-11-11

e-mail address: r@rthicksconsult.com Telephone: 505-266-5004

20.

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

OCD Representative Signature: [Signature] Approval Date: 11/14/2011

Title: DISTRICT SUPERVISOR 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: _____

**THE OPERATOR, READ AND STEVENS, INC., WILL ADHERE TO THE
APPROPRIATE MANDATES OF NMOC RULES INCLUDING:**

- Using appropriate engineering principles and practices
- Following applicable liner manufacturers' requirements.

This plan includes:

- A Temporary Pit Design Plan,
- Operating and maintenance procedures,
- A closure plan, and
- Hydrogeologic data that provides sufficient information and detail on the site's topography, soils, geology, surface hydrology and groundwater hydrology to enable the appropriate division district office to evaluate the actual and potential effects on soils, surface water and groundwater and compliance with the siting criteria of 19.15.17.10 NMAC.

The operator proposes in-place closure. However, if sampling demonstrates that the waste does not meet the criteria for on-site burial, waste excavation and removal of the drilling waste is another alternative presented in this submittal.

Hydrogeologic Data

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

1. Figure 1 – Groundwater Geologic Map with depth to groundwater data from the OSE and USGS databases. Please note
 - a. The location of the drilling 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 squares with their OSE permit number, depth to groundwater and date of measurement
 - c. Most OSE wells do not include a depth to groundwater
 - d. The USGS well is the green triangle showing the depth and the measurement year.
2. Figure 2- USGS topographic map of the area. These maps show
 - a. locations of any significant watercourses (blue lines in some drainages),
 - b. surface water (in blue), which are stock ponds
 - c. the location of the drilling pits in the center of the colored distance circles.
3. Figure 3 – 2008 aerial photograph showing
 - a. The nearest road on the north border
 - b. windmill turbines (lower left of photograph)
 - c. stock ponds (compare with Figure 2)
 - d. the absence of other structures.
4. Figure 4 - is a map that also shows the location of the nearest incorporated municipal boundary (Tucumcari), about 25 miles northwest of the drilling pit location

5. Figure 5 – shows that no wetlands are identified in the area directly surrounding the site. Stock ponds (POW = open water) and other open water with flat bottoms (PFL) are greater than 1000 feet from the drilling pits
6. Figure 6 – shows the location of the nearest identified mines (quarries), which are shown as green circles. No subsurface mines were identified in the area.
7. Figure 7 – shows the area in relation to identified unstable areas, identified as the purple karst area on the bottom of the map
8. Figure 8 FEMA map – The full-scale index map states that the * defines areas of Zone D, unshaded, indicating the area is an undetermined 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 A demonstrate that the following statements are true:

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

The PRRC database of OSE and USGS wells presents several data points in the area of interest. About 2 miles to the north and east of the Frio #1 well (see Figure 1) the well TU-1631 shows a depth to water of 44 feet and the well is at a ground surface elevation of 4190 (water table elevation = 4146). About 2 miles to the northwest of the Frio Well, OSE well #TU-1232 and a nearby USGS well (green triangle in 23 T9N R34E) show a depth to groundwater of 65 and 60.8 respectively. Due to possible location errors in the database, we believe the OSE and USGS measurements were from the same well at different times. Examination of the data show a windmill located on the at a ground surface elevation of 4241 near these two measurements, resulting in a groundwater table elevation of about 4180. These two wells are within the area mapped as Quaternary alluvium/piedmont. The depths of most of these wells is reported in the WATERS database as more than 100 feet (Appendix B shows a depth of 110 feet for TU-1634) and we conclude that these wells may draw water from the underlying Santa Rosa Sandstone.

A certain estimate of the depth to groundwater at the Frio #1 is provided by well TU-1607 (western edge of Figure 1). Like the Frio #1, this well lies in the Triassic outcrop area, adjacent to the Quaternary deposits. Here the depth to water is 141 feet and the ground surface elevation is 4300 feet (water elevation = 4159).

The data presented above permit a conclusion that the water elevation below the drilling pits is about 4160. According to the attached C-102, the ground elevation of the Frio #1 well is 4280 feet asl. The distance between the bottom of a 10-foot pit and groundwater is 120 feet. However, groundwater in the Santa Rosa can be confined by

**C-144 Supplemental Documentation for Drilling Pit
Frio #1**

overlying less permeable siltstones and shales. The data in Appendix B for TU-1634 shows the first water bearing strata lies at a depth of 75 feet and the static water level is 44 feet, suggesting an artesian head of 31 feet. The OSE data for well TU-1607 suggests an artesian pressure of 14 feet.

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 2-3 and Appendix A confirm this statement. The 2008 aerial photograph shows the well location lies in a shallow vegetated drainage as does the photographic documentation in Appendix A. The topographic map of Figure 2 shows an identified drainage (blue dashed line) about 800 feet east 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 Appendix A 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 Appendix A 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 Appendix A 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 shows that site lies outside of a Karst area indicated by the lavender color on the map.

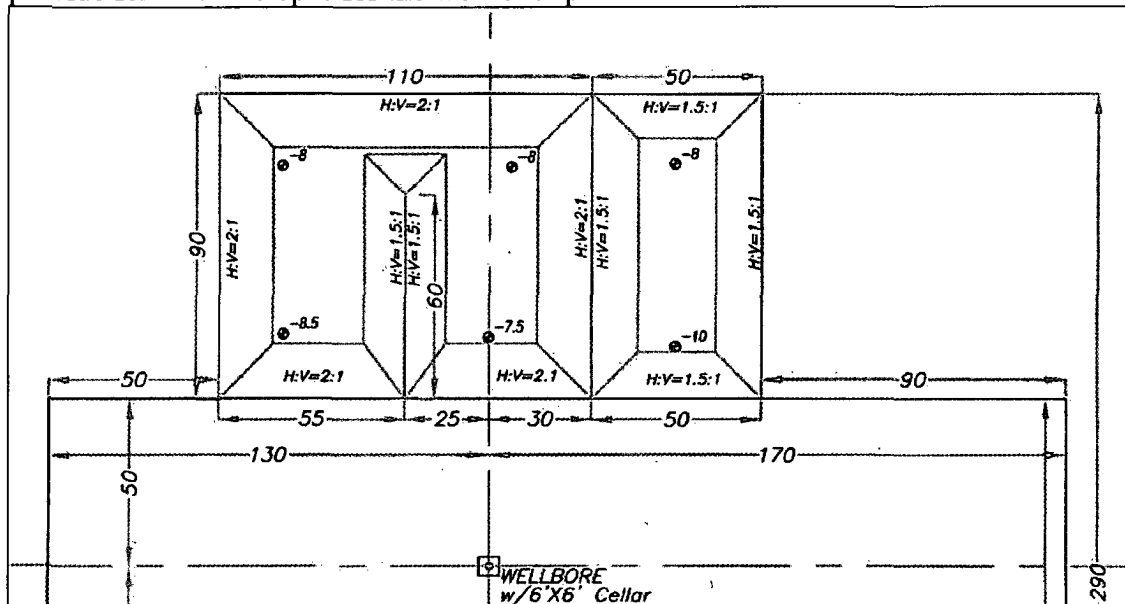
9. The pit, excavated material and on-site closure is NOT within a 100-year floodplain.

Our site visit confirms this statement. We saw no geologic evidence of flooding (see Appendix A). The FEMA map shows the site is located in Zone D, indicating the area is “undetermined”.

Temporary Pit Design Plan

The figure below shows the layout of the temporary pits proposed for this project. The drilling pit, which is the subject of this C-144, is a typical two-cell pit (a single horse shoe) and is the left pit in the diagram. The entire well will be drilled with fresh water:

The figure below also shows an adjacent workover pit that will hold fresh water for drilling and stimulation operations and flow-back water from this well stimulation process (the pit on the right of the diagram). The workover pit is the subject of a separate C-144. Please note that the pit design document is currently under revision to provide for 2H:1V slopes for the workover pit.



General Layout of Temporary Pits Showing Drilling Pit and Workover Pit

Field conditions will determine the final configuration of the pits.

In addition to the commitments listed below, the operator will install a system that can drain water entrained in the drilling waste of the drilling pit. This system of perforated pipe and drainage mats cover much of the bottom of the pit. The system drains to small depressions or sumps (2-feet deep by about 10 feet wide) in the bottom of the pit. Figure 9 shows two sumps. The circle in the lower left corner labeled “-10” shows one sump that is 2-feet lower than the surrounding lined pit floor. In the upper right corner of the pit a second circle labeled “-10” identifies the second sump. Standpipes rise from the depression/sump and two or more of the standpipes house a solar-powered

pump. The drainage system for the pit removes water to the workover pit via one or more solar pumps. This system can also be used to rinse the cuttings/mud if necessary. Fresh water may be placed over the cuttings/mud and allowed to flow through the solids to the drainage system or clear water is placed in the drainage pipes and flows up through the cuttings.

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. This drainage and rinsing system allows the operator to:

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

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

Construction/Design Plan of Temporary Pit

1. The operator or qualified contractor will design and construct the pit to contain liquids and solids and prevent contamination of fresh water and protect public health and the environment.
2. Prior to constructing the pit the operator or qualified contractor will strip and stockpile the topsoil for use as the final cover or fill at the time of closure.
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 operator will fence the pit in a manner that prevents unauthorized access and will maintain the fences in good repair. The operator 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. The pit will be completely fenced at all times excluding drilling and workover 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 design and construct the temporary pit to prevent unauthorized releases and ensure the confinement of liquids.
6. 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.
7. The slopes of the pit will be no steeper than 2 horizontal feet to 1 vertical foot (2H:1V).
8. The operator will design and construct the temporary pit with a geomembrane liner. 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.

9. The operator will minimize liner seams and orient them up and down, not across a slope. The operator will use factory welded seams. Prior to any field seaming, the operator 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 operator will minimize the number of welded field seams in corners and irregularly shaped areas. Field seams will be welded by qualified personnel.
10. Construction will avoid excessive stress-strain on the liner.
11. Geotextile will be placed under the liner where needed to reduce localized stress-strain or protuberances that may otherwise compromise the liner's integrity.
12. The operator and/or qualified contractor retained by the operator will 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.
13. The operator and/or qualified contractor retained by the operator will 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.
14. The operator and/or qualified contractor retained by the operator will design and construct the temporary pit to prevent run-on of surface water. As necessary, a berm or ditch will surround the temporary pit to prevent run-on of surface water.
15. The volume of the temporary drilling pit, including freeboard, does not exceed 10 acre-feet, Figure 9.

Operating and Maintenance Plan

The operator will operate and maintain the pit to contain liquids and solids and maintain the integrity of the liner, liner system or secondary containment system, 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 drilling fluids and recovered water in a manner approved by division rules that prevents the contamination of fresh water and protects public health and the environment.
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 process will be discharged into the temporary pit. The discharge of workover fluids to the drilling pit as a rinse to the drilling waste solids is discussed in the closure plan (below).
10. The operator will maintain the temporary pit free of miscellaneous solid waste or debris.
11. Although hydrocarbon-based drilling mud is not anticipated for use, the operator will use a tank made of steel to contain hydrocarbon-based drilling fluids if need be.
12. Immediately after cessation of drilling, the operator will remove any visible or measurable layer of oil from the surface of a drilling pit, in the manner described above.
13. The operator will maintain at least two feet of freeboard for the temporary pit.
14. The operator will inspect the temporary pit containing drilling fluids at least daily while the drilling rig is on-site to ensure compliance with this plan.
15. After drilling operations, the operator will inspect the temporary drilling pit weekly so long as free liquids remain in the temporary pit.
16. The operator will maintain a log of such inspections and make the log available for the district office's review upon request.
17. The operator will file a copy of the log with the appropriate division district office when the operator closes the temporary pit.
18. The operator will remove all free liquids from the temporary pit within 30 days from the date that the operator releases the drilling rig – unless granted an extension of time by the District Office. The operator will note the date of the drilling rig's release on form C-105 or C-103 upon well completion.

Closure Plan- General Conditions

Protocols and Procedures

The operator will use the following procedures and protocols to implement the closure:

- The operator will notify the landowner, prior to closure, that the operator plans to close the temporary pit by certified mail, return receipt requested.

C-144 Supplemental Documentation for Drilling Pit Frio #1

- 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.
- 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.
- Fluids on and entrained in the drilling waste will be removed from the pit for re-use or disposal.
- The operator shall remove all free liquids from the drilling pit within 30 days from the date that the operator released the drilling rig. The operator shall note the date of the drilling rig's release on form C-105 or C_f-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 rinsing of drilling waste solids and the recovery of water for re-use.
- After removal of all standing water, drilling pit drainage begins as water from the drainage system discharges to the workover pit
- The operator will close the temporary pit within six months of the date that the operator releases the drilling 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 that the division requires because of imminent danger to fresh water, public health or the environment.
- 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.
- 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 operator has provided the surface owner notice of the operator's proposal of an on-site closure (see Appendix C for proof of notice to the landowner.) 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. 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 the on-site burial on form C-105 filed with the division.
- The operator will file a deed notice identifying the exact location of the on-site burial with the county clerk in the county. The exact location of the 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 drilling pit .

- If waste sampling results suggest that standards for in-place closure are not met, the operator will implement excavation and removal

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 drilling waste suggests that the drilling pit meet 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 above section titled Siting Criteria Compliance Demonstration beginning on page 2) 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 operator will measure the distance between the top of the drilling waste and existing grade to determine if stabilized drilling 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).
- B. 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 drilling waste).
 - a.
- C. 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.
- D. Any excess liner above the stabilized waste will be removed for re-use or disposal.

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
Lea Land, 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.

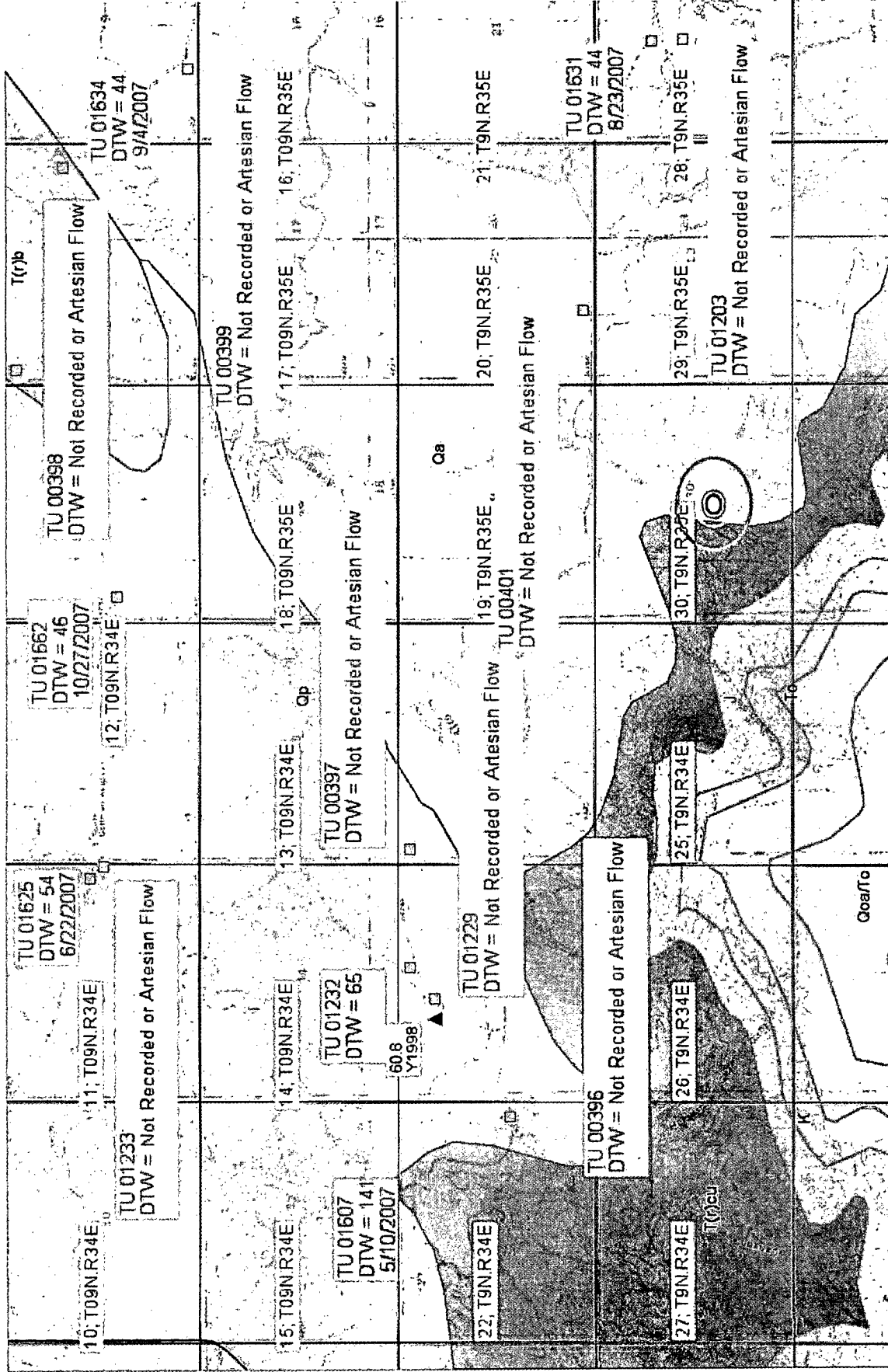
Reporting

The operator shall notify the division of its results 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.

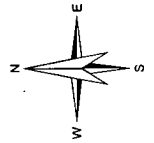
Figures for Drilling Pit C-144

R.T. Hicks Consultants, Ltd.

901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104



Distance (ft): 0 200 300 500 1000



0 2000 4000ft

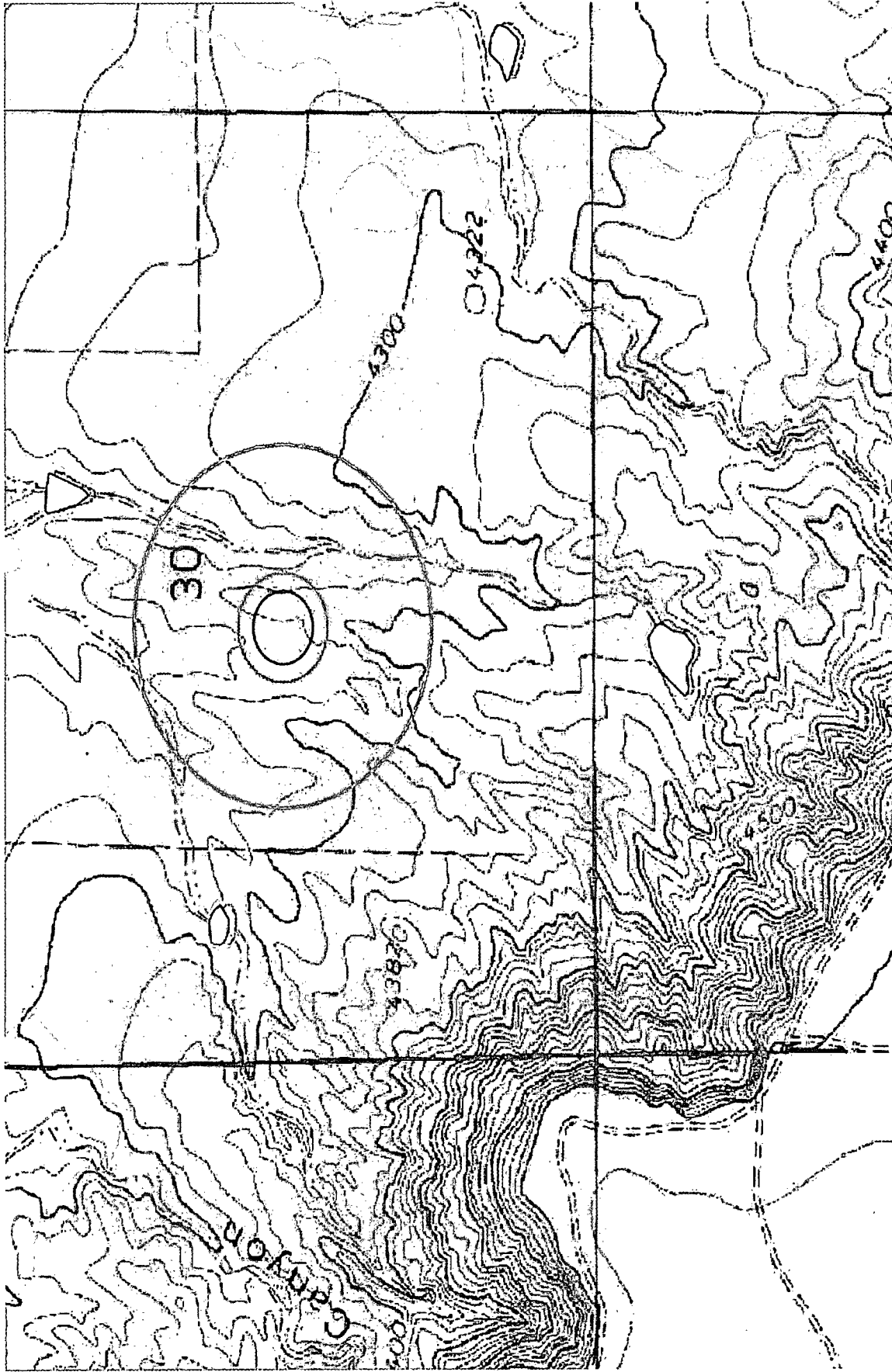
Petroleum Recovery
Research Center

Geology and Depth to Water

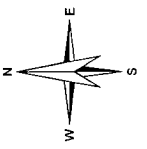
Figure: 1

Read and Stevens - Frio #1

Nov 04, 2011



Distance (ft): 0 200 300 500 1000



0 500 1000ft

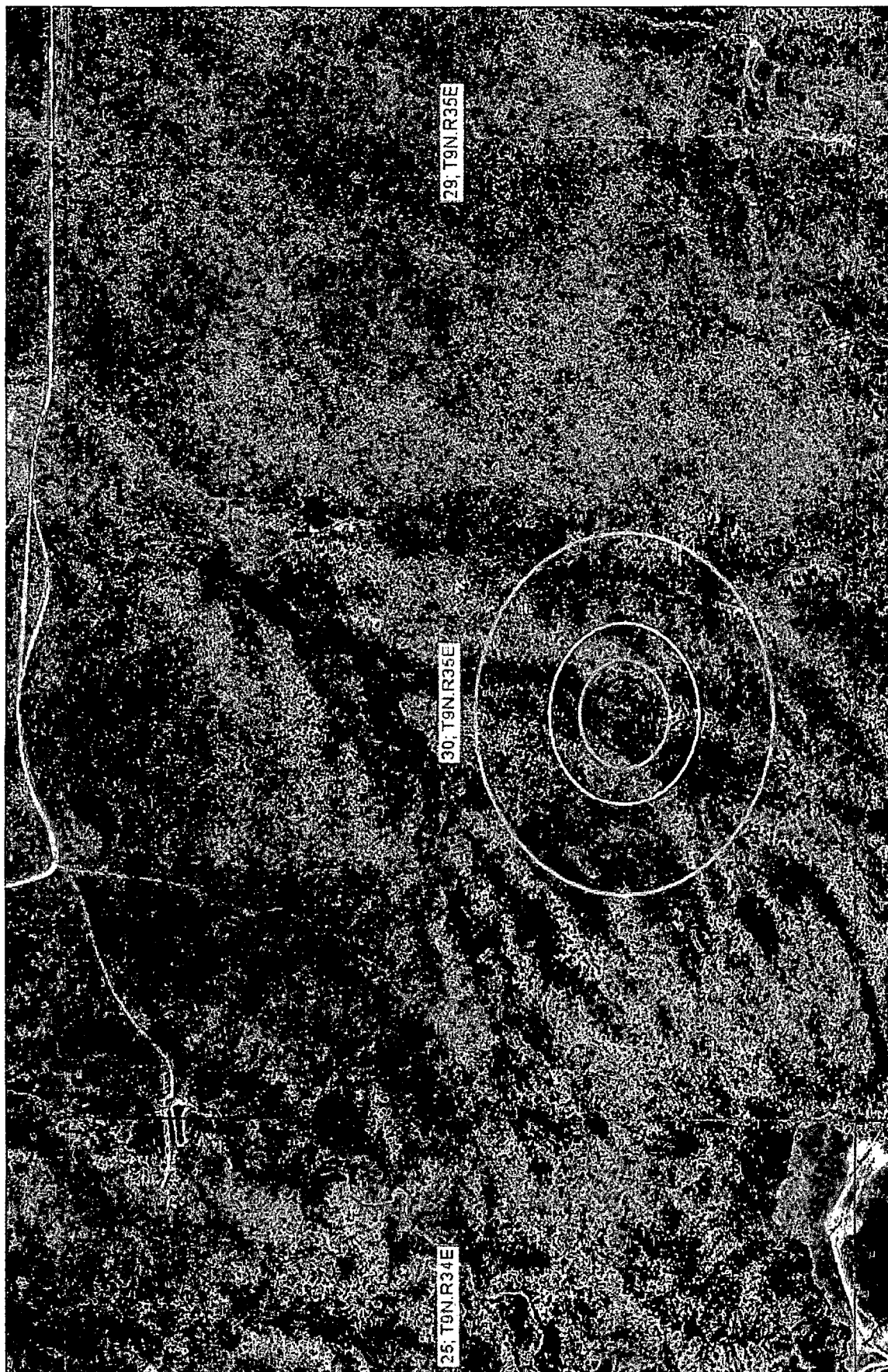
Petroleum Recovery
Research Center

Topography and Surface Water

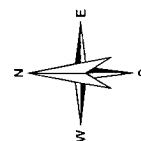
Figure: 2

Read and Stevens - Frio #1

Nov 04, 2011



Distance (ft): 0 200 300 500 1000



0 500 1000ft

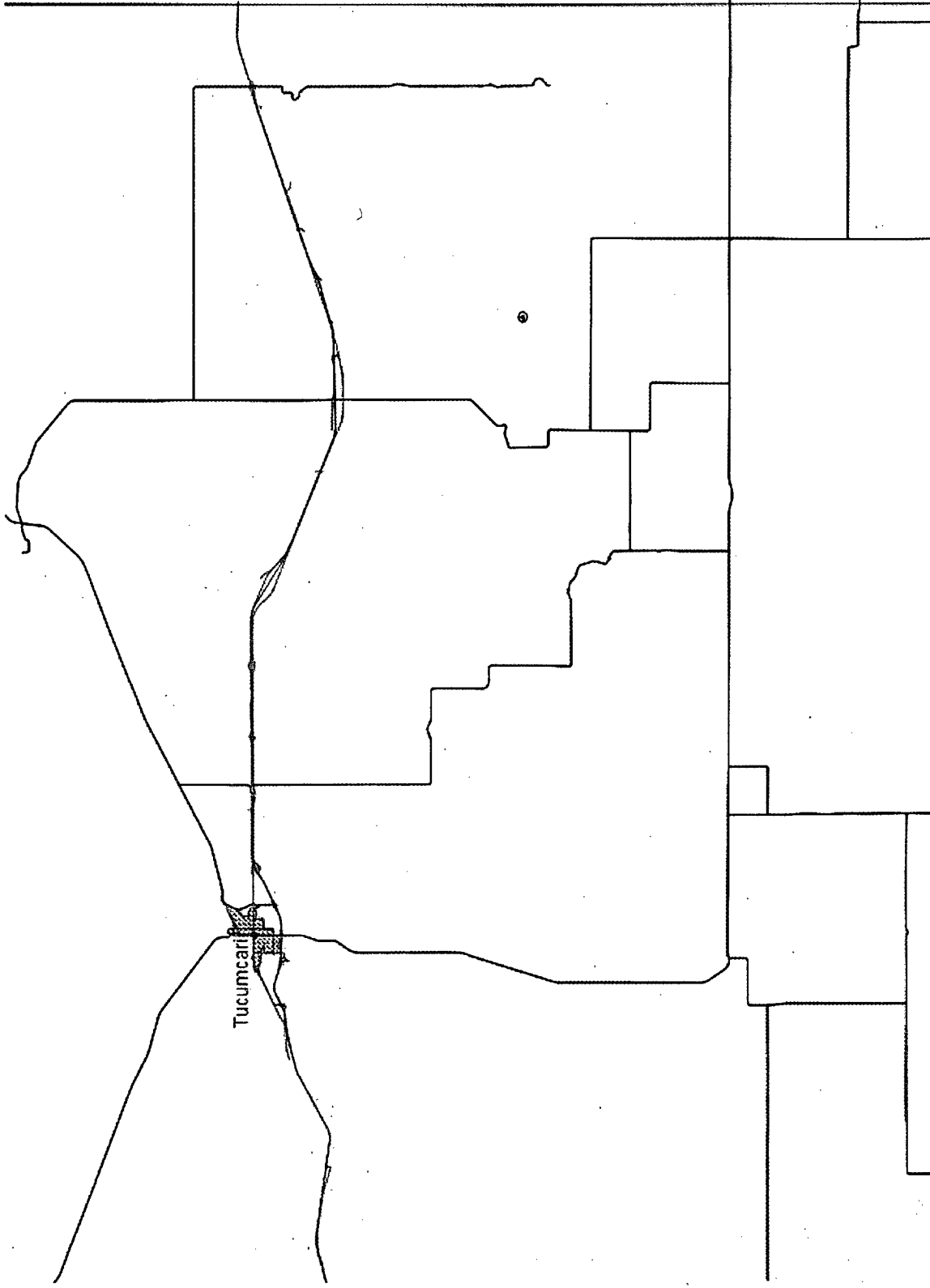
Petroleum Recovery
Research Center

Recent Air Photo

Figure: 3

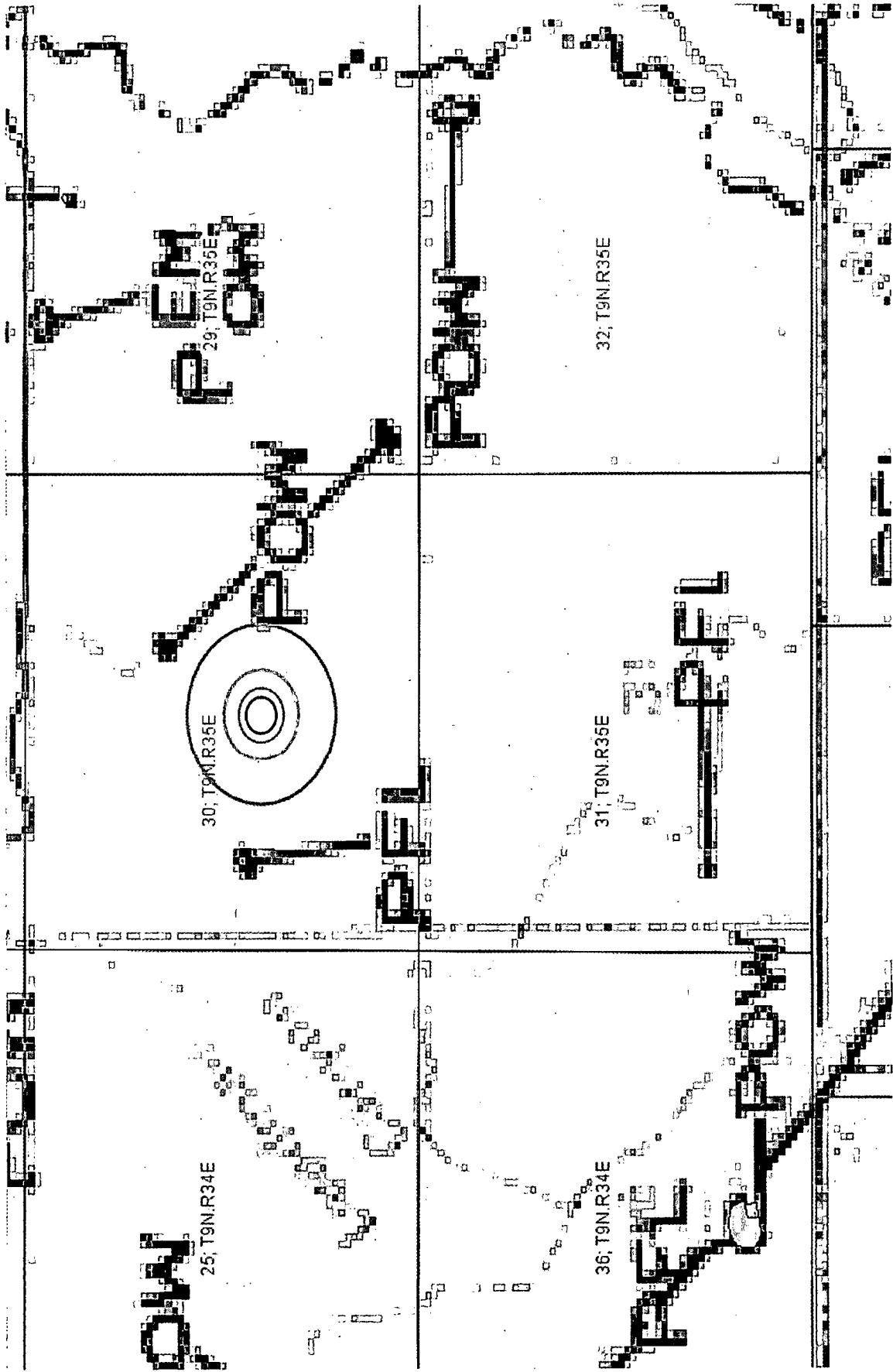
Read & Stevens - Frio #1

Nov 02, 2011



Distance (ft): 0 200 300 500 1000

Petroleum Recovery Research Center		Figure: 4
Nearest Municipal Boundary		
Read & Stevens - Frio #1		Nov 02, 2011

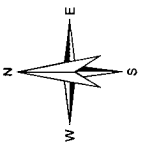
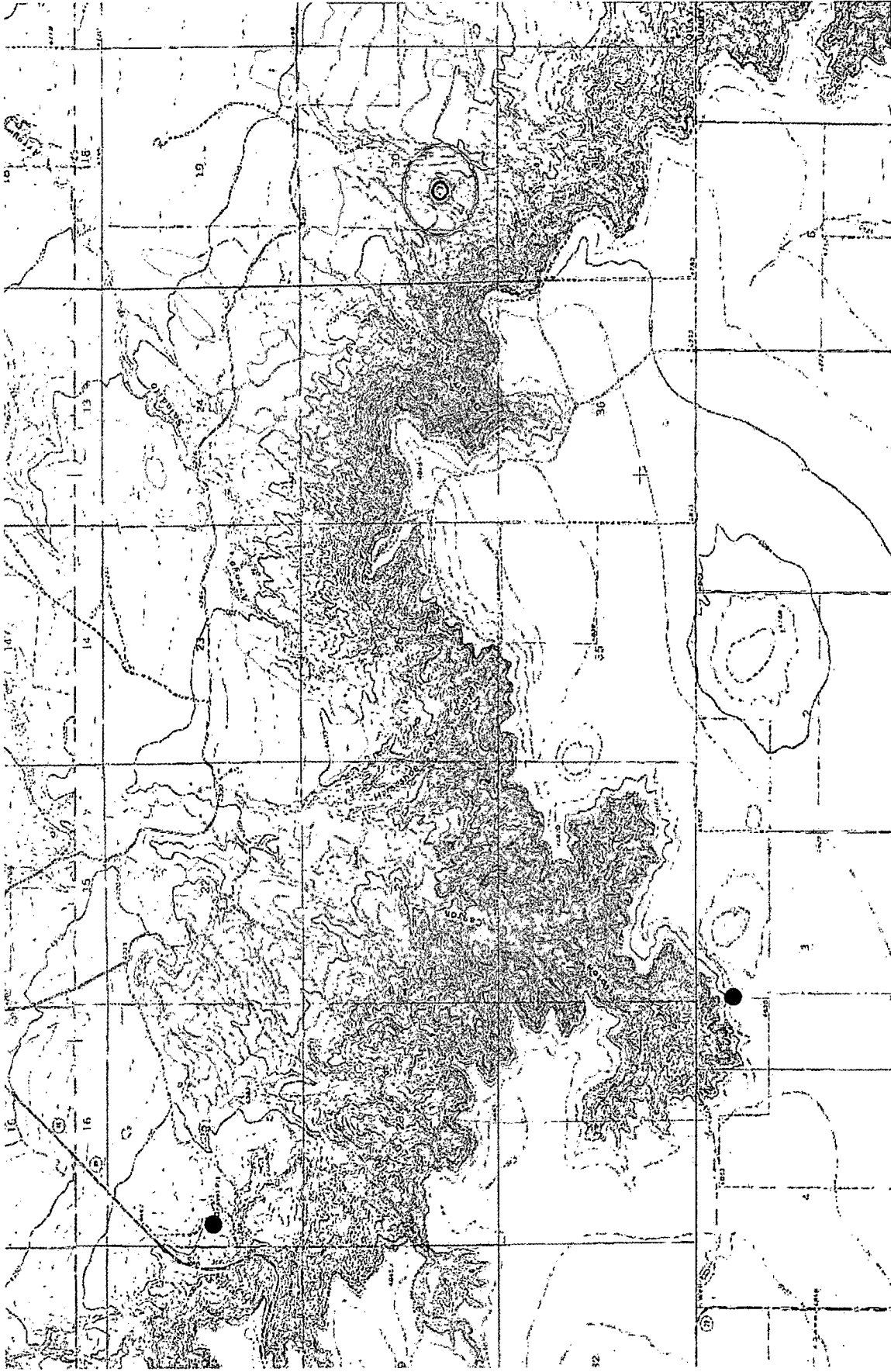


Distance (ft): 0 200 300 500 1000

USFW Wetlands	Petroleum Recovery Research Center
Read and Stevens - Frio #1	

Figure: 5

Nov 04, 2011



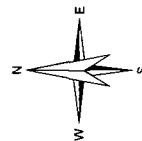
Petroleum Recovery
Research Center

Nearest Mines

Figure: 6

Read & Stevens - Frio #1

Nov 02, 2011



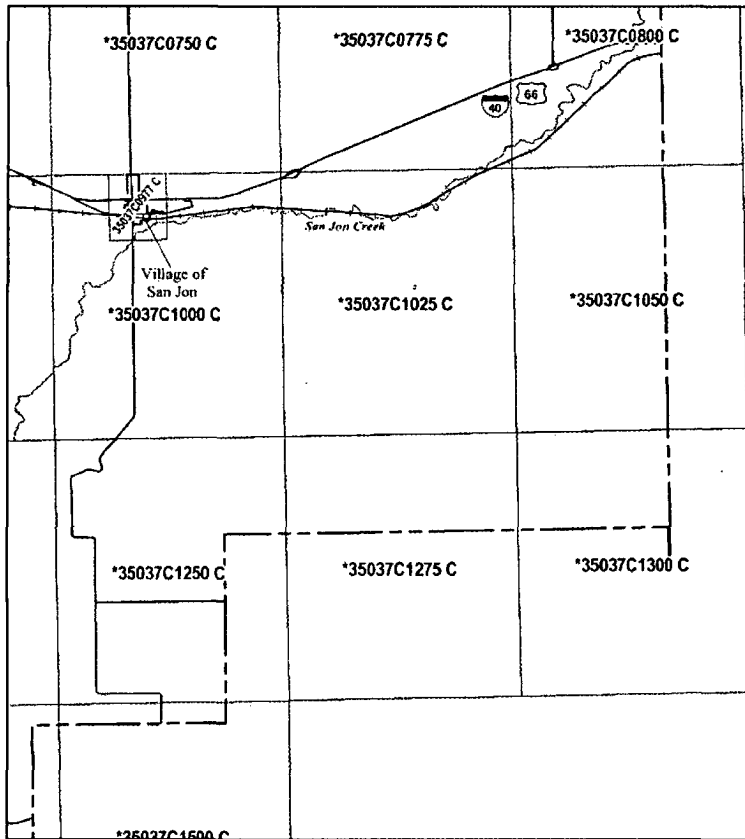
Petroleum Recovery
Research Center

Unstable Areas (Karst)

Figure: 7

Read & Stevens - Frio #1

Nov 02, 2011



NATIONAL FLOOD INSURANCE PROGRAM

MAP INDEX

FIRM
FLOOD INSURANCE RATE MAP
QUAY COUNTY,
NEW MEXICO
AND INCORPORATED AREAS
(SEE LISTING OF COMMUNITIES TABLE)

MAP INDEX

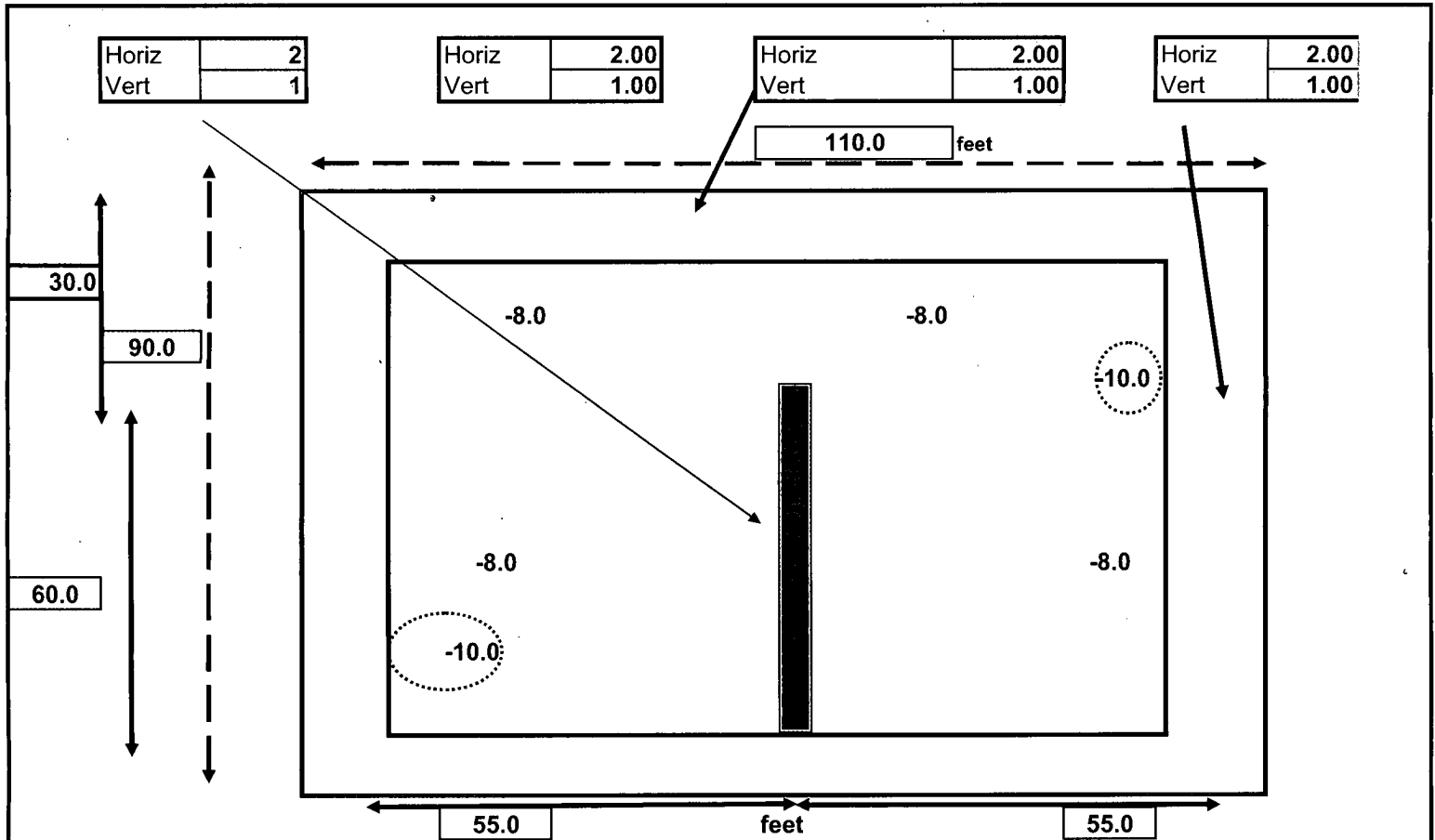
PANELS PRINTED: 641 - 644, 654, 658, 661 - 654,
655, 677



MAP NUMBER
35037CIND0A
EFFECTIVE DATE
MAY 5, 2003

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using FIRM 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.nrc.fema.gov



Dimensions center of berm to center of berm

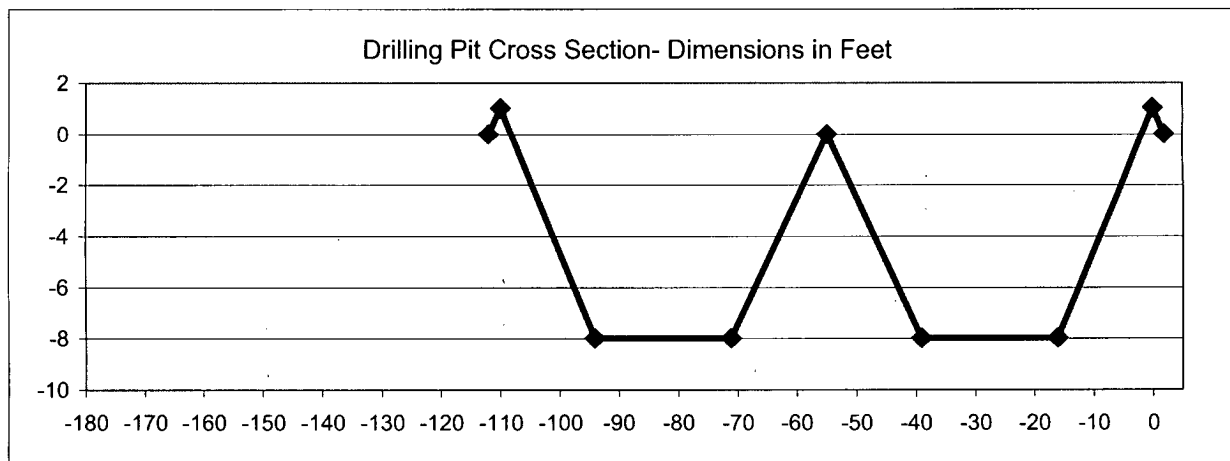
Depth Inputs	Upper Right corner	-8.0
	Lower Right corner	-8.0
	Upper Left corner	-8.0
	Lower Left corner	-8.0

Berm ht.

1

Volume of Outer Shoe bbls

10,035.22



R.T. Hicks Consultants, Ltd.

Depth of Drilling Pit Below Grade and Dimensions

Read and Stevens, Inc. - Frio #1

Figure 9

Nov-11

C-144 and Supplemental Information for Workover Pit

R.T. Hicks Consultants, Ltd.

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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: Read & Stevens, Inc. OGRID #: 18917
Address: PO Box 1518, Roswell, NM 88202-1518
Facility or well name: Frio #1
API Number: _____ OCD Permit Number: _____
U/L or Qtr/Qtr K Section 30 Township 9N Range 35E County: Quay
Center of Proposed Design: Latitude 34.974547 Longitude -103.269967 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 20 mil ☒ LLDPE ☐ HDPE ☐ PVC ☐ Other _____
☒ String-Reinforced
Liner Seams: ☒ Welded ☒ Factory ☐ Other _____ Volume: 3,800 bbl Dimensions: L 50' x W 90' x D 9'

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 1**

☐ 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 2-3**

☐ 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 2-3**

☐ 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 2-3**

☐ 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 1-3**

☐ 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 4**

- 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 7**

☐ Yes ☒ No

Within a 100-year floodplain.

- FEMA map **SEE FIGURE 7**

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 H₂S, 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
☐ AlternativeProposed 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): Randall Hicks Title: Agent

Signature: *Randall Hicks* Date: 11-11-11

e-mail address: r@rthicksconsult.com Telephone: 505-266-5004

20.

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

OCD Representative Signature: *Ed Martin* Approval Date: 11/14/2011

Title: **DISTRICT SUPERVISOR** 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 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: _____

THE OPERATOR, READ AND STEVENS, INC., WILL ADHERE TO THE APPROPRIATE MANDATES OF NMOC RULES INCLUDING:

- Using appropriate engineering principles and practices
- Following applicable liner manufacturers' requirements.

This plan includes:

- A Temporary Pit Design Plan,
- Operating and maintenance procedures,
- A closure plan, and
- Hydrogeologic data that provides sufficient information and detail on the site's topography, soils, geology, surface hydrology and groundwater hydrology to enable the appropriate division district office to evaluate the actual and potential effects on soils, surface water and groundwater and compliance with the siting criteria of 19.15.17.10 NMAC.

The operator proposes in-place closure – if any solids accumulate in the pit. However, if sampling demonstrates that the waste does not meet the criteria for on-site burial, waste excavation and removal of the workover pit solids is another alternative presented in this submittal.

Hydrogeologic Data

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

1. Figure 1 – Groundwater Geologic Map with depth to groundwater data from the OSE and USGS databases. 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 squares with their OSE permit number, depth to groundwater and date of measurement
 - c. Most OSE wells do not include a depth to groundwater
 - d. The USGS well is the green triangle showing the depth and the measurement year.
2. Figure 2- USGS topographic map of the area. These maps show
 - a. locations of any significant watercourses (blue lines in some drainages),
 - b. surface water (in blue); which are stock ponds
 - c. the location of the temporary pits in the center of the colored distance circles.
3. Figure 3 – 2008 aerial photograph showing
 - a. The nearest road on the north border
 - b. windmill turbines (lower left of photograph)
 - c. stock ponds (compare with Figure 2)
 - d. the absence of other structures.

4. Figure 4 - is a map that also shows the location of the nearest incorporated municipal boundary (Tucumcari), about 25 miles northwest of the temporary pit location
5. Figure 5 - shows that no wetlands are identified in the area directly surrounding the site. Stock ponds (POW = open water) and other open water with flat bottoms (PFL) are greater than 1000 feet from the temporary pits
6. Figure 6 - shows the location of the nearest identified mines (quarries), which are shown as green circles. No subsurface mines were identified in the area.
7. Figure 7 - shows the area in relation to identified unstable areas, identified as the purple karst area on the bottom of the map
8. Figure 8 FEMA map - The full-scale index map states that the * defines areas of Zone D, unshaded, indicating the area is an undetermined 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 A demonstrate that the following statements are true:

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

The PRRC database of OSE and USGS wells presents several data points in the area of interest About 2 miles to the north and east of the Frio #1 well (see Figure 1) the well TU-1631 shows a depth to water of 44 feet and the well is at a ground surface elevation of 4190 (water table elevation = 4146). About 2 miles to the northwest of the Frio Well, OSE well #TU-1232 and a nearby USGS well (green triangle in 23 T9N R34E) show a depth to groundwater of 65 and 60.8 respectively. Due to possible location errors in the database, we believe the OSE and USGS measurements were from the same well at different times. Examination of the data show a windmill located on the at a ground surface elevation of 4241 near these two measurements, resulting in a groundwater table elevation of about 4180. These two wells are within the area mapped as Quaternary alluvium/piedmont. The depths of most of these wells is reported in the WATERS database as more than 100 feet (Appendix B shows a depth of 110 feet for TU-1634) and we conclude that these wells may draw water from the underlying Santa Rosa Sandstone.

A certain estimate of the depth to groundwater at the Frio #1 is provided by well TU-1607 (western edge of Figure 1). Like the Frio #1, this well lies in the Triassic outcrop area, adjacent to the Quaternary deposits. Here the depth to water is 141 feet and the ground surface elevation is 4300 feet (water elevation = 4159).

**C-144 Supplemental Documentation for Workover Pit
Frio #1**

The data presented above permit a conclusion that the water elevation below the temporary pits is about 4160. According to the attached C-102, the ground elevation of the Frio #1 well is 4280 feet asl. The distance between the bottom of a 10-foot pit and groundwater is 120 feet. However, groundwater in the Santa Rosa can be confined by overlying less permeable siltstones and shales. The data in Appendix B for TU-1634 shows the first water bearing strata lies at a depth of 75 feet and the static water level is 44 feet, suggesting an artesian head of 31 feet. The OSE data for well TU-1607 suggests an artesian pressure of 14 feet.

- 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 2-3 and Appendix A confirm this statement. The 2008 aerial photograph shows the well location lies in a shallow vegetated drainage as does the photographic documentation in Appendix A. The topographic map of Figure 2 shows an identified drainage (blue dashed line) about 800 feet east 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 Appendix A 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 Appendix A 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 Appendix A 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**

Figure 7 shows that site lies outside of a Karst area indicated by the lavender color on the map.

Our site visit confirms this statement. We saw no geologic evidence of flooding (see Appendix A). The FEMA map shows the site is located in Zone D, indicating the area is “undetermined”.

The figure below shows the layout of the temporary pits proposed for this project. The workover pit, which is the subject of this C-144, is a typical two-cell pit (a single horse shoe) and is the left pit in the diagram. The entire well will be drilled with fresh water:

The figure below also shows an adjacent drilling pit. The drilling pit is the subject of a separate C-144. Please note that the pit design document is currently under revision to provide for 2H:1V slopes for the workover pit.



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.

Construction/Design Plan of Temporary Pit

1. The operator or qualified contractor will design and construct the pit to contain liquids and solids and prevent contamination of fresh water and protect public health and the environment.
2. Prior to constructing the pit the operator or qualified contractor will strip and stockpile the topsoil for use as the final cover or fill at the time of closure.
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 operator will fence the pit in a manner that prevents unauthorized access and will maintain the fences in good repair. The operator 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. The pit will be completely fenced at all times excluding drilling and workover 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 design and construct the temporary pit to prevent unauthorized releases and ensure the confinement of liquids.
6. 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.
7. The slopes of the pit will be no steeper than 2 horizontal feet to 1 vertical foot (2H:1V).
8. The operator will design and construct the temporary pit with a geomembrane liner. 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.
9. The operator will minimize liner seams and orient them up and down, not across a slope. The operator will use factory welded seams. Prior to any field seaming, the operator 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 operator will minimize the number of welded field seams in corners and irregularly shaped areas. Field seams will be welded by qualified personnel.
10. Construction will avoid excessive stress-strain on the liner.
11. Geotextile will be placed under the liner where needed to reduce localized stress-strain or protuberances that may otherwise compromise the liner's integrity.

12. The operator and/or qualified contractor retained by the operator will 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.
13. The operator and/or qualified contractor retained by the operator will 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.
14. The operator and/or qualified contractor retained by the operator will design and construct the temporary pit to prevent run-on of surface water. As necessary, a berm or ditch will surround the temporary pit to prevent run-on of surface water.
15. The volume of the temporary workover pit, including freeboard, does not exceed 10 acre-feet, Figure 9.

Operating and Maintenance Plan

The operator will operate and maintain the pit to contain liquids and solids and maintain the integrity of the liner, liner system or secondary containment system, 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 workover pit and recovered water in a manner approved by division rules that prevents the contamination of fresh water and protects public health and the environment.
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 process will be discharged into the temporary pit.

10. The operator will maintain the temporary pit free of miscellaneous solid waste or debris.
11. Immediately after cessation of 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 stimulation to ensure compliance with this plan.
14. After 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. The operator will remove all free liquids from the temporary pit within 30 days from the date that the operator releases the stimulation rig – unless granted an extension of time by the District Office. The operator will note the date of the stimulation rig's release on form C-105 or C-103 upon well completion.

Closure Plan- General Conditions

Protocols and Procedures

The operator will use the following procedures and protocols to implement the closure:

- The operator will notify the landowner, prior to closure, that the operator plans to close the temporary pit by certified mail, return receipt requested.
- 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.
- 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.
- The operator shall remove all free liquids from the workover pit within 30 days from the date that the operator released the workover rig. The operator shall note the date of the workover 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 workover 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 that the division requires because of imminent danger to fresh water, public health or the environment.
- 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.
- 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 operator has provided the surface owner notice of the operator's proposal of an on-site closure (see Appendix B for proof of notice to the landowner) 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 workover 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 workover pit .

- If waste sampling results suggest that standards for in-place closure are not met, the operator will implement excavation and removal

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 solids accumulate in the workover pit and sampling of the solids suggests 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 above section titled Siting Criteria Compliance Demonstration beginning on page 2) 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 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).
- B. 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 workover pit solids).
- C. 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.
- D. Any excess liner above the stabilized waste will be removed for re-use or disposal.

Excavation and Removal Closure Plan

IF THE CRITERIA FOR ON-SITE CLOSURE ARE NOT MET OR IF THE SOLIDS IN THE PIT ARE A VERY SMALL VOLUME, THE OPERATOR WILL ADHERE TO NMOC D 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
Lea Land, 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.

C-144 Supplemental Documentation for Workover Pit Frio #1

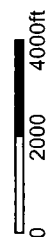
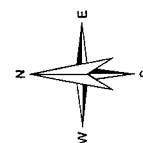
Reporting

The operator shall notify the division of its results 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.

Figures for Workover Pit C-144

R.T. Hicks Consultants, Ltd.

901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104



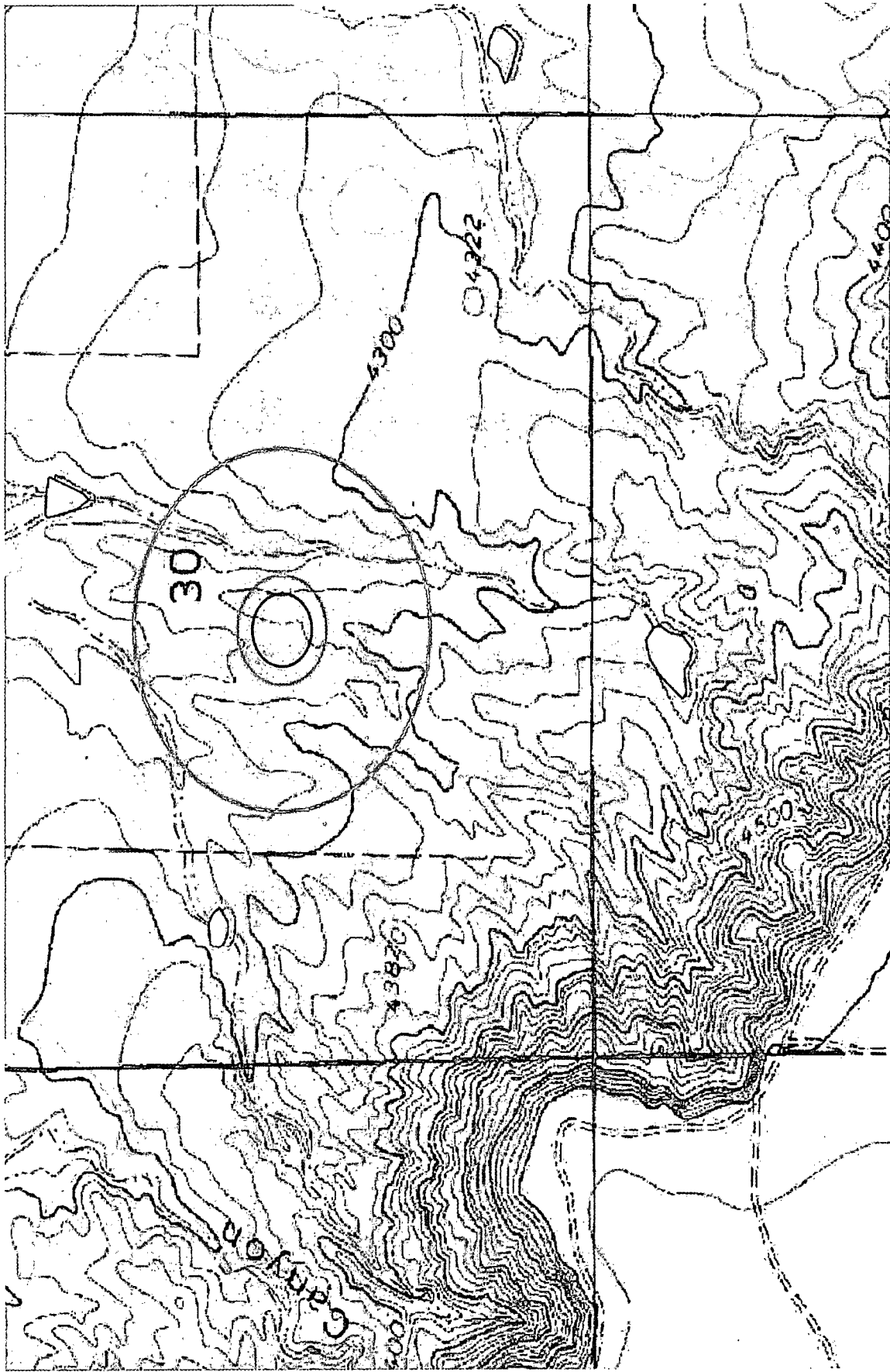
Petroleum Recovery
Research Center

Geology and Depth to Water

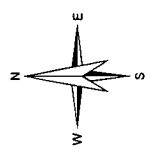
Read and Stevens - Frio #1

Figure: 1

Nov 04, 2011

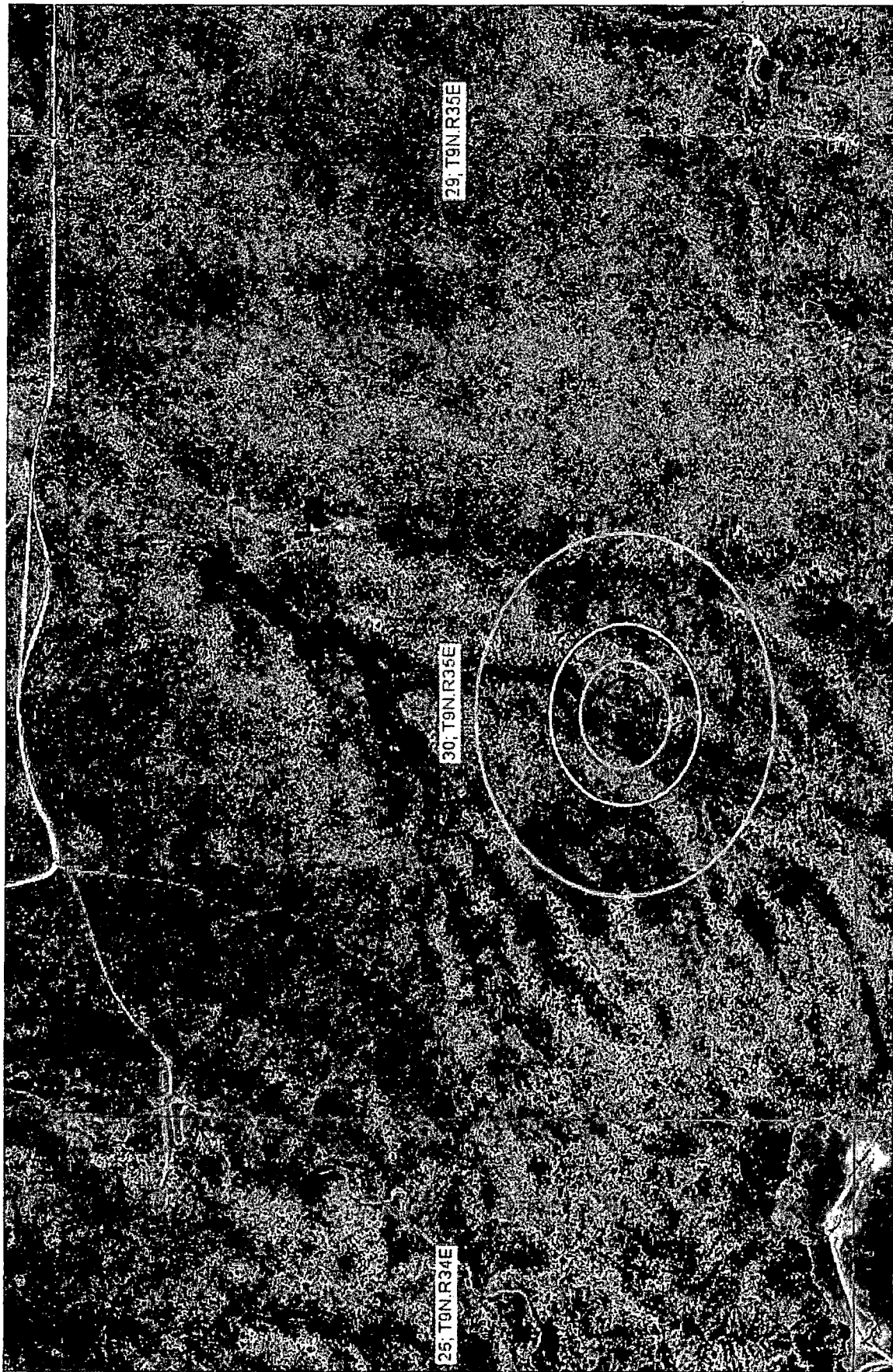


Distance (ft): 0 200 300 500 1000



0 500 1000ft

Petroleum Recovery Research Center		Figure: 2
Topography and Surface Water		
Read and Stevens - Frio #1		Nov 04, 2011



Distance (ft): 0 200 300 500 1000

Petroleum Recovery
Research Center

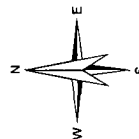
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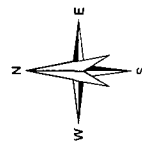
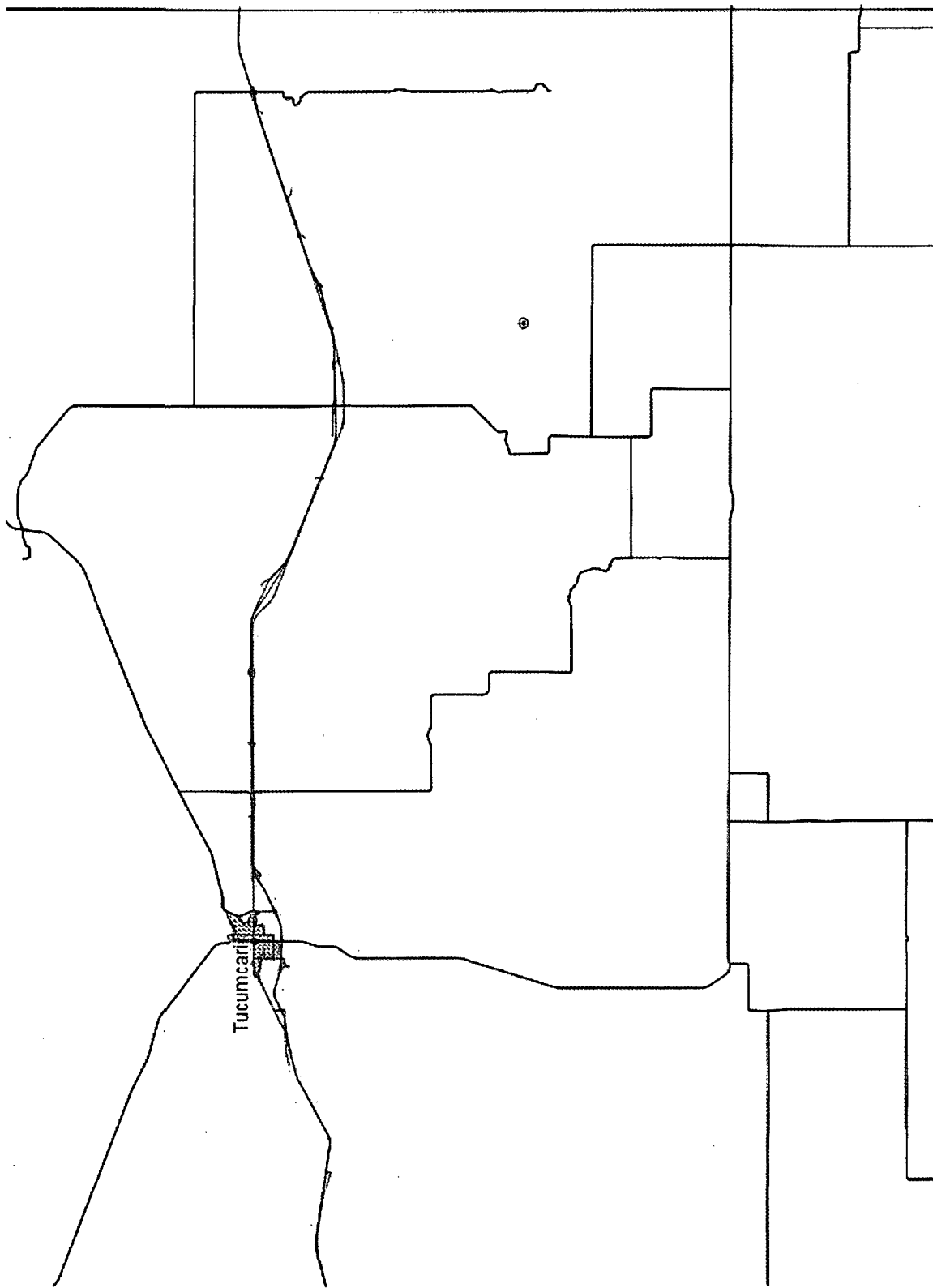
Recent Air Photo

Read & Stevens - Frio #1

Nov 02, 2011

0 500 1000ft





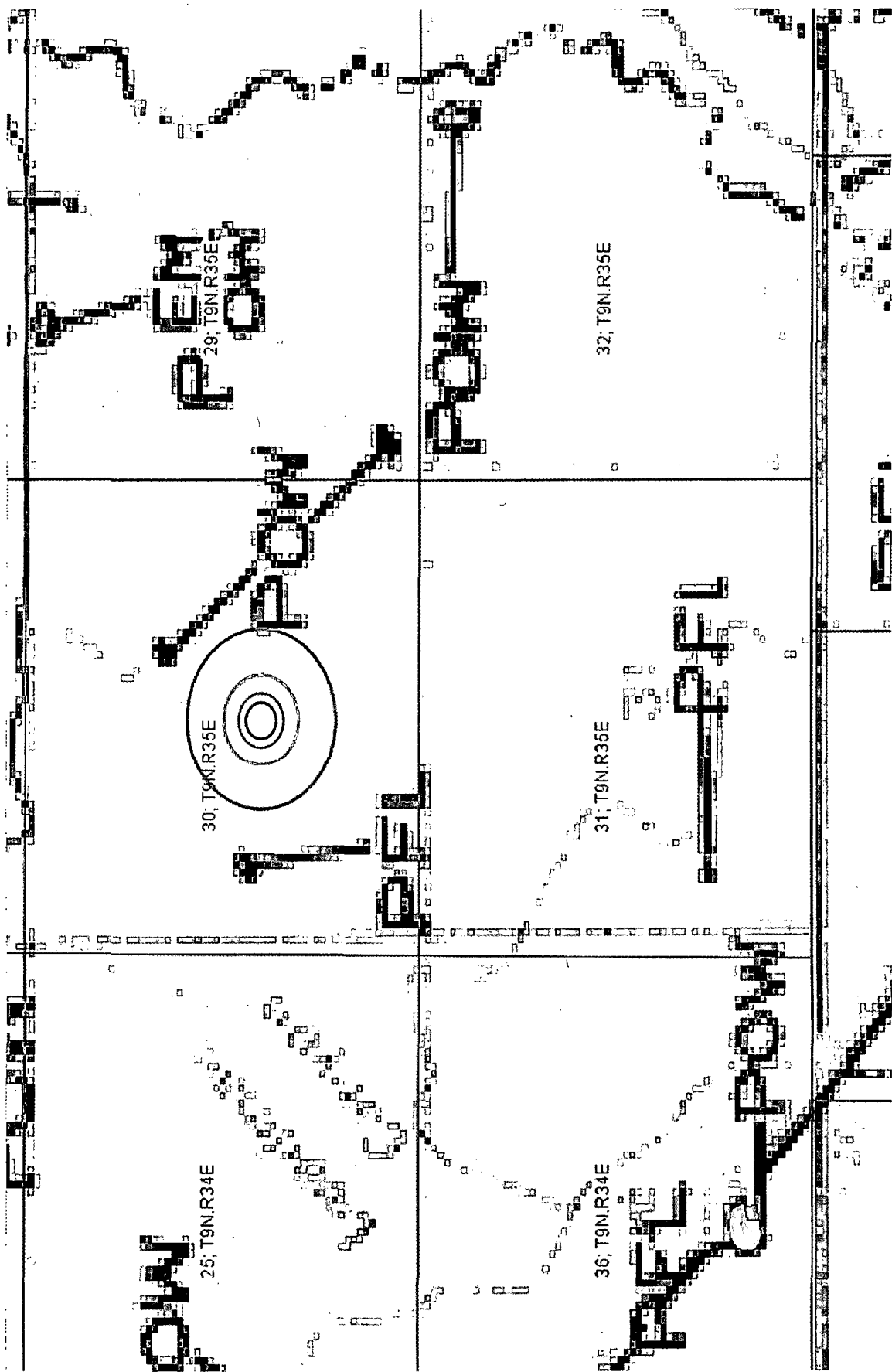
Petroleum Recovery
Research Center

Nearest Municipal Boundary

Figure: 4

Read & Stevens - Frio #1

Nov 02, 2011



Distance (ft): 0 200 300 500 1000

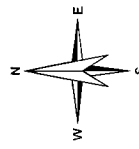
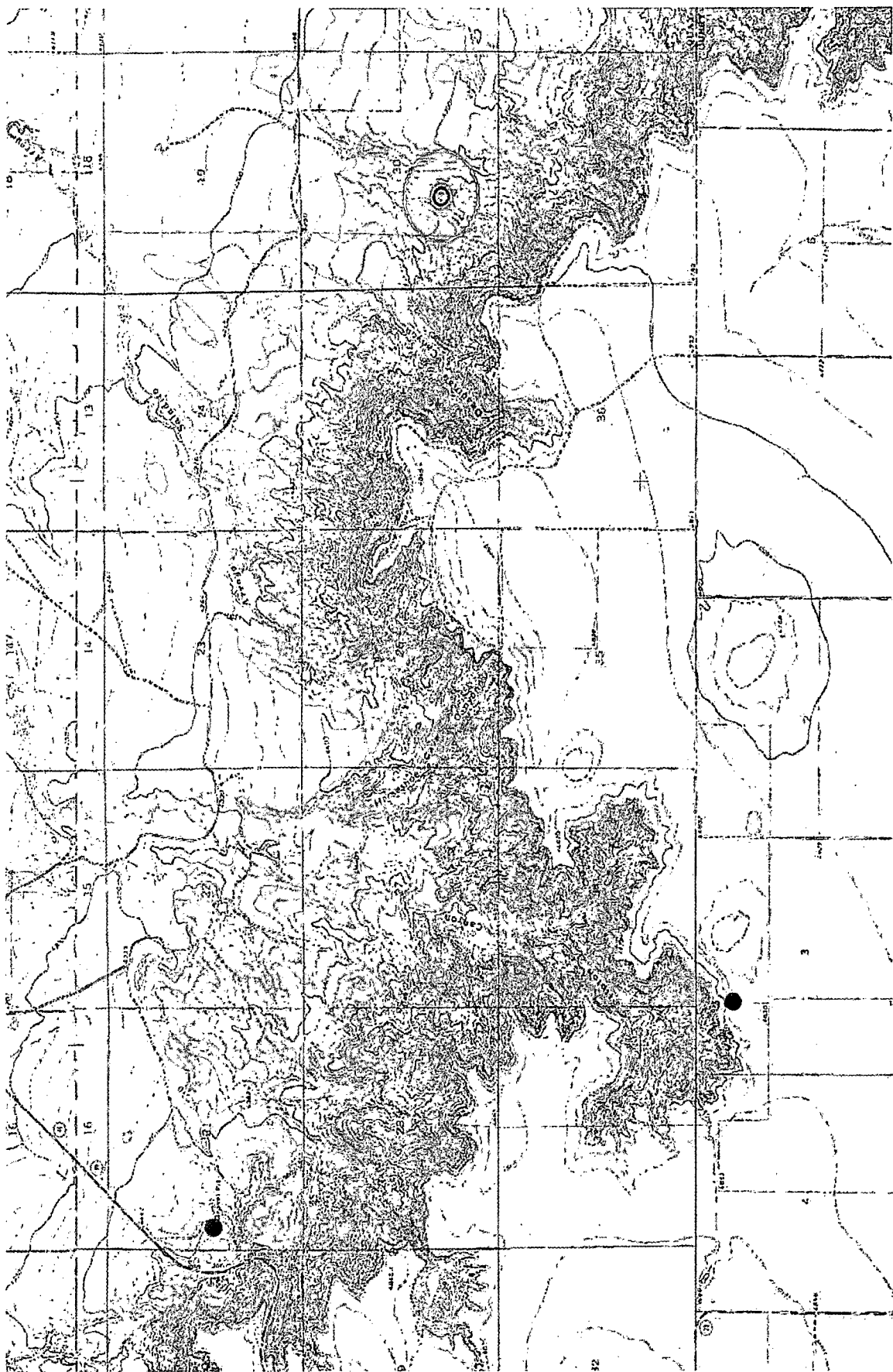
Petroleum Recovery
Research Center

USFW Wetlands

Figure: 5

Read and Stevens - Frio #1

Nov 04, 2011



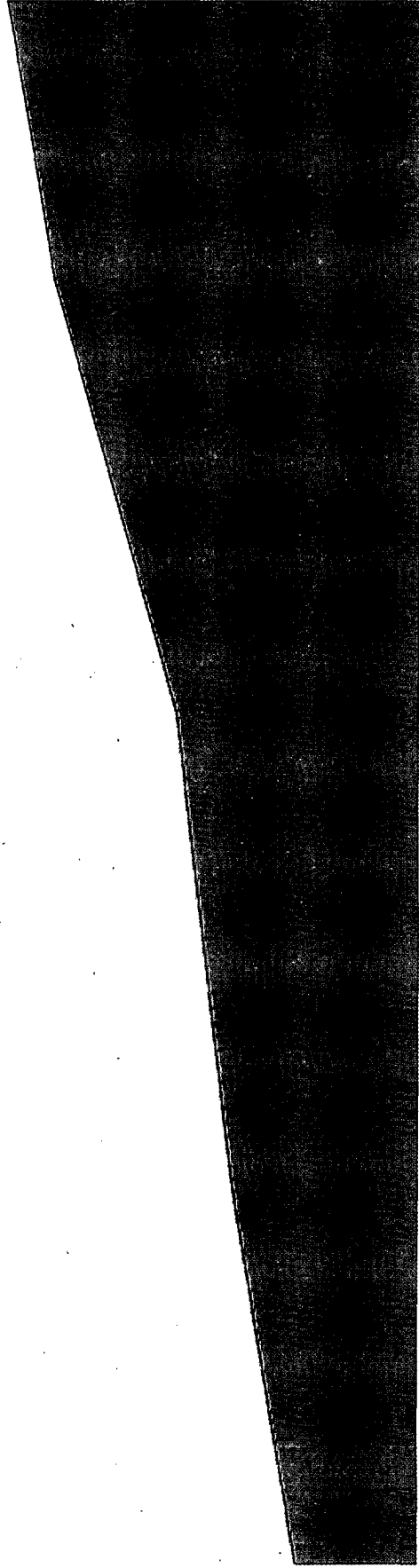
Petroleum Recovery
Research Center

Nearest Mines

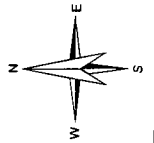
Figure: 6

Read & Stevens - Frio #1

Nov 02, 2011



Distance (ft): 0 200 300 500 1000



0 1 2mi

Petroleum Recovery
Research Center

Unstable Areas (Karst)

Figure: 7

Read & Stevens - Frio #1

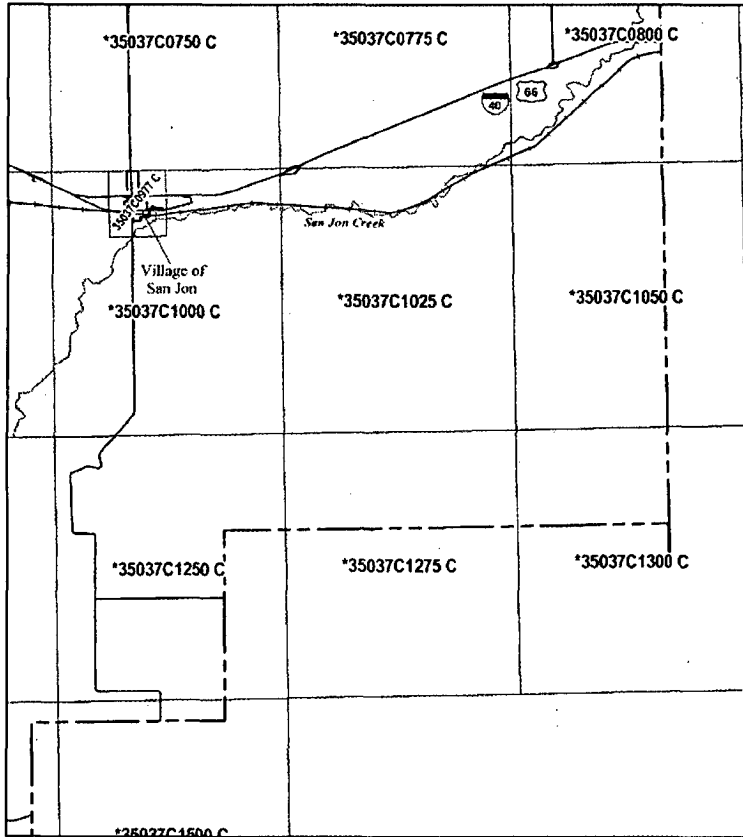
Nov 02, 2011



FEMA

Save
your FIRMette

Back



MAP INDEX

FIRM
FLOOD INSURANCE RATE MAP
QUAY COUNTY,
NEW MEXICO
AND INCORPORATED AREAS
(SEE LISTING OF COMMUNITIES TABLE)

MAP INDEX

PANELS PRINTED: 641 - 644, 654, 658, 661 - 664,
665, 677

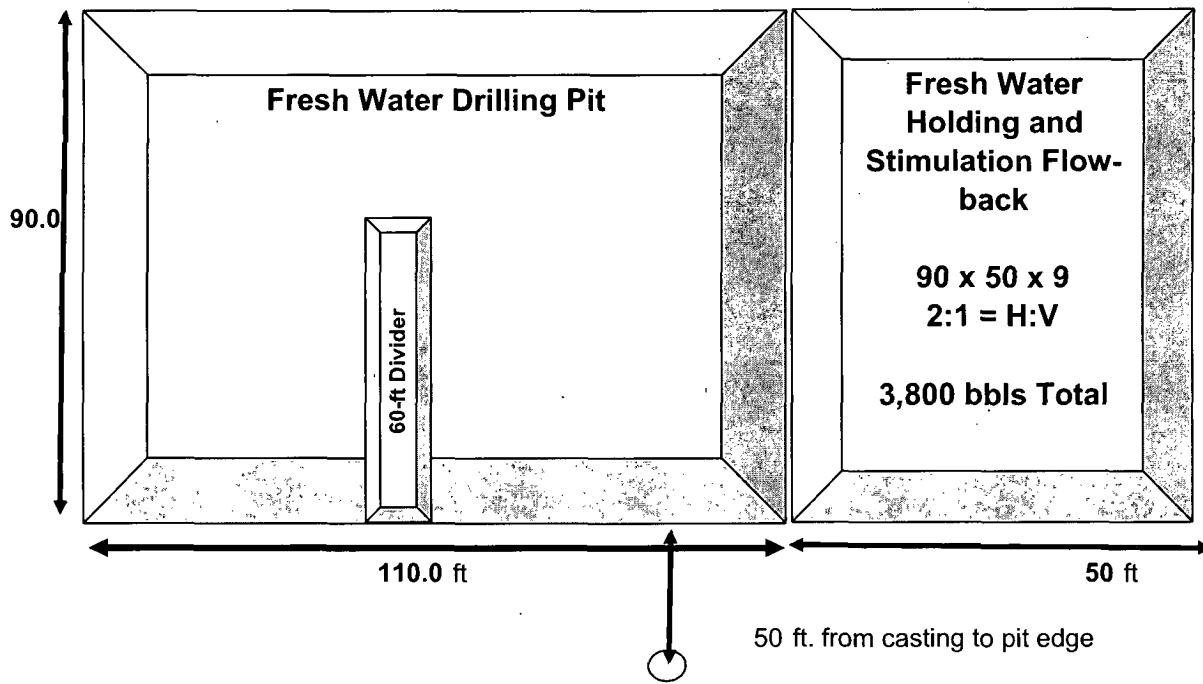


MAP NUMBER
35037CIND0A
EFFECTIVE DATE
MAY 5, 2003

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using FIRM 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

Layout of Temporary Pit Showing Drilling and Workover (Stimulation) Cells



50 feet wide
 90 feet long
 9 feet deep
 2H:1V H:V side slopes

103,121 gal capacity with 2-ft freeboard
 2,455 bbl capacity

R.T. Hicks Consultants, Ltd.	Layout of Temporary Drilling Pit, Stimulation Fluids Cell Optional	Figure 10
	Read and Stevens, Inc. - Frio #1	October 2011

Appendix A

Photo Documentation of Site Visit

R.T. Hicks Consultants, Ltd.

901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104



Figure A-1:View from wellbore looking east, uphill. Flagged lath is at east edge of pad and pits



Figure A-2 View through wellbore looking south, up drainage to the Caprock in the distance.



Figure A-3 View from wellbore looking north down the shallow drainage in which the location sits



Figure A-4 View from west edge of pad looking east to flagged lath at east edge of pad and pits. Wellbore lath is hidden behind brush and is not visible in photo. Note that there is no well-defined arroyo in this shallow drainage.

Appendix B

Water Well Data from OSE

R.T. Hicks Consultants, Ltd.

901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104



New Mexico Office of the State Engineer

Point of Diversion Summary

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

POD Number

Q64 Q16 Q4 Sec Tws Rng

X

Y

TU 01919

2 4 2 11 09N 35E

665074 3877047

Driller License: MCKINLEY DRILLING

Driller Name: MCKINLEY, QUENTIN

Drill Start Date: 08/02/2011

Drill Finish Date: 08/12/2011

Plug Date:

Log File Date: 08/19/2011

PCW Rcv Date:

Source: Shallow

Pump Type:

Pipe Discharge Size:

Estimated Yield: 11.

Casing Size: 5.00

Depth Well: 70 feet

Depth Water: 38 feet

Water Bearing Stratifications:

Top Bottom Description

30 40 Other/Unknown

40 58 Other/Unknown

Casing Perforations:

Top Bottom

30 70



New Mexico Office of the State Engineer

Point of Diversion Summary

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

POD Number

Q64 Q16 Q4 Sec Tws Rng

X

Y

TU 01662 POD1

1 1 3 07 09N 35E

657239 3876464

Driller License: MCKINLEY DRILLING

Driller Name: FRANKIE MCKINLEY

Drill Start Date: 10/27/2007

Drill Finish Date: 10/29/2007

Plug Date:

Log File Date: 11/19/2007

PCW Rcv Date:

Source: Shallow

Pump Type:

Pipe Discharge Size:

Estimated Yield: 2

Casing Size: 6.00

Depth Well: 106 feet

Depth Water: 46 feet

Water Bearing Stratifications:

Top Bottom Description

20 25 Sandstone/Gravel/Conglomerate

50 65 Shale/Mudstone/Siltstone

Casing Perforations:

Top Bottom

76 96

96 106



New Mexico Office of the State Engineer

Point of Diversion Summary

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

POD Number

Q64 Q16 Q4 Sec Tws Rng

X

Y

TU 01634 POD1

08 09N 35E

660101 3876945

Driller License: MCKINLEY DRILLING

Driller Name: FRANKIE MCKINLEY

Drill Start Date: 09/04/2007

Drill Finish Date: 09/11/2007

Plug Date:

Log File Date: 10/01/2007

PCW Rcv Date:

Source: Shallow

Pump Type:

Pipe Discharge Size:

Estimated Yield: 2

Casing Size: 6.00

Depth Well: 110 feet

Depth Water: 44 feet

Water Bearing Stratifications:

Top Bottom Description

75 80 Sandstone/Gravel/Conglomerate

Casing Perforations:

Top Bottom

68 88

88 108



New Mexico Office of the State Engineer

Point of Diversion Summary

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

POD Number

Q64 Q16 Q4 Sec Tws Rng

X

Y

TU 01607 POD1

2 1 2 22 09N 34E

653388 3873902

Driller License: H T DRILLING SERVICE

Driller Name:

Drill Start Date: 05/10/2007

Drill Finish Date: 05/12/2007

Plug Date:

Log File Date: 05/24/2007

PCW Rcv Date:

Source: Shallow

Pump Type:

Pipe Discharge Size:

Estimated Yield: 6

Casing Size: 5.00

Depth Well: 289 feet

Depth Water: 141 feet

Water Bearing Stratifications:

Top Bottom Description

155 165 Other/Unknown

175 180 Sandstone/Gravel/Conglomerate

Casing Perforations:

Top Bottom

167 187

247 287



New Mexico Office of the State Engineer

Point of Diversion Summary

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

POD Number

Q64 Q16 Q4 Sec Tws Rng

X

Y

TU 01608 POD1

1 2 1 03 09N 34E

652688 3878861

Driller License: MCKINLEY DRILLING

Driller Name:

Drill Start Date: 05/10/2007

Drill Finish Date: 06/18/2007

Plug Date:

Log File Date: 07/03/2007

PCW Rcv Date:

Source: Shallow

Pump Type:

Pipe Discharge Size:

Estimated Yield: 2

Casing Size: 5.00

Depth Well: 300 feet

Depth Water: 150 feet

Water Bearing Stratifications:

Top Bottom Description

60 80 Other/Unknown

284 290 Sandstone/Gravel/Conglomerate

Casing Perforations:

Top Bottom

60 80

280 300

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

Appendix C

Surface Owner Notification

R.T. Hicks Consultants, Ltd.

901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

Randall Hicks

From: Randall Hicks [r@rthicksconsult.com]
Sent: Tuesday, November 08, 2011 4:04 PM
To: 'Robin_blondie@hotmail.com'
Cc: 'tcollier@read-stevens.com'
Subject: Read and Stevens Frio #1 well
Attachments: TransmitPermitApsFrio.pdf

Mr. Slutz:

As I indicated to you and your wife, Read and Stevens must comply with the following from NMOCD Rules:

(b) The operator shall provide the surface owner notice of the operator's proposal of an on-site closure method. The operator shall attach the proof of notice to the permit application.

This email will be attached to the permit application as Appendix C. Please note that the attached letter states that a copy of the permit application is sent to you. As the permit application is quite large, I will put it in the US Mail tomorrow afternoon. I will hand deliver the permit application to Mr. Ed Martin of NMOCD in Santa Fe. Read and Stevens intends to implement an on-site closure of the drilling pit in a manner that is consistent with NMOCD Rules.

Before we close the pit, we are required to provide another notice as prescribed below in NMOCD Rules:

J. Closure notice.

(1) The operator shall notify the surface owner by certified mail, return receipt requested, that the operator plans to close a temporary pit, a permanent pit, a below-grade tank or where the operator has approval for on-site closure. Evidence of mailing of the notice to the address of the surface owner shown in the county tax records is sufficient to demonstrate compliance with this requirement.

Before we use a drilling pit, NMOCD must approve the permit application. Obviously, the certified mail notice of closure will not occur until drilling is complete, the drilling pits are de-watered and sampling shows that regulated constituents in the residual cuttings/mud are less than the concentration limits for closure established by NMOCD Rules.

If you have any questions concerning the proposed use of pits, please contact me. Of course, you may also contact Ed Martin of NMOCD.

I look forward to meeting you in person and resolving any questions or concerns you may have.

Randall Hicks
505-238-9515 – cell
505-266-5004 - office

R. T. HICKS CONSULTANTS, LTD.

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

November 8, 2011

Mr. Ed Martin
NMOCD District 4
1220 S St. Francis
Santa Fe, NM

RE: Frio #1, K 30 T9N R35E, Quay County
Read and Stevens, Inc.

Dear Ed:

For the above-referenced well, attached are:

1. A C-101 for the well
2. A C-102 for the well
3. A Power of Attorney form naming Randy Hicks as the agent for Read and Stevens

At our meeting, I will deliver:

4. A C-144 Form and supplemental information to support the C-144 for the drilling pit
5. A C-144 Form and supplemental information to support the C-144 for the workover pit

Read and Stevens plans to spud the well with a cable tool rig on or before November 25 to set surface casing. In mid-December, the cable tool rig will de-mobilize and be replaced by a rotary rig suitable for completing the well to total depth. Time of NMOCD approval of the APD and C-144 are very important and at our meeting I will walk you through the applications and address any questions you may have.

I would like to call you attention to the following:

- A. The surface casing will isolate the Triassic section and extend 50-feet into the underlying Permian Bernal/Artesia. We believe the Santa Rosa/Artesia contact is about 300 feet below land surface at the location. The contact can be easily recognized by a change in color and lithology of drill cuttings. Surface casing will be placed 50-feet below the contact based upon the observations of the on-site geologist. The deepest water well in the area is 300 feet deep.
- B. Our evaluation of the Bernal/Artesia suggests that in the Tucumcari Basin, this unit is not an aquifer. At a well in eastern San Miguel County (API 3004720061), NMOCD approved a surface casing program through the Santa Rosa into the Bernal/Artesia.
- C. The drilling program uses a pit for fresh water drilling. The C-144 Supplemental Information is based upon an NMOCD-approved permit for a Read and Stevens well in Eddy County. The modifications to this previously-approved permit will be provided to you in a "tracked changes" version to help speed your review.
- D. A workover pit is proposed to hold fresh water for drilling and stimulation and to capture flow-back from stimulation for possible re-use. The C-144 and supplemental information for this pit is based upon an NMOCD-approved

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permit for the same Read and Stevens well in Eddy County. A "tracked changes" version of the permit will be provided to speed your review.

- E. In addition to contacting the surface owner by phone, we are transmitting this letter to Mr. Slutz as written notification of our intention to employ on-site burial of cuttings and residual drilling mud solids.

I look forward to working with you on this permit application.

Sincerely,

R.T. Hicks Consultants

A handwritten signature in black ink, appearing to read "Randall Hicks", written in a cursive style.

Randall Hicks
Principal

Copy: Read and Stevens

James Slutz, 1710B Quay Road 50, San Jon, NM 88434-9617

LIMITED POWER OF ATTORNEY

State (situs of land): New Mexico

County (situs of land): Chaves, Eddy and Lea Counties

Principal: Read & Stevens, Inc.

Principal's Address: 400 N. Pennsylvania Ave, Suite 1000, Roswell, NM 88201

Agent/Attorney in Fact: Randall Hicks (owner of R T Hicks Consulting)

Agent/Attorney in Fact's Address: 901 Rio Grande NW F-142, Albuquerque, NM 87104

Date Executed: 06/08/2010

Effective Date: 05/08/2010

Principal, identified above, makes, constitutes and appoints Agent, identified above, Principal's true and lawful Agent and Attorney in Fact for Principal and in Principal's name, place and stead, for the sole purposes of transacting any business dealings with the New Mexico Oil Conservation Division (NMOCD) Form C-144 on behalf of Principal.

Principal gives and grants Agent full and complete power and authority to do and perform all acts and things required or necessary to be done in transacting Principal's dealing with the NMOCD, Form C-144, as fully to all intents and purposes as if Principal might or could do if personally present and acting on Principal's own behalf.

Principal ratifies and affirms all that the Agent may lawfully do or cause to be done by virtue of this Limited Power of Attorney.

Principal

David Luna

CORPORATE ACKNOWLEDGEMENT

STATE OF NEW MEXICO

COUNTY OF

The foregoing instrument was acknowledged before me this 2nd day of June, 2010 by David Luna, of Read & Stevens, Inc, a New Mexico corporation on behalf of said corporation.

My Commission Expires:

11-4-13

Mary L. Page
Notary Public