

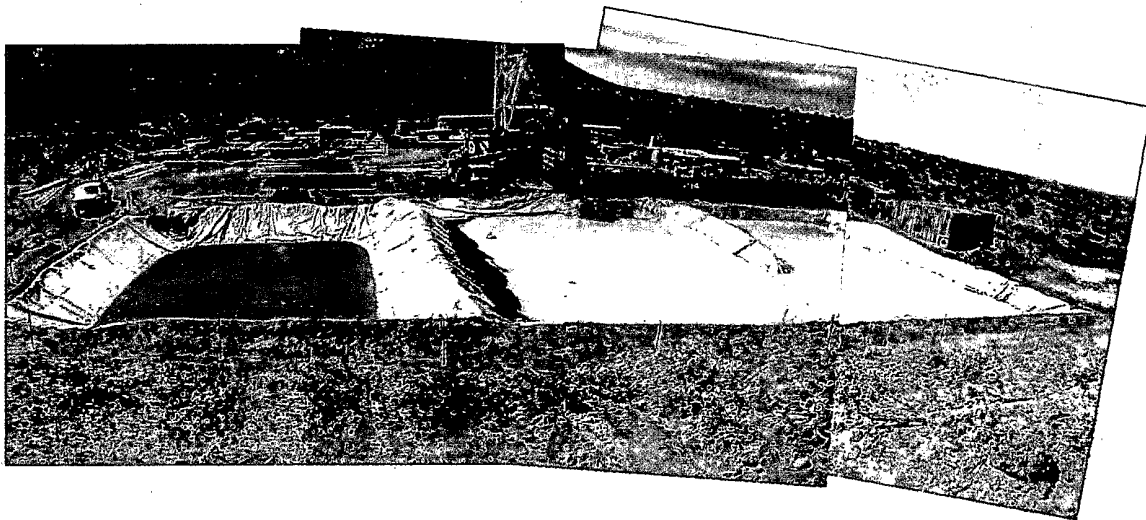
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July 2012

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**Modified Closure Plan for Frio #1
K 30 T9N R35E Quay County NM**

30-037-20086



**Prepared for
Read and Stevens, Inc.
Roswell, New Mexico**

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

R. T. HICKS CONSULTANTS, LTD.

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

July 16, 2012

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

RE: Frio #1, K 30 T9N R35E, Quay County

Dear Ed:

For the above-referenced well, attached are:

1. Power of Attorney naming Randy Hicks as the agent for Read and Stevens
2. A C-144 and supplemental information to support trench burial closure

I would like to call you attention to the following:

- A. Read and Stevens were not able to drill with fresh water, therefore in-place burial is not consistent with the mandates of the Pit Rule.
- B. This application proposes to convert the workover pit to a burial trench, as it meets all of the construction criteria for a burial trench such as an anchored liner and 20-mil string reinforced HDPE.
- C. The workover pit held only fresh water derived from the San Jon water supply and there are no evidence of leaks or tears in the liner.
- D. The workover pit is separate from the drilling pit.
- E. After looking at the Pit Rule, I find no prohibition of using the workover pit for a burial trench provided that NMOCD agrees that the workover pit meets the design and construction criteria of the Pit Rule. Conversion of the workover pit to a burial trench creates a smaller environmental footprint than construction of another excavation.
- F. It is possible that the workover pit will not have sufficient capacity to accept all of the stabilized drilling waste. If this is the case, we will excavate a burial trench in the discharge portion of the drilling pit and this separate trench, like the workover pit, will meet all of the mandates of the Pit Rule.

This entire package was sent to the surface owner via certified mail and proof of mailing is appended to this application to modify the existing permit from in-place burial to trench burial.

Sincerely,
R.T. Hicks Consultants



Randall Hicks
Principal

Copy: Read and Stevens
James Slutz, 1710B Quay Road 50, San Jon, NM 88434-9617

C-144 and Supplemental Information for Burial Trench Closure

R.T. Hicks Consultants, Ltd.

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

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos 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: 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 INFORMATION ON LINER FOR BURIAL TRENCH
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: bb1 Dimensions: L x W x D

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

4.
☐ **Below-grade tank:** Subsection I of 19.15.17.11 NMAC
Volume: _____ bbl Type of fluid: _____
Tank Construction material: _____
☐ Secondary containment with leak detection ☐ Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off
☐ Visible sidewalls and liner ☐ Visible sidewalls only ☐ Other _____
Liner type: Thickness _____ mil ☐ HDPE ☐ PVC ☐ Other _____

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

6.

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

- ☐ Chain link, six feet in height, two strands of barbed wire at top (*Required if located within 1000 feet of a permanent residence, school, hospital, institution or church*)
- ☐ Four foot height, four strands of barbed wire evenly spaced between one and four feet
- ☐ Alternate. Please specify _____

7.

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

- ☐ Screen ☐ Netting ☐ Other Not Applicable
- ☐ Monthly inspections (If netting or screening is not physically feasible)

8.

Signs: Subsection C of 19.15.17.11 NMAC

- ☐ 12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers
- ☐ Signed in compliance with ~~19.15.3.103~~ NMAC 19.15.16.8 NMAC

9.

Administrative Approvals and Exceptions:

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

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

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

10.

Siting Criteria (regarding permitting): 19.15.17.10 NMAC

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

Ground water is less than 50 feet below the bottom of the temporary pit, permanent pit, or below-grade tank.

- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells **SEE FIGURE 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
☐ 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 | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> 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 | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> 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 | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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 | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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 | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; Written approval obtained from the municipality | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Within a 100-year floodplain. - FEMA map | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |

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:  Date: July 16, 2012

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:  Approval Date: 8/1/2012

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: _____

C-144 Modification Supplemental Documentation Closure Plan Modification - Frio #1

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

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

This plan includes:

- A Trench Burial Closure Plan,
- Hydrogeologic Data
- Siting Criteria Demonstration 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 trench burial ace 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 burial trench 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. The map shows
 - 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 burial trench in the center of the colored circles of increasing radius..
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 burial trench location

C-144 Modification Supplemental Documentation Closure Plan Modification - Frio #1

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 burial trench
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 burial trench 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 burial trench 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 burial trench is about 4160. According to the attached C-102, the ground elevation of the Frio #1 well is 4280feet 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 Modification Supplemental Documentation Closure Plan Modification - 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.

C-144 Modification Supplemental Documentation
Closure Plan Modification - Frio #1

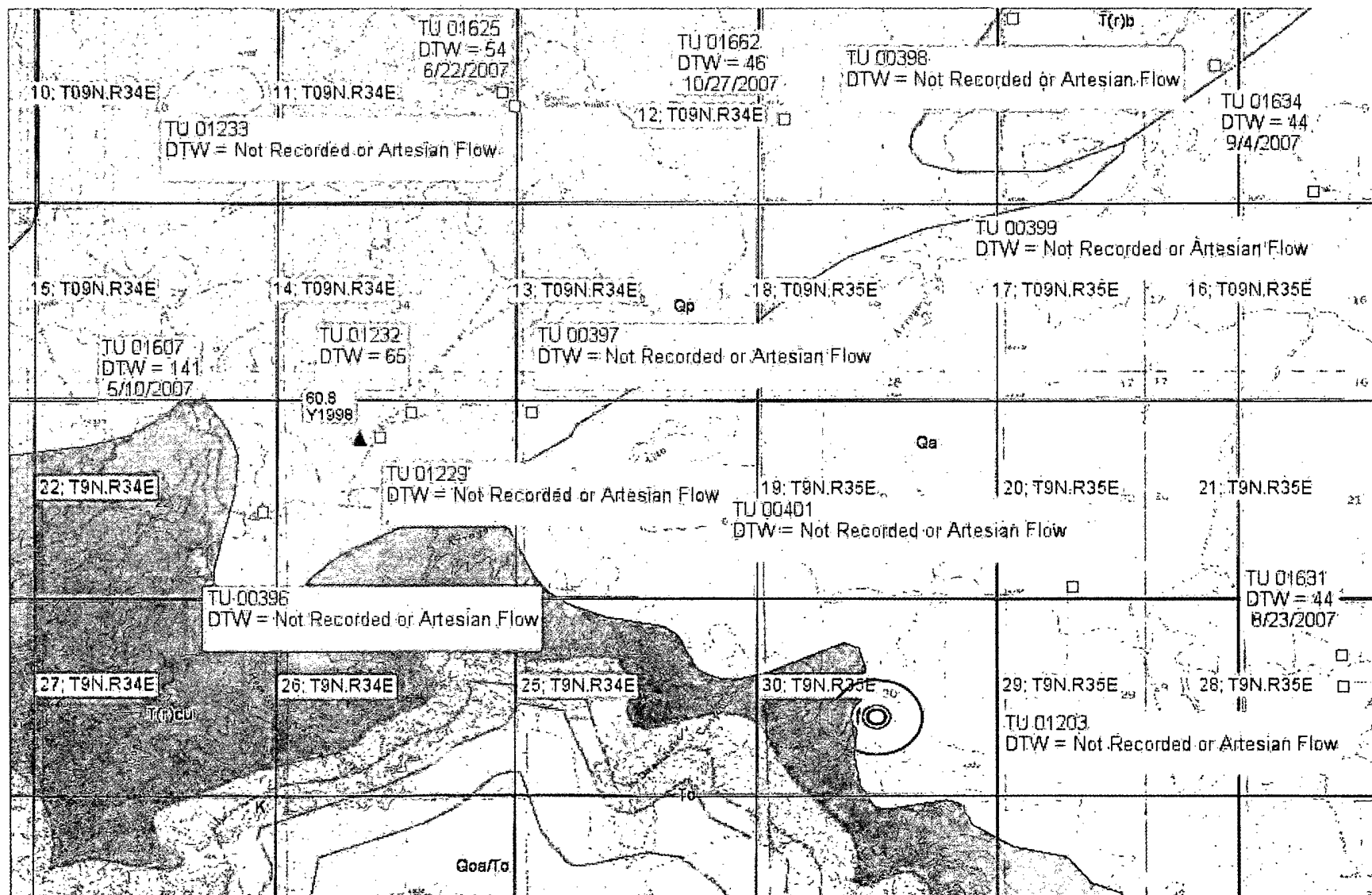
9. **The pit, excavated material and on-site closure is NOT within a 100-year floodplain.**

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”.

Figures for Closure Plan C-144

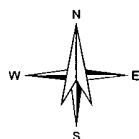
R.T. Hicks Consultants, Ltd.

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



Distance (ft): 200 300 500 1000

0 2000 4000ft



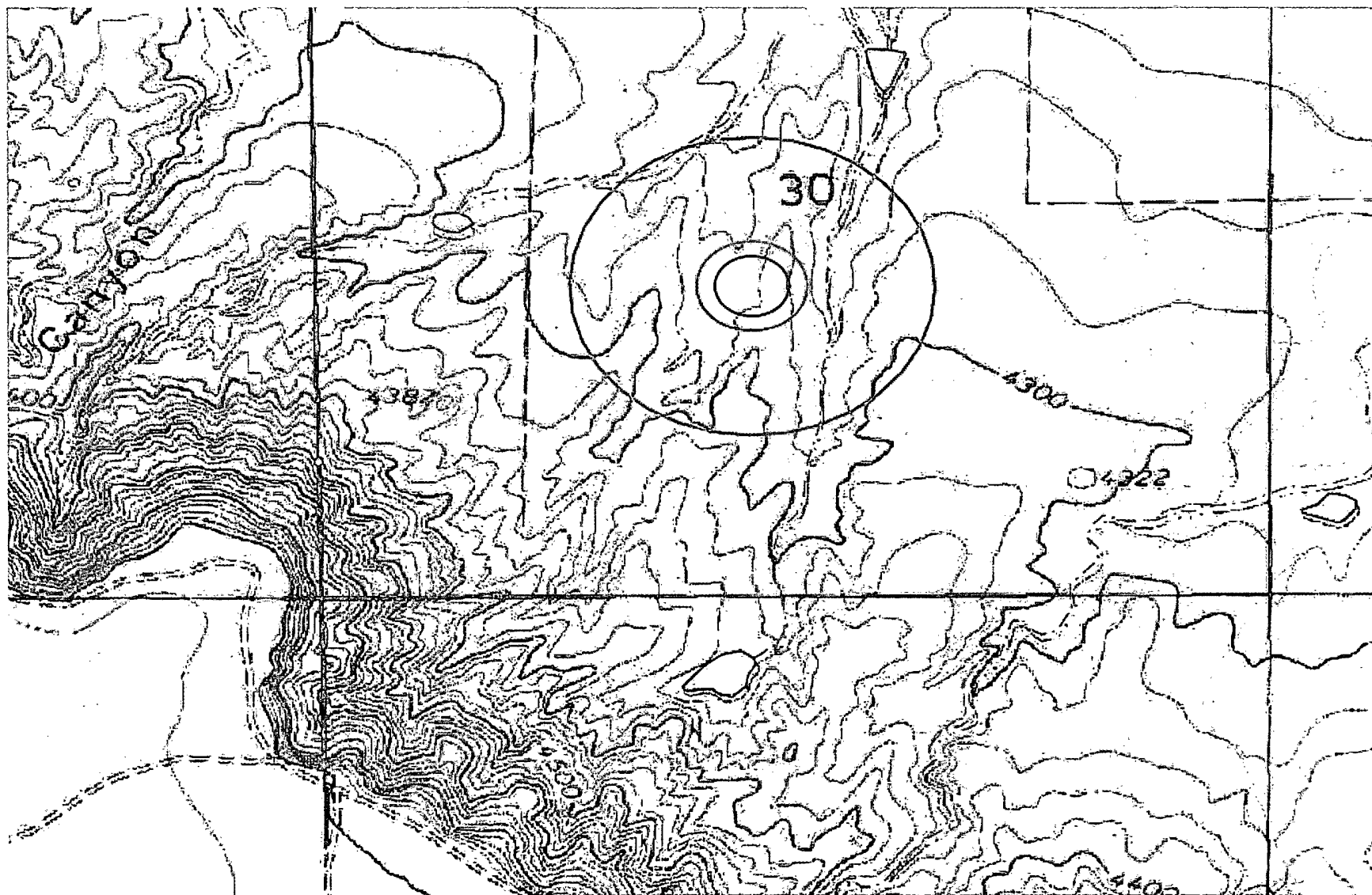
Petroleum Recovery
Research Center

Geology and Depth to Water

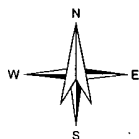
Figure: 1

Read and Stevens - Frio #1

Nov 04, 2011



0 500 1000ft



Distance (ft):  200  300  500  1000

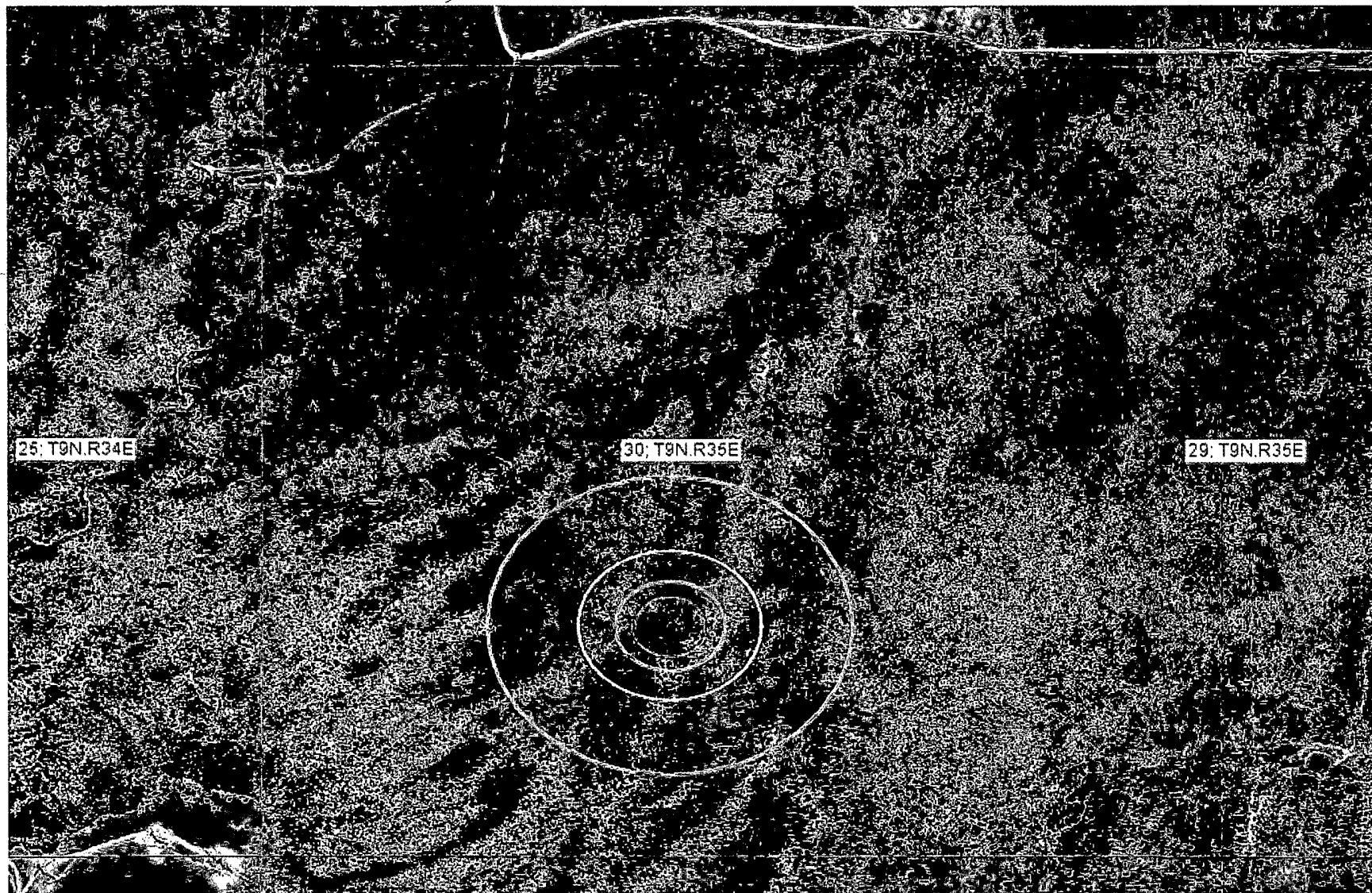
Petroleum Recovery
Research Center

Topography and Surface Water

Figure: 2

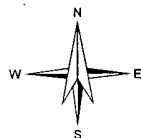
Read and Stevens - Frio #1

Nov 04, 2011



Distance (ft):  200  300  500  1000

0 500 1000ft



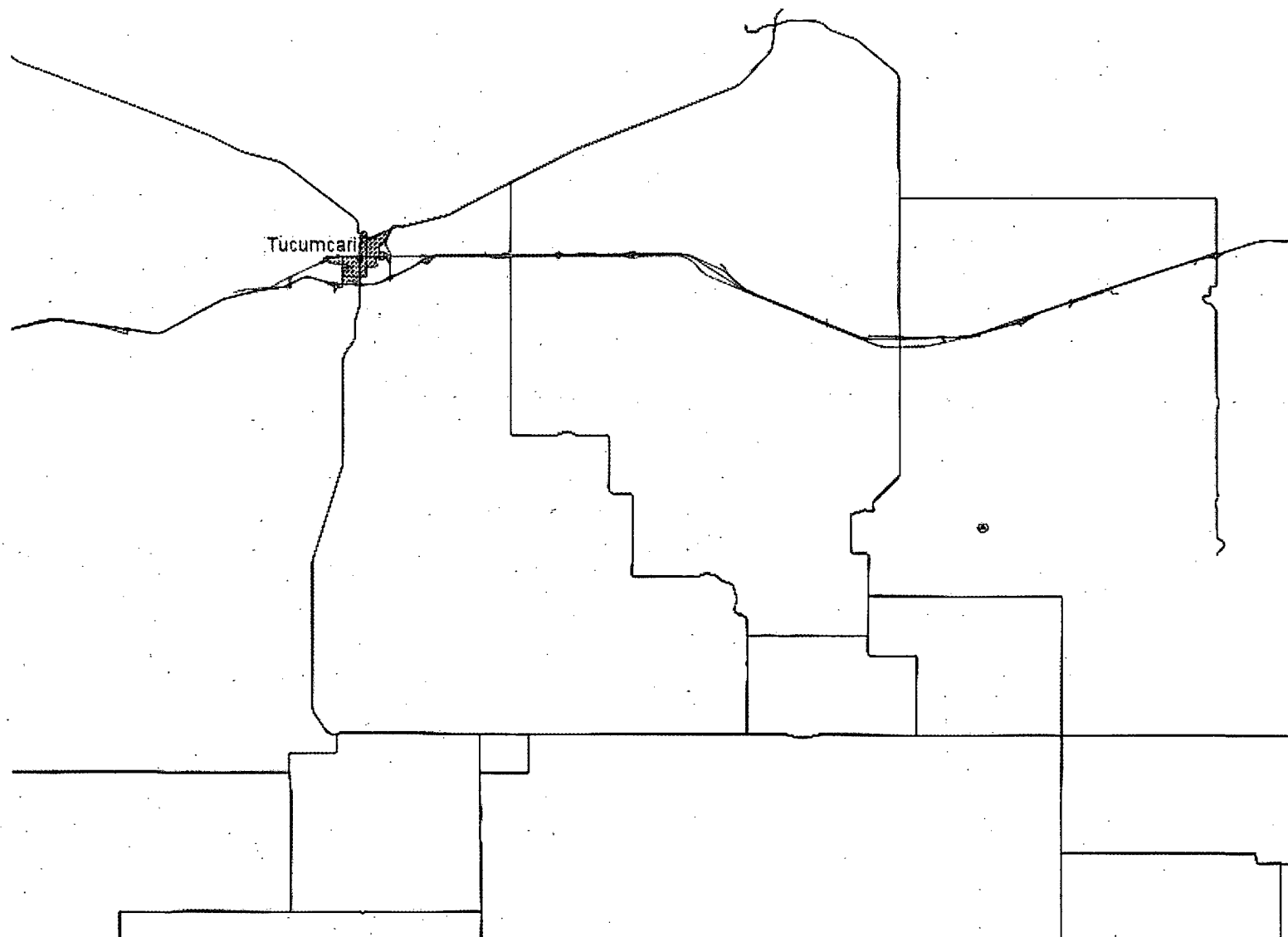
Petroleum Recovery
Research Center

Recent Air Photo

Figure: 3

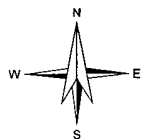
Read & Stevens - Frio #1

Nov 02, 2011



Distance (ft): 200 300 500 1000

0 5 10mi



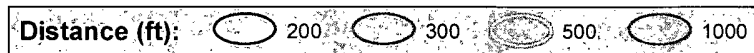
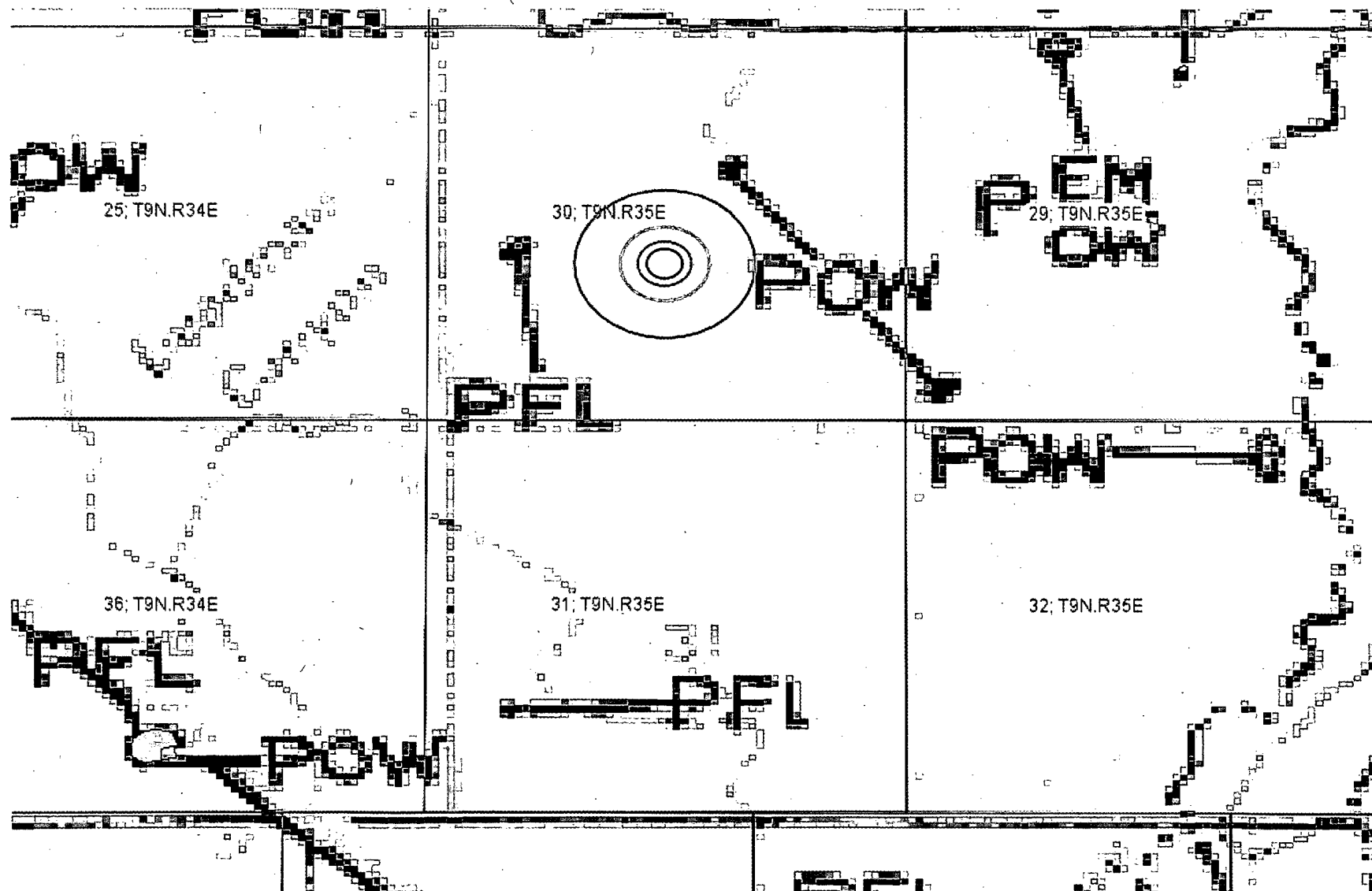
Petroleum Recovery
Research Center

Nearest Municipal Boundary

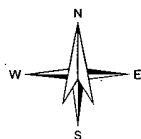
Figure: 4

Read & Stevens - Frio #1

Nov 02, 2011



0 1000 2000ft



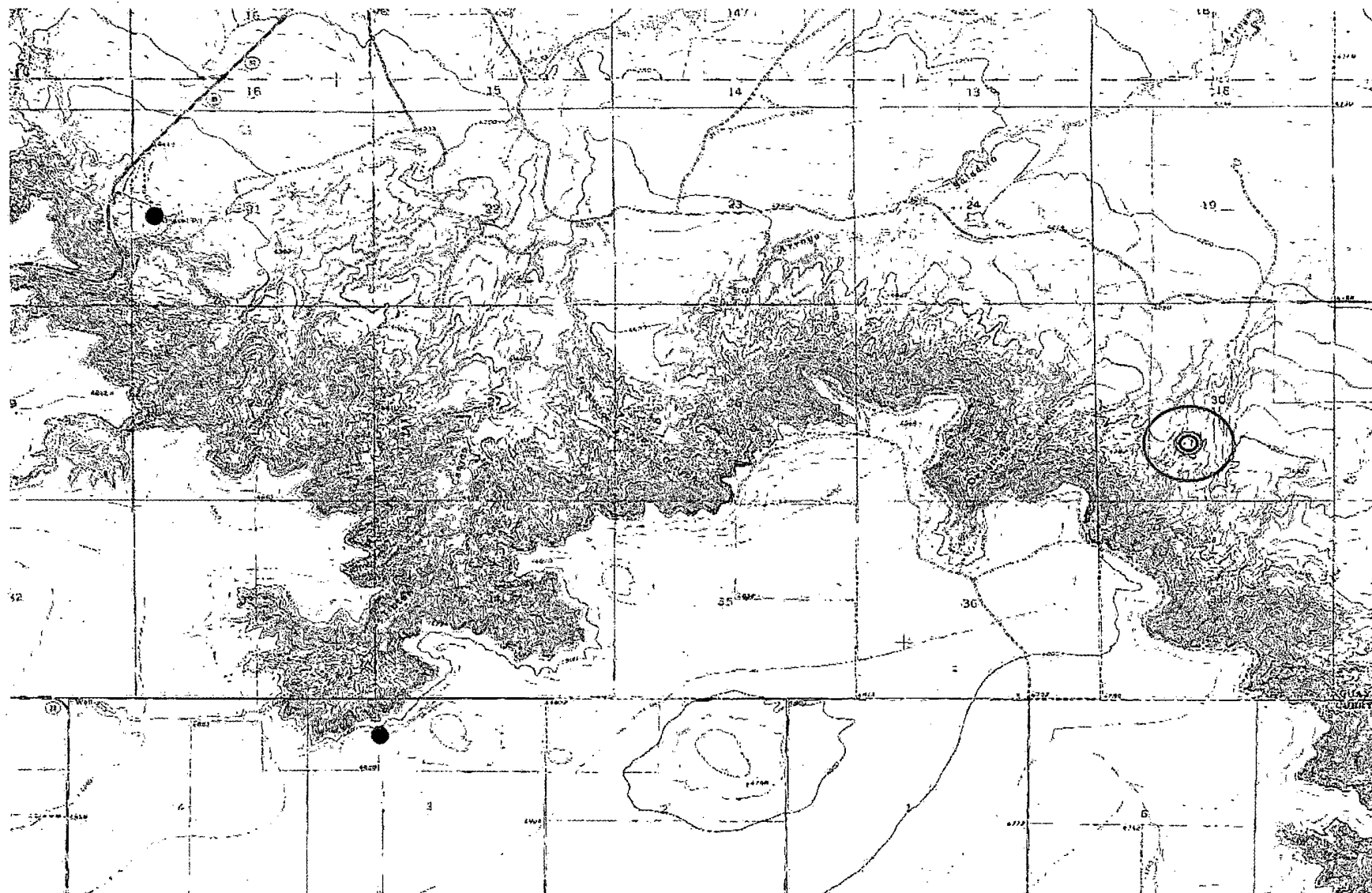
Petroleum Recovery
Research Center

USFW Wetlands

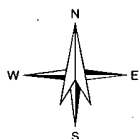
Read and Stevens - Frio #1

Figure: 5

Nov 04, 2011



0 2000 4000ft



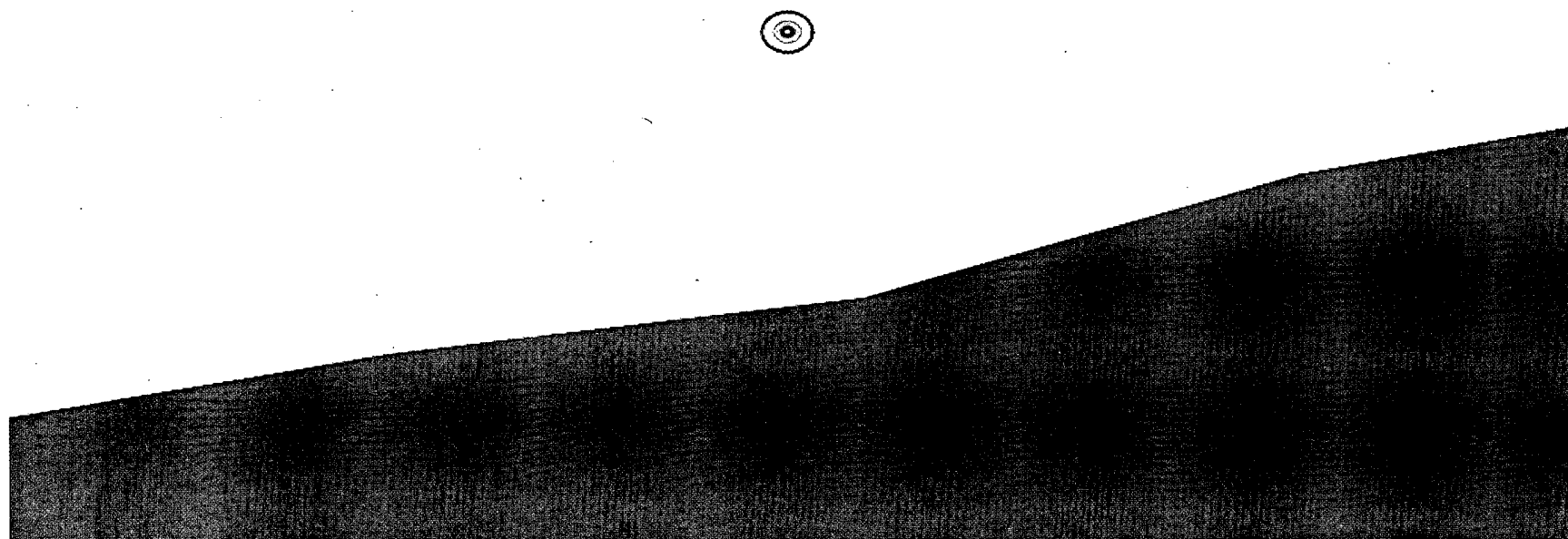
Petroleum Recovery
Research Center

Nearest Mines

Read & Stevens - Frio #1

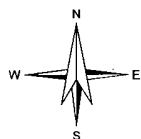
Figure: 6

Nov 02, 2011



Distance (ft): 200 300 500 1000

0 1 2mi



Petroleum Recovery
Research Center

Unstable Areas (Karst)

Figure: 7

Read & Stevens - Frio #1

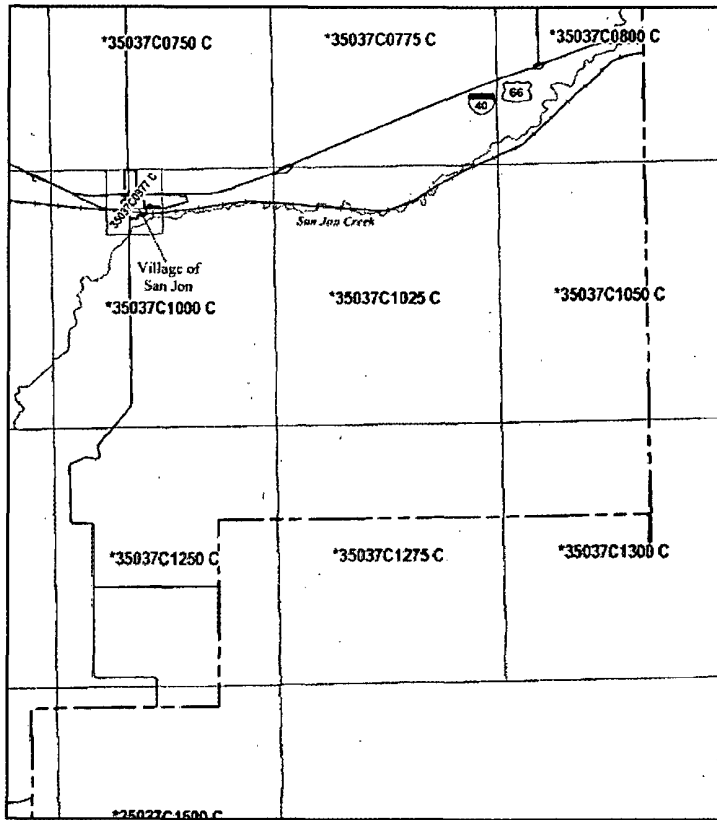
Nov 02, 2011



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,
675, 677



MAP NUMBER
35037CIND0A
EFFECTIVE DATE
MAY 3, 2003

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced Flood Map. It was extracted using FIRM Online. 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 on Flood Insurance Program flood maps, check the FEMA Flood Map Query at www.fema.gov

Generic Closure Plan

R.T. Hicks Consultants, Ltd.

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

Closure Plan- General Conditions

The preferred closure alternative is in-place closure.

Notifications and Reports

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

Protocols and Procedures

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

Additional Protocols and Procedures for On-Site Closure

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

Temporary Pit Closure Plan

- The operator will place a steel marker at the center of an on-site burial if on-site burial occurs for the temporary pits. 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.
- For temporary pits located on private property (not government land) the operator will file a deed notice identifying the exact location of any on-site burial with the county clerk in the county. The exact location of any on-site burial will be transmitted to the surface owner by copy of the form C-105 discussed above.

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

Site Reclamation Plan

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

Temporary Pit Closure Plan

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

In-place Closure Plan

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

Siting Criteria Compliance Demonstration for In-Place Burial

The Siting Criteria Compliance Demonstration for the temporary pit (see Site Specific Information) shows 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 no more than 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 pits.

- A. The initial water flow-back from the stimulation process will discharge to the temporary pit if pit volume is sufficient. This water is fresh or slightly brackish. When the flow-back increases in salinity, discharge to an alternate storage cell begins. If oil in the flow-

Temporary Pit Closure Plan

back accumulates in the pit to a measurable thickness, the flow-back is routed to tanks for oil recovery. As the fresh/brackish water moves through the cuttings and residual mud in response to pumping from an under-drain system, this water displaces entrained brine in the cuttings and dissolves any rock salt cuttings, thereby reducing the salinity of these solids. Water pumped by the under-drain system discharges to a temporary above ground storage container for disposal or re-use in accordance with NMOCD Rules.

- B. The operator will measure the distance between the top of any solids in the pit and existing grade to determine if stabilized waste (see stabilization methods, below) will be at least 4-feet below existing grade to allow installation of the soil cover (see soil cover design, above).
- C. The operator will stabilize or solidify the contents of the pit to a bearing capacity sufficient to support the temporary pit's final cover. However, the operator will not mix the pit contents with soil or other material at a mixing ratio of greater than 3:1, (3 parts soil or other material to 1 part temporary pit solids) and,
- D. Cover the geomembrane lined, filled, temporary pit with compacted, non-waste containing, earthen material; construct a division-prescribed soil cover; recontour and re-vegetate the site as described in this plan. Specifically, a 4-foot thick soil cover consistent with NMOCD Rules will be placed over the stabilized waste.
- E. Any excess liner above the stabilized waste will be removed for re-use or disposal.

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

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

Siting Criteria Compliance Demonstration for In-Place Burial

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

Protocols and Procedures for On-Site Trench Burial

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

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

Construction/Design of Burial Trench

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

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

Waste Material Sampling Plan for On-Site Trench Burial

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

Temporary Pit Closure Plan

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

- The TPH concentration, as determined by EPA method 418.1 or other EPA method that the division approves, does not exceed 2500 mg/kg.
- The Stabilized waste passes the paint filter liquids test (EPA SW-846, method 9095)
- Using EPA SW-846 method 1312
 - The chloride concentration, as determined by EPA method 300.1 or other EPA method that the division approves, does not exceed 3,000 mg/L or the background concentration, whichever is greater,
 - The concentrations of the inorganic water contaminants specified in Subsection A of 20.6.2.3103 NMAC as determined by appropriate EPA methods do not exceed the standards specified in Subsection A of 20.6.2.3103 NMAC or the background concentration, whichever is greater, and
 - The concentrations of the organic water contaminants specified in Subsection A of 20.6.2.3103 NMAC as determined by appropriate EPA methods do not exceed the standards specified in Subsection A of 20.6.2.3103 NMAC, unless otherwise specified by NMOCD Rules

Confirmation Sampling Plan for On-Site Trench Burial

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

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

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

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

The purpose of this sampling is to demonstrate that:

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

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.

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. Re-contour and re-vegetate the site as described in the Re-vegetation 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. At a minimum, the operator and/or qualified contractor will collect:

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

The 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.

Temporary Pit Closure Plan

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.

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

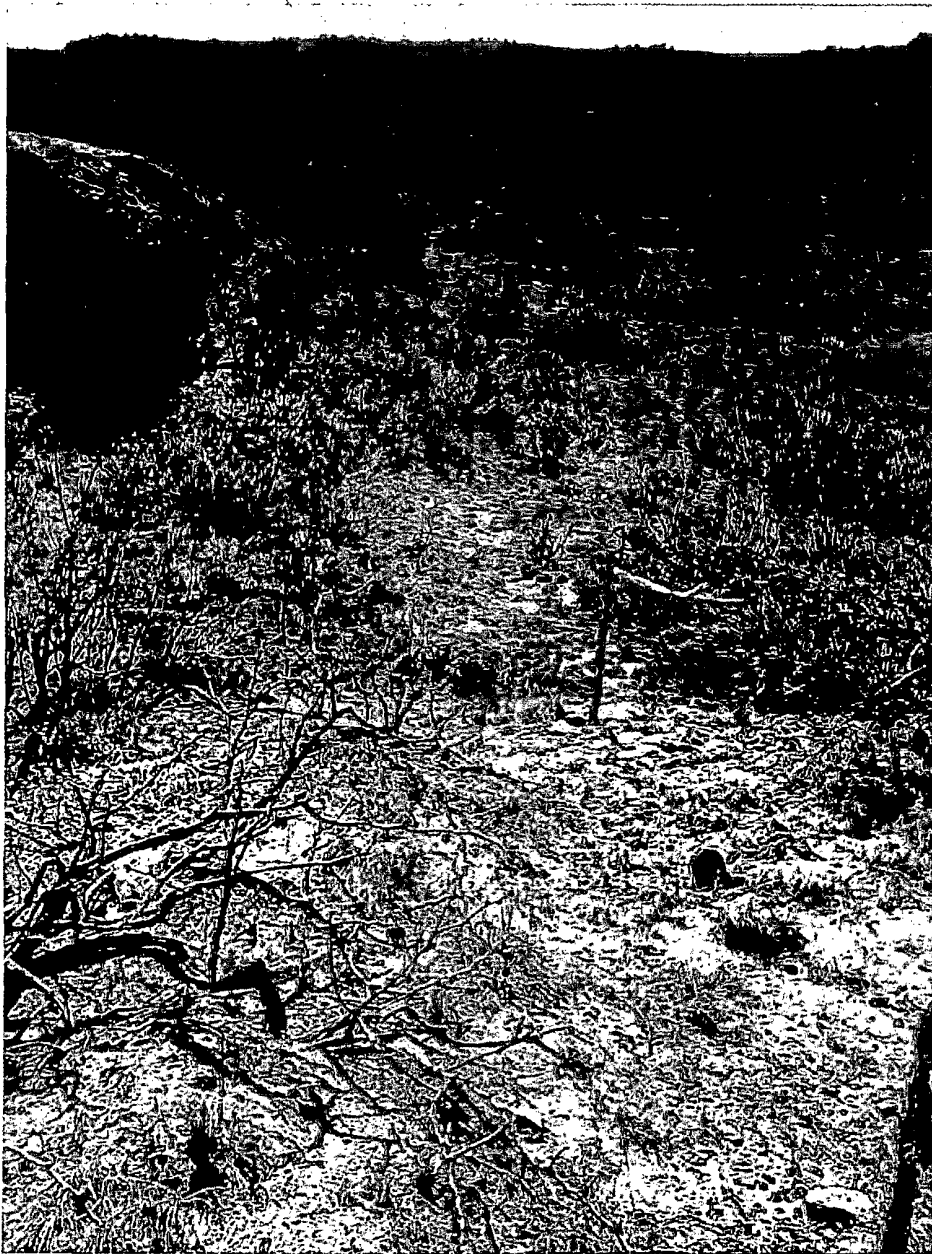


Figure A-2 View through wellbore looking south, up drainage to the Caprock in the distance.



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

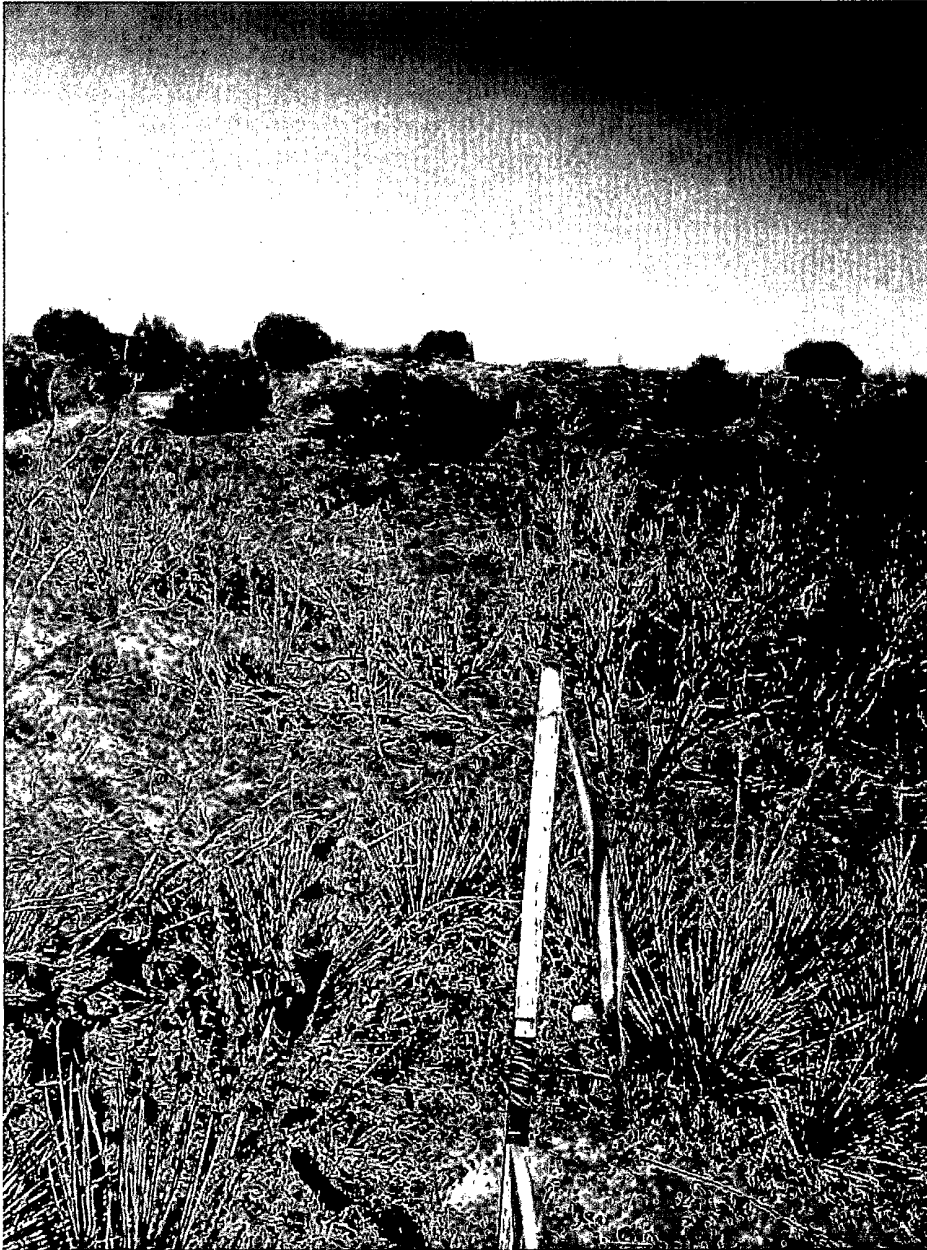


Figure A-4 View from west edge of pad looking east to flagged lath at east edge of pad and pits. Wellbore lath is hidden behind brush and is not visible in photo. Note that there is no well-defined arroyo in this shallow drainage.

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

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.

11/3/11 8:40 PM

Page 1 of 1

POINT OF DIVERSION SUMMARY



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

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.



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:

TU 01634 POD1

Q64 Q16 Q4 Sec Tws Rng

08 09N 35E

X

Y

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

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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

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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

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Page 1 of 1

POINT OF DIVERSION SUMMARY

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: Monday, July 16, 2012 4:53 PM
To: 'Robin_blondie@hotmail.com'
Cc: Martin, Ed, EMNRD (ed.martin@state.nm.us); Tim Collier (tcollier@read-stevens.com); David Hamilton (david@rthicksconsult.com)
Subject: Read and Stevens - Frio #1
Attachments: TransmitPermitModificationFrio.pdf

Mr. Slutz

Tomorrow, I will send this letter and the modified permit application to you via certified mail, return receipt request as required by NMOCD Rules.

Dave Hamilton and Steve Kent will be closing the pit shortly after NMOCD completes their review of this modified closure plan.

We all wish Read and Stevens found a producer here.

Randall T. Hicks
901 Rio Grande NW
F-142
Albuquerque, NM 87104

505-266-5004 - office
505-238-9515 - cell