Texas ReExploration Operating, LC
Union SI Federal Tank Battery
Remediation Plan

Subject Lease:
Union SI Federal Tank Battery
Sec1 -T8S-R31E
Coordinates: N 33.65445 W-103.72925
Chaves County, NM

RP# 1609

Prepared for
New Mexico Oil Conservation Division
&
Texas ReExploration Operating, LC
Mr. Dean Brooks

September 20, 2007

Prepared by:
Baseline Solutions LLC
Andy Price
Midland, Texas

TABLE OF CONTENTS

INTRODUCTION

Purpose:

The purpose of the following environmental action plan is for Texas ReExploration Operating LC (TREX), to conduct a proper, remediation of the historic leaks/spills at the "Union SI Federal Tank Battery"

Scope:

The scope of this project will be to adhere to New Mexico Oil Conservation Division guidelines as well as well as good and prudent environmental practices. The guidelines are listed in the body of this plan.

1. NOTIFICATION OF LEAK/SPILL

This remediation plan is being presented as an attachment to the NMOCD form C-141 as required by Rule 116. The following information may also be found on form C-141.

A. RESPONSIBLE PARTY AND LOCAL CONTACT

Texas ReExploration Operating LC (TREX)
Dean Brooks 432-618-2202
One Petroleum Center, 3300 North A., Bldg.1-234
Midland, TX 79707

B. SPILL LOCATION (see app. B)

- Union SI Federal Tank Battery
  Sec -T8S-R31E
  Coordinates: N 33.65445 W-103.72925
  Chaves County, NM
  API #30-005-20866
- Driving Directions: Head northeast out of Roswell on Hwy 70, go 50 miles to Kenna. Turn south on CR 34, continue south to a Y with two cattle guards – continue south through the left/east cattle guard approximately 2 miles – turn right at the top of the hill go to second location turn left to tank battery.

C. TIME OF INCIDENT

This location has historic leaks/spills.

D. DISCHARGE EVENT

- Historic oil leaks and spills are apparent. A drainage area behind tanks has evidence of past spill/s.
- A historic oil spill area was identified immediately to the west of the tanks.

E. TYPE OF DISCHARGE – Crude Oil Spills/Leaks

A visual environmental survey of the site was conducted on August 23rd by Baseline Solutions. Crude oil contamination was identified.

F. CONTAMINATED AREA (see app. A)

The contaminated surface area/s consists of three main sections which include:

1. Drainage area inside fence, immediately behind storage tanks – 30ft X 140ft
2. Area immediately outside of fence – south of storage tanks – 40ft X 100ft
3. Area immediately south and southwest of storage tanks – 210ft X 110ft.

2. SITE ASSESSMENT

A. GENERAL SITE CHARACTERISTICS

1. Depth to Ground Water Approximately 97ft, (see app. C)

- Depth to ground water is approximately 97', according to USGS information dated 4/95. USGS measurements were taken from the closest water well (on record), with the following description:

  Roosevelt County, New Mexico
  07S.32E Sec30
  Latitude 33°41'01", Longitude 103°43'02" NAD27
  Hydrologic Unit Code 13060003
  Land-surface elevation 4,398 feet above sea level
  The depth of the hole is 173 feet below land surface.
- The NMOCD rating is considered to be **10.**

2. Area Water Sources (see app. C)

The nearest water source (wells, springs or other sources of fresh water extraction), were identified being:

- Water well located an estimated 1 ½ to 2 miles west of the subject location. Water well location description is 07S.32E Sec30

3. Distance to Nearest Surface Water Body (see app. C)

- A surface pond area over 4 miles east of the subject site. Surface pond location description is T8S R30E Sec1.
- The gradient for the specific spill area is considered to be generally to the south and southwest. The larger surrounding area is considered to be mostly

4. Overall Site Data (see app/s. C&D)

Map Unit Description for Subject Site
Chaves County, New Mexico, Northern Part
FaA—Faskin fine sand, 0 to 2 percent slopes
Map Unit Setting

- Elevation: 2,750 to 3,400 feet
- Mean annual precipitation: 13 to 17 inches
- Mean annual air temperature: 63 to 68 degrees F

- Frost-free period: 210 to 240 days

Map Unit Composition

- Faskin and similar soils: 90 percent

Description of Faskin Setting

- Landform: Terraces
- Landform position (two-dimensional): Toeslope
- Landform position (three-dimensional): Side slope
- Down-slope shape: Linear
- Across-slope shape: Linear
- Parent material: Alluvial and eolian deposits

Properties and qualities

- Slope: 0 to 2 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Well drained
- Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content: 50 percent
- Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
- Available water capacity: Moderate (about 7.3 inches)

Interpretive groups

- Land capability classification (irrigated): 4e
- Land capability (nonirrigated): 6e
- Ecological site: Sandy Plains (R070XB055NM)

Typical profile

- 0 to 14 inches: Loamy fine sand
- 14 to 24 inches: Sandy clay loam
- 24 to 60 inches: Sandy clay loam

B. SOIL/WASTE CHARACTERISTICS

The contaminated surface area/s consists of three main sections which include:

- Drainage area inside fence, immediately behind storage tanks – 30ft X 140ft
- Area immediately outside of fence – south of storage tanks – 40ft X 100ft
- Area immediately south and southwest of storage tanks – 210ft X 110ft.
- Stressed vegetation is visible within the spill areas.
- Soil Sampling shall be conducted to determine the horizontal and vertical extent of soil contamination.
- Constituents to be tested for include:
    - Total Petroleum Hydrocarbons (TPH)
    - Sodium Chloride
- Analysis

- Field instrumentation will be used. A photoionization detector and a electro-conductivity meter will be used to screen field samples for excavation purposes only.
- Samples to establish formal levels of TPH and or Chlorides shall be taken to an EPA certified lab for analysis. The results of the lab analysis will be used to determine the degree of contamination remediation.

3. SOIL REMEDIATION ACTION LEVELS

A. SOILS

- Total Petroleum Hydrocarbon levels shall be **reduced to 5000ppm**
- Sodium Chloride levels shall be reduced to **250 mg/kg chloride**

4. Soil Sampling Procedures for Laboratory Analysis

A. Sampling Procedures

Soil sampling for laboratory analysis shall be conducted according to OCD approved industry standards or other OCD-approved procedures. Soil sampling procedures and laboratory analytical methods shall be as follows:

- Collect samples in clean, air-tight glass jars supplied by the laboratory which will conduct the analysis.
- Label the samples with a unique code for each sample.
- Cool and store samples with or on ice.
- Promptly deliver samples to the lab for analysis following chain of custody procedures.
- All samples will be analyzed within the holding times for the laboratory analytical method specified by EPA.
-

B. Analytical Methods

- All soil samples will be analyzed using EPA methods, or by other OCD approved methods and must be analyzed within the holding time specified by the method.

5. REMEDIATION

The remediation plan proposed within the body of this report is subject to NMOCD approval.

A. SOIL REMEDIATION

1. Contaminated Soils

Will be excavated until a representative sample from the walls and bottom of the excavation is below the contaminant specific remediation level listed in Section 3.A.

2. Landfarming of soil: Treatment of Soil in Place, until a representative sample is below the contaminant specific remediation level listed in Section 3A.

B. Soil Management

Proposed contaminated soil management must be approved by OCD.

- Landfarming: Contaminated soils will be landfarmed on location by spreading the soil to approximate depth of six inches within a bermed area. Only soils which do not contain free liquids will be landfarmed. The soils will be disced regularly to enhance biodegradation of the contaminants. If necessary, upon approval by OCD, moisture and nutrients may be added to the soil to enhance aerobic biodegradation.

6. TERMINATION OF REMEDIAL ACTION

Remedial action will be terminated when the criteria listed below has been met and approved by the NMOCD:

A. SOIL

- Total Petroleum Hydrocarbon reduced to **5000ppm**
- Sodium Chloride levels reduced to **250 mg/kg chloride**

7. FINAL CLOSURE

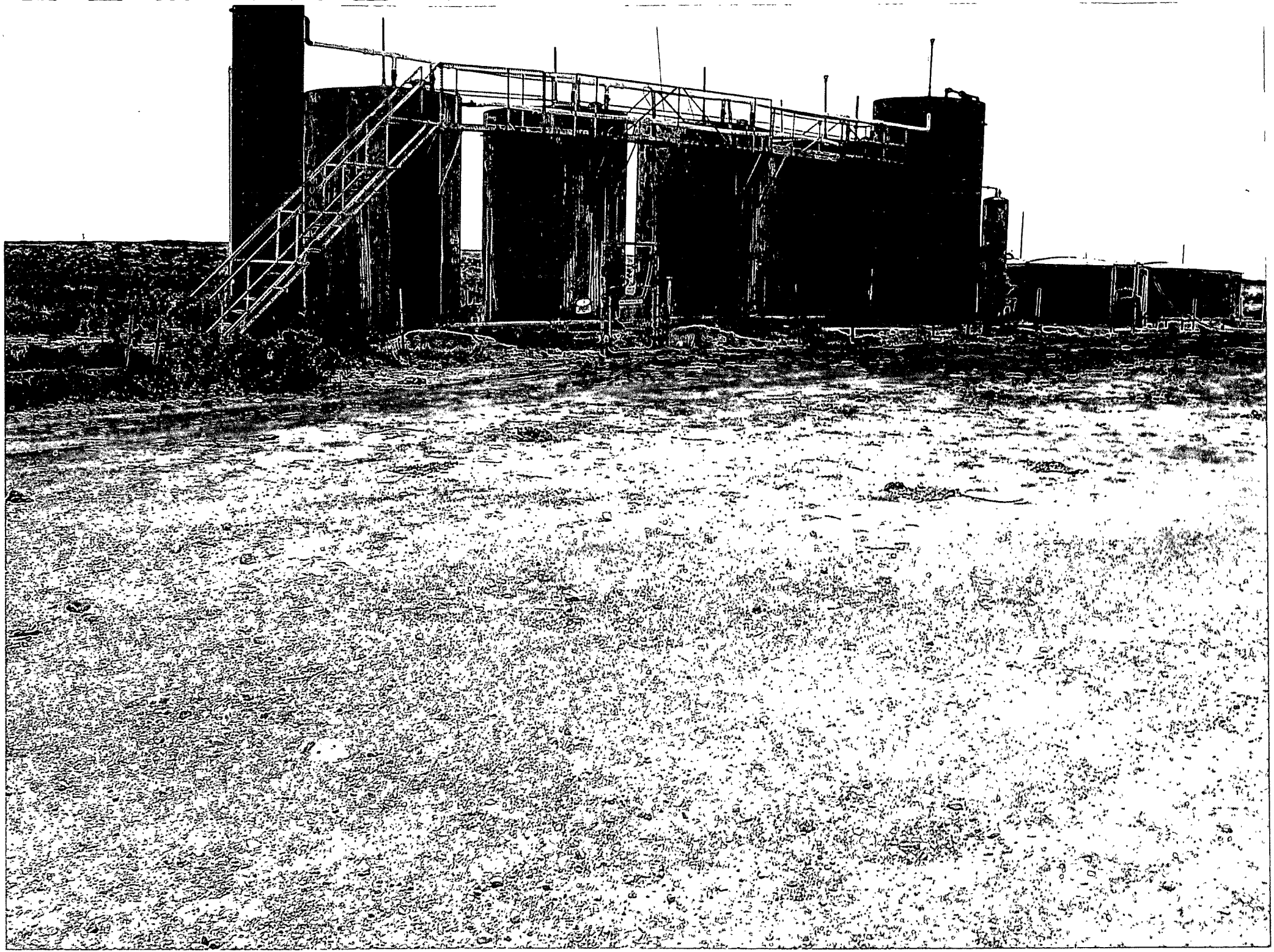
The remediation site area of spill will be closed by backfilling the excavated areas with contouring to provide drainage away from the site, re-vegetating the area or other OCD approved method.

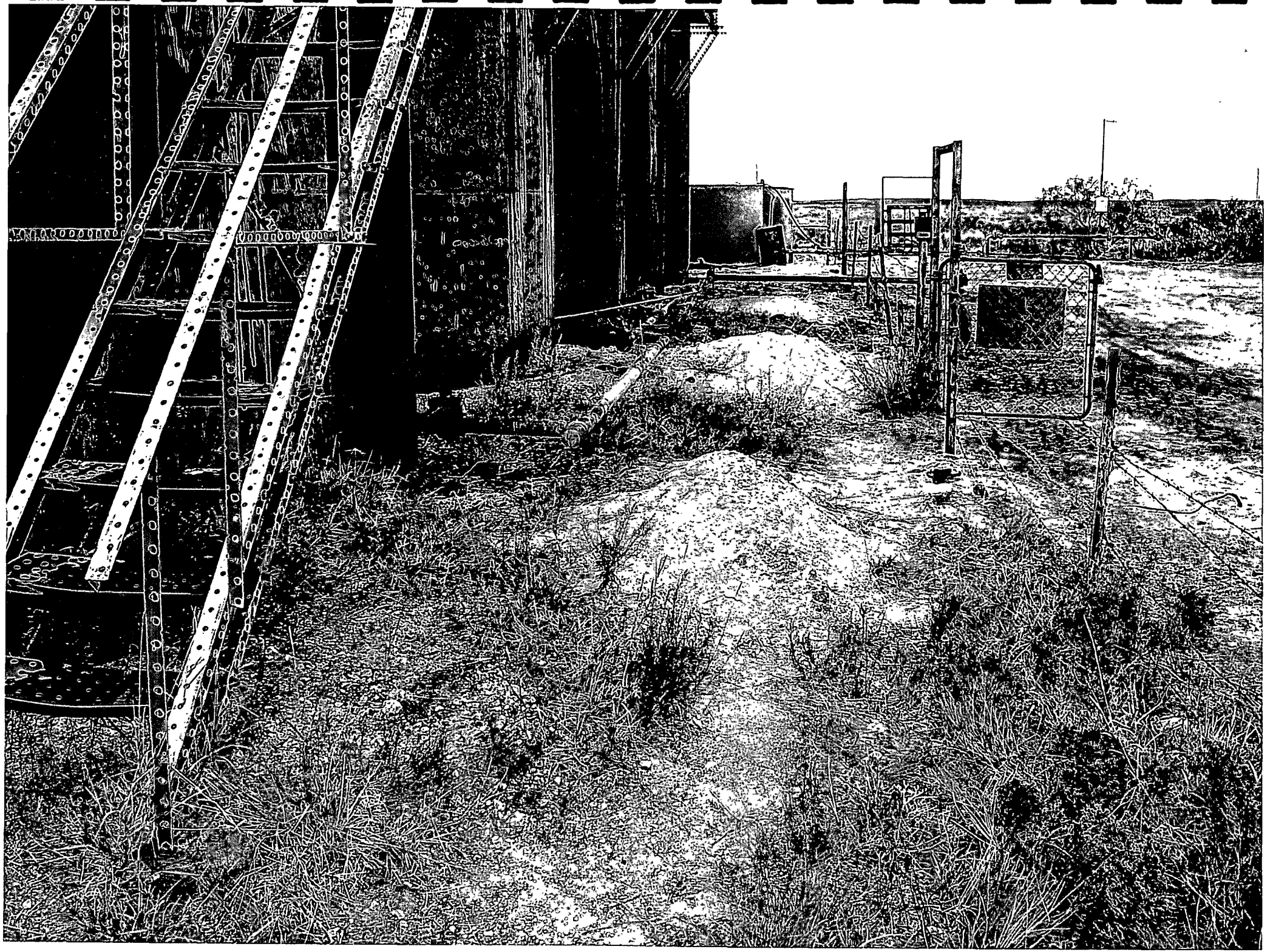
8. FINAL REPORT

Upon completion of remedial activities a final report summarizing all actions taken to mitigate environmental damage related to the spill will be provided to OCD for approval.

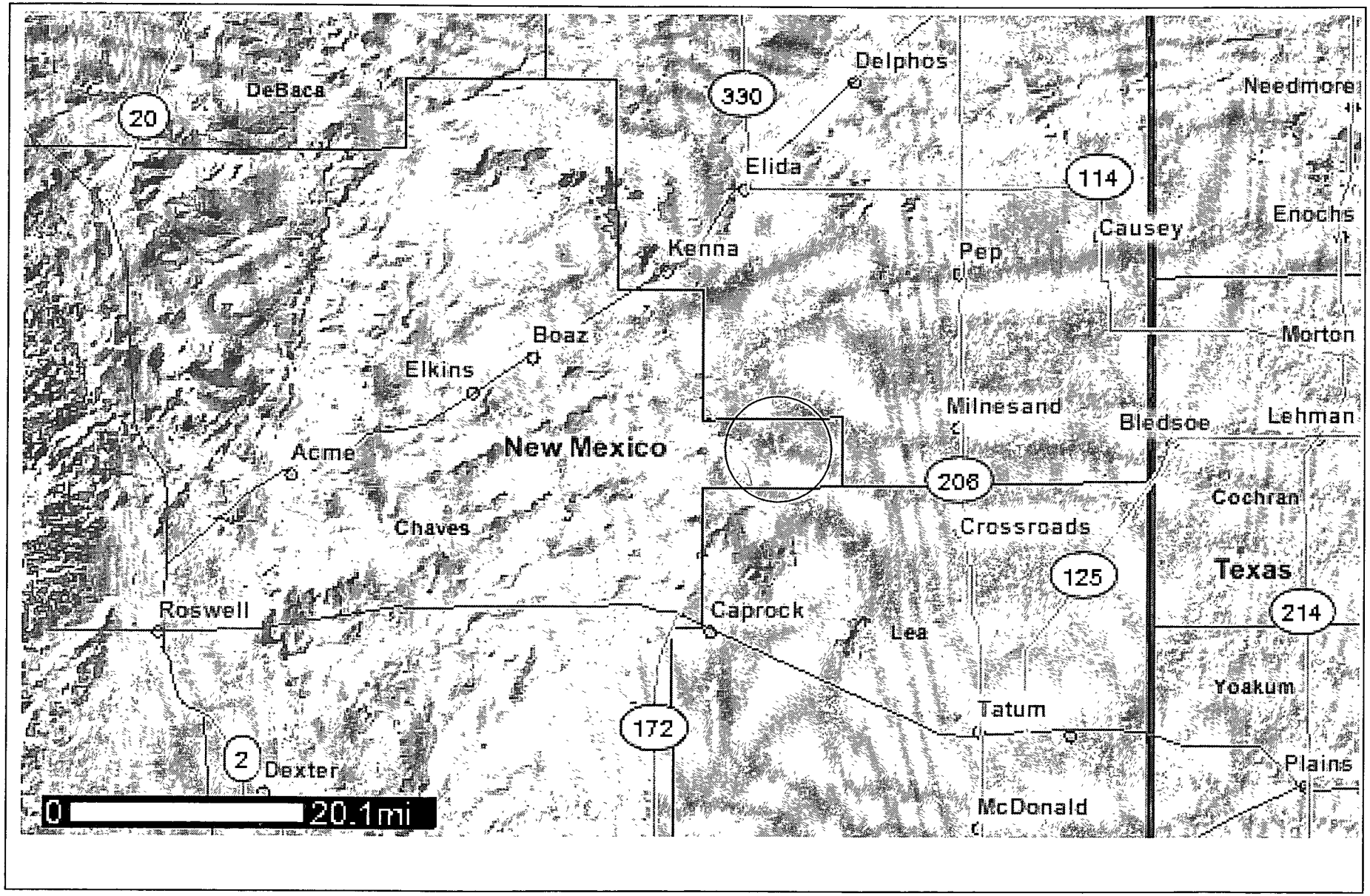
Appendices A
Photos

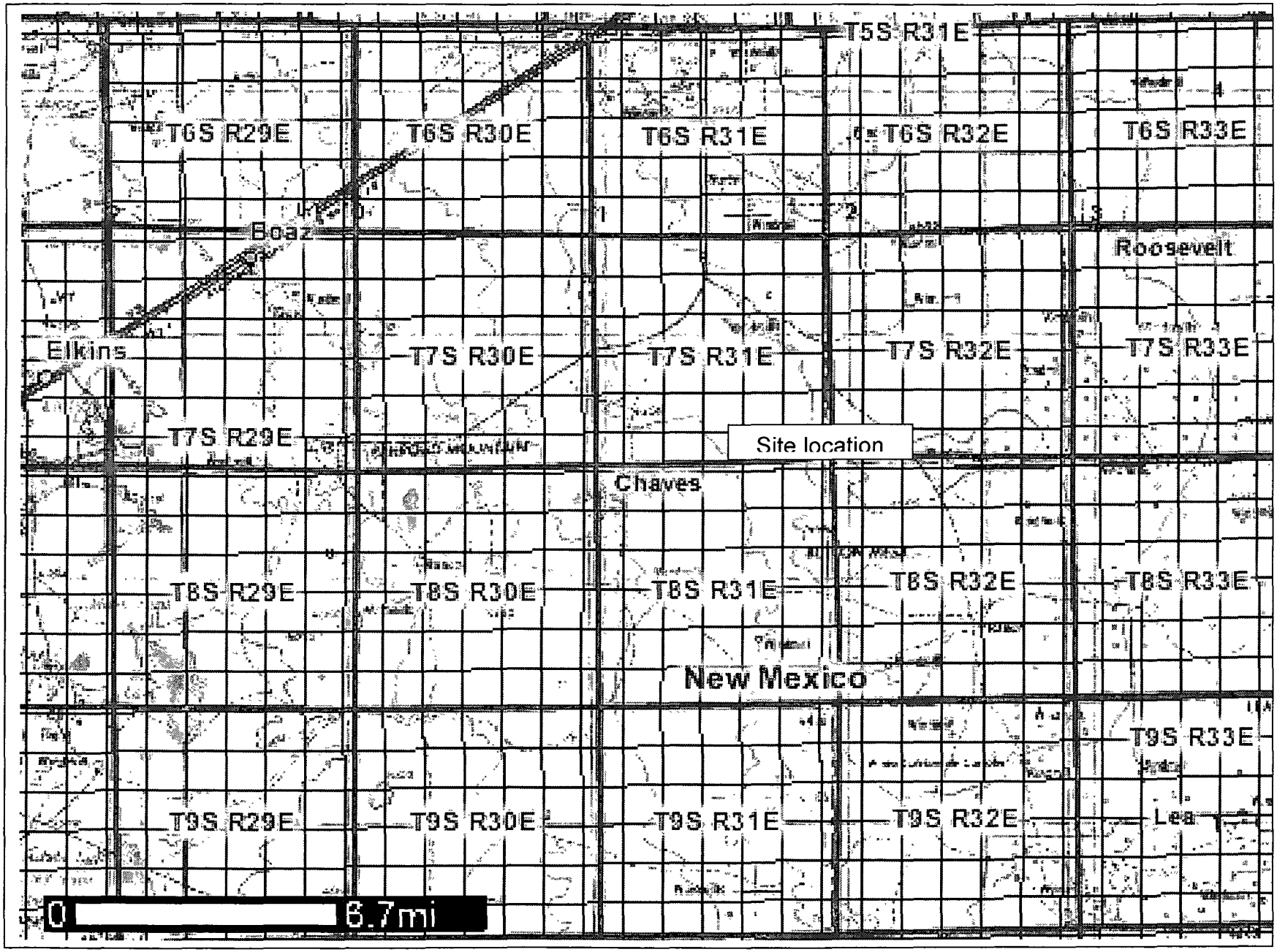
Please click on bookmarks with electronic copy





Appendices B
Maps


DeBaca
20
330
Delphos
Needmore
Elida
114
Enochs
Causey
Kenna
Pep
Boaz
Morton
Elkins
Milnesand
Bledsoe
Lehman
Acme
New Mexico
206
Cochran
Chaves
Crossroads
125
Texas
Roswell
Caprock
214
Lea
Yoakum
Tatum
172
2
Dexter
Plains
McDonald
0
20.1mi


T5S R31E
T6S R29E
T6S R30E
T6S R31E
T6S R32E
T6S R33E
Boaz
Roosevelt
Elkins
T7S R30E
T7S R31E
T7S R32E
T7S R33E
T7S R29E
Site location
Chaves
T8S R29E
T8S R30E
T8S R31E
T8S R32E
T8S R33E
New Mexico
T9S R33E
T9S R29E
T9S R30E
T9S R31E
T9S R32E
Lea
0
6.7mi

MEXICO OIL CONSERVATION COMMISSION

WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102
Supersedes C-128
Effective 1-1-65

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

Operator	Lease	Well No.
YATES PETROLEUM CORP.	Union SI Federal	2

Unit Letter	Section	Township	Range	County
C	1	6 South	31 East	Chaves

Actual Footage Location of Well: 660 feet from the North line and 1980 feet from the West line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
4377.6	SAN ANDRES	UNDES. TOMAHAWK SA.	40 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

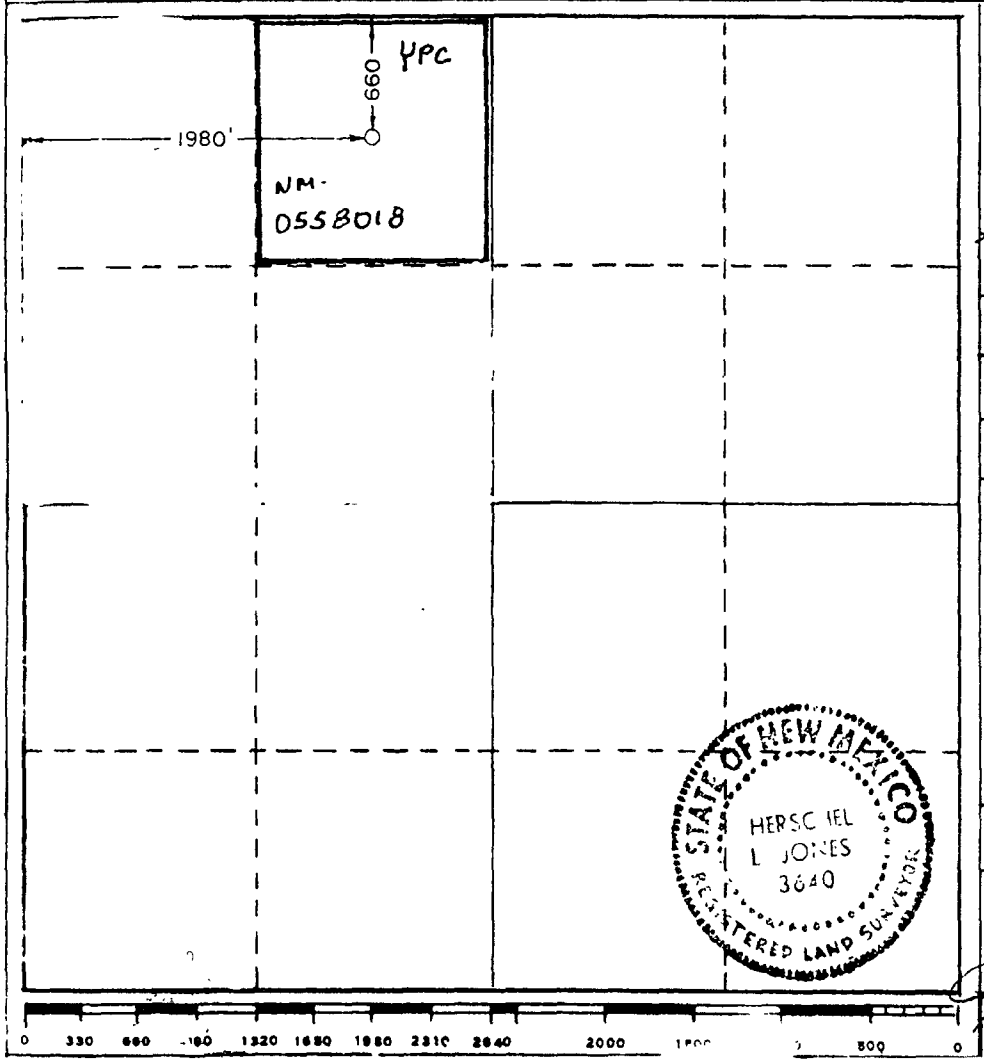
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling. etc?

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

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

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



CERTIFICATION

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

Name: Gliserio Rodriguez

Position: Regulatory Manager

Company: Yates Petroleum Corporation

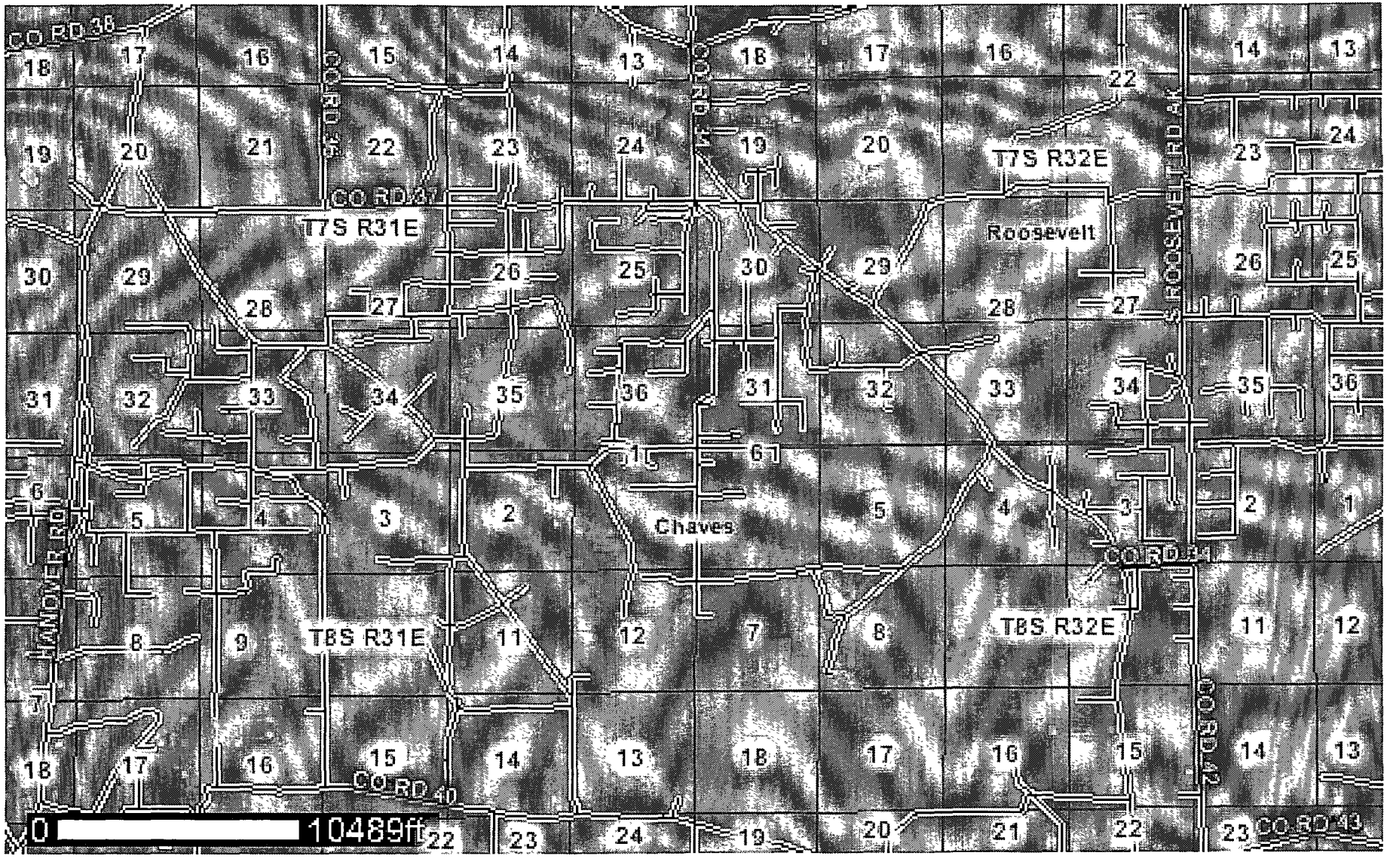
Date: 12/15/81

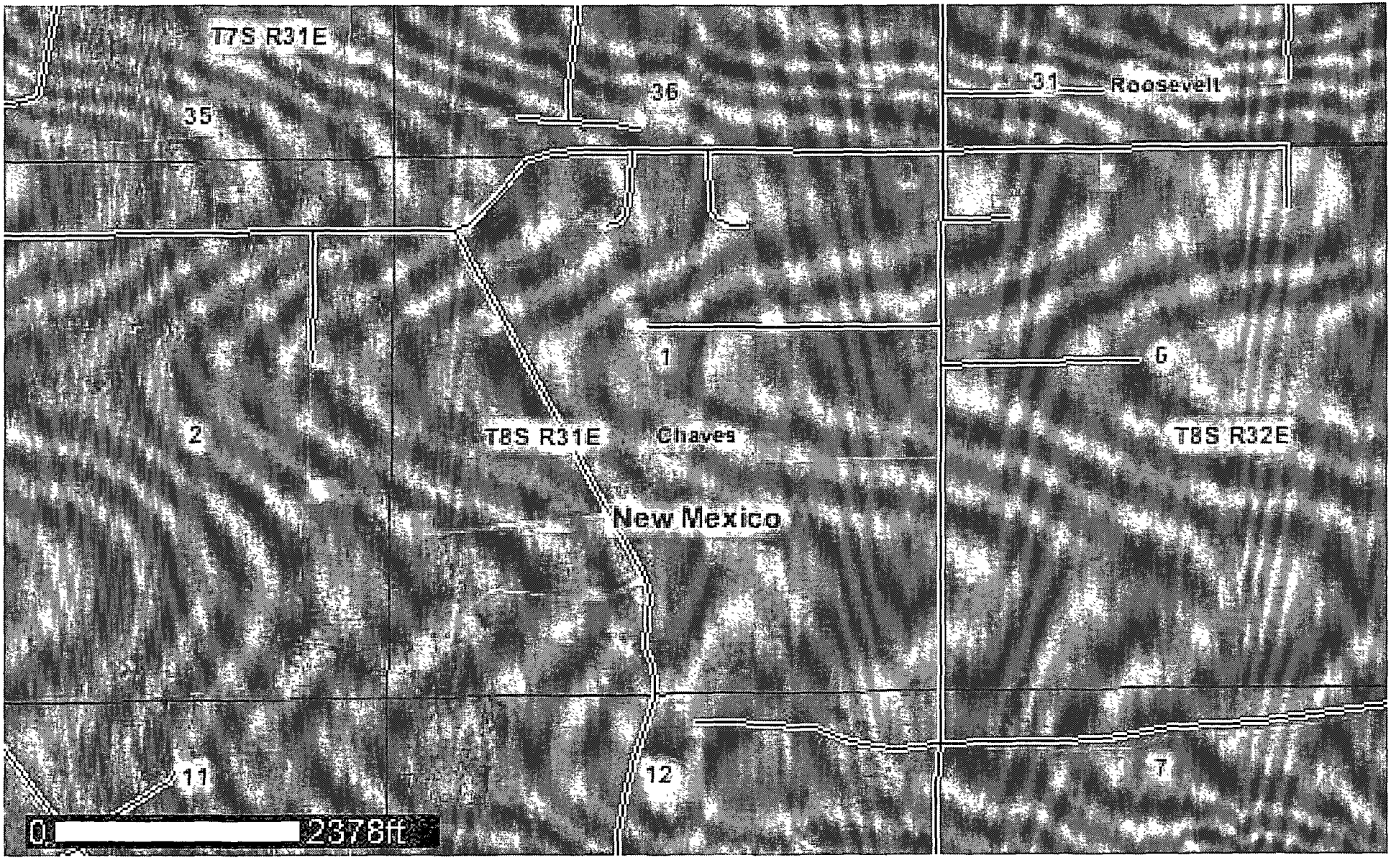
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

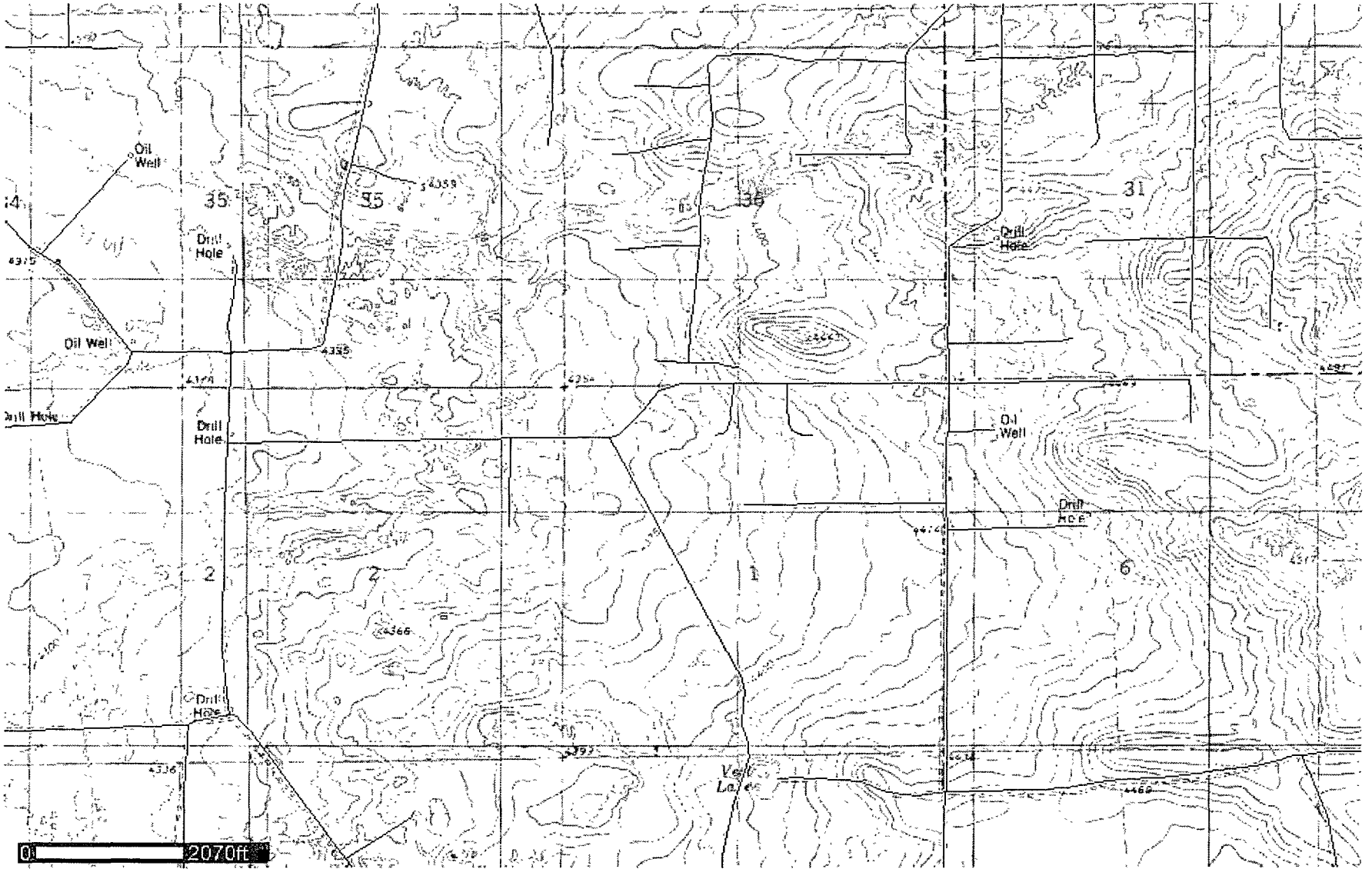
Date Surveyed: December 10, 1981

Registered Professional Engineer and/or Land Surveyor

Certificate No. 3640


CO RD 36
CO RD 35
CO RD 34
CO RD 47
T7S R31E
T7S R32E
Roosevelt
ROOSEVELT RD
Chaves
CO RD 41
T8S R31E
T8S R32E
HANOVER RD
CO RD 40
CO RD 43
CO RD 49
0
10489ft


T7S R31E
36
31
Roosevelt
35
1
G
2
T8S R31E
Chaves
T8S R32E
New Mexico
11
12
7
0
2378ft

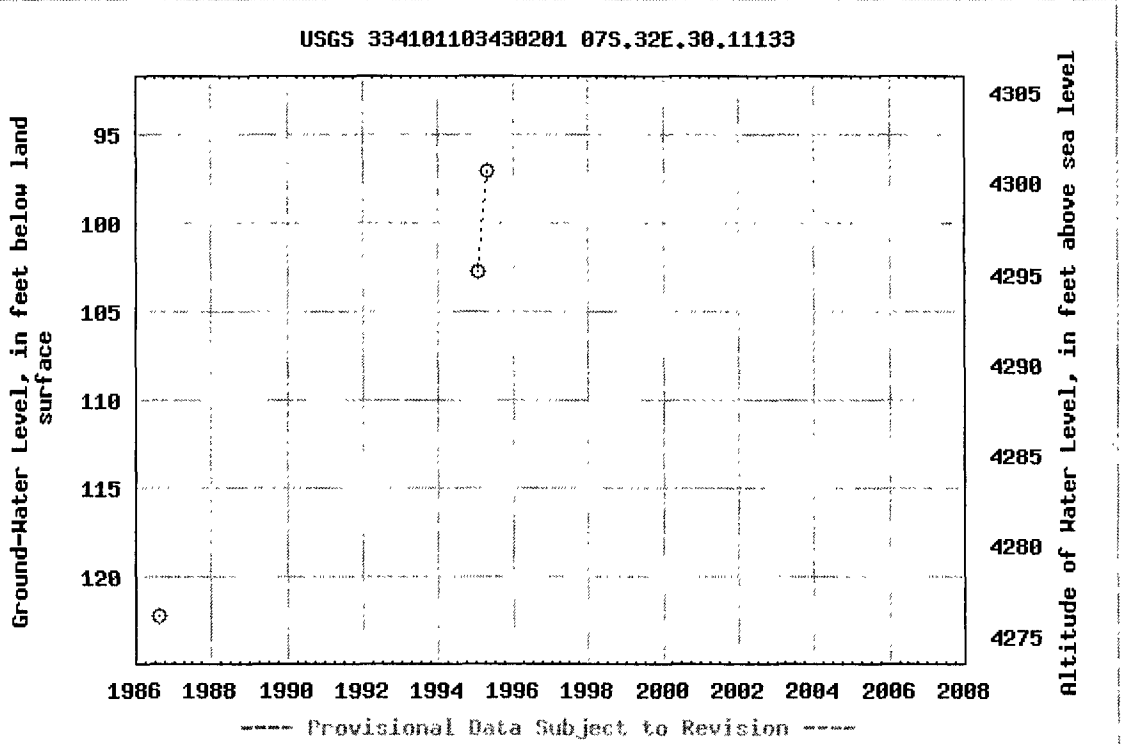

Oil Well
Drill Hole
Oil Well
Drill Hole
Drill Hole
Drill Hole
Oil Well
Drill Hole
35
36
31
2
1
6
0
2070ft

Appendices C
Hydrology

USGS

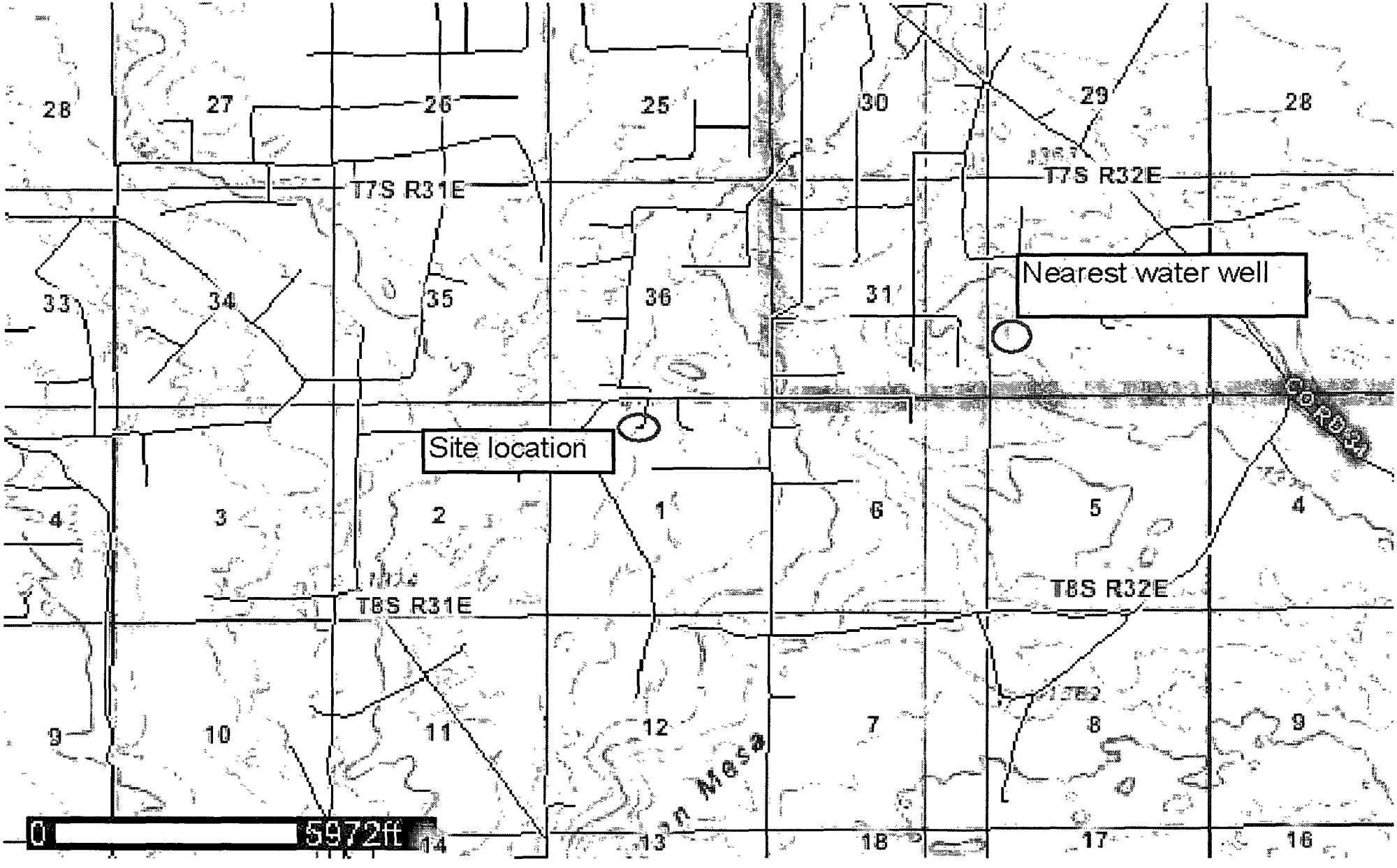
USGS 334101103430201 - 07S.32E.30.11133

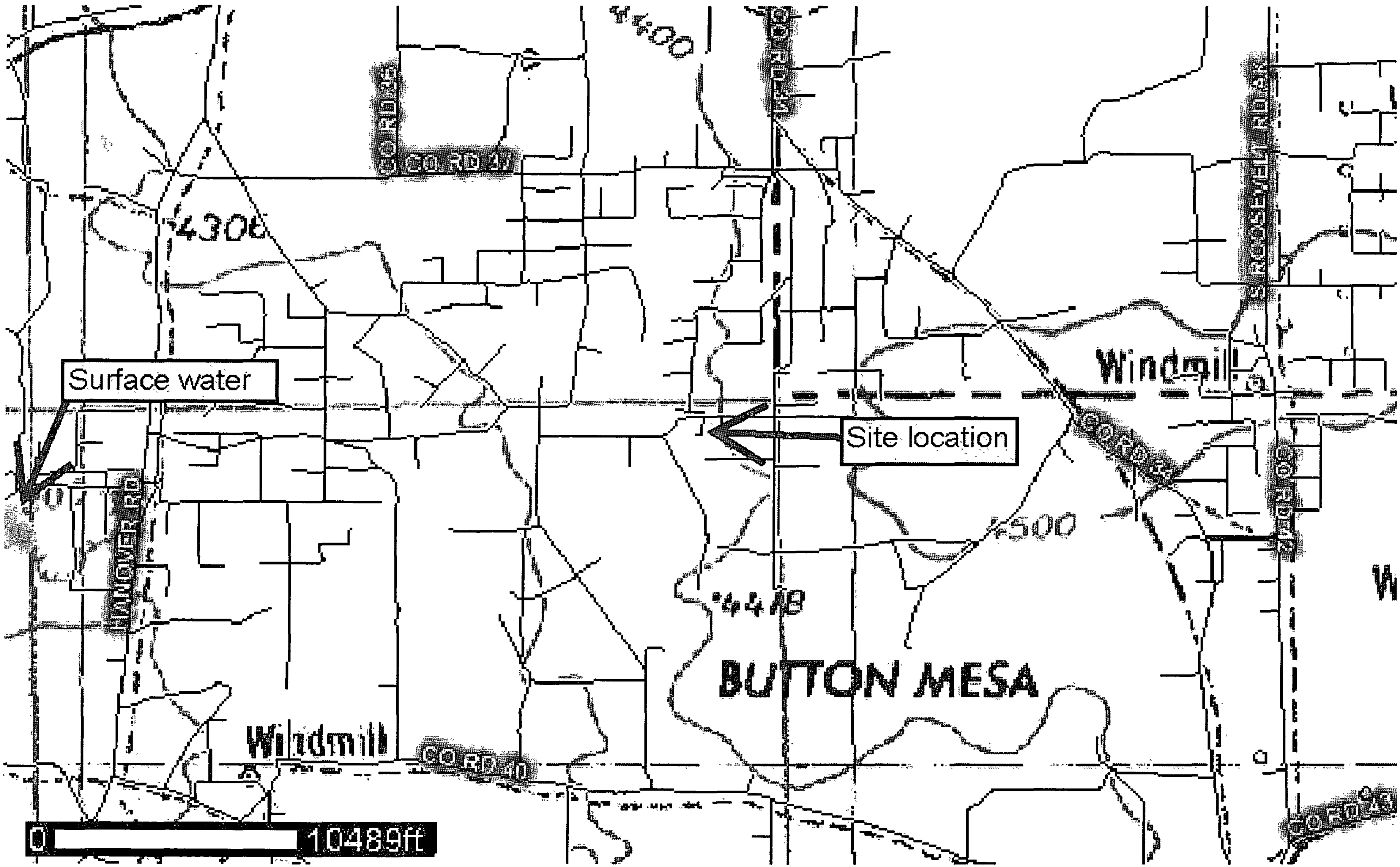
Roosevelt County, New Mexico - 07S.32E.30.11133
Hydrologic Unit Code 13060003
Latitude 33°41'01", Longitude 103°43'02" NAD27
Land-surface elevation 4,398 feet above sea level NGVD29
The depth of the hole is 173 feet below land surface.



Breaks in the plot represent a gap of at least one year between field measurements.

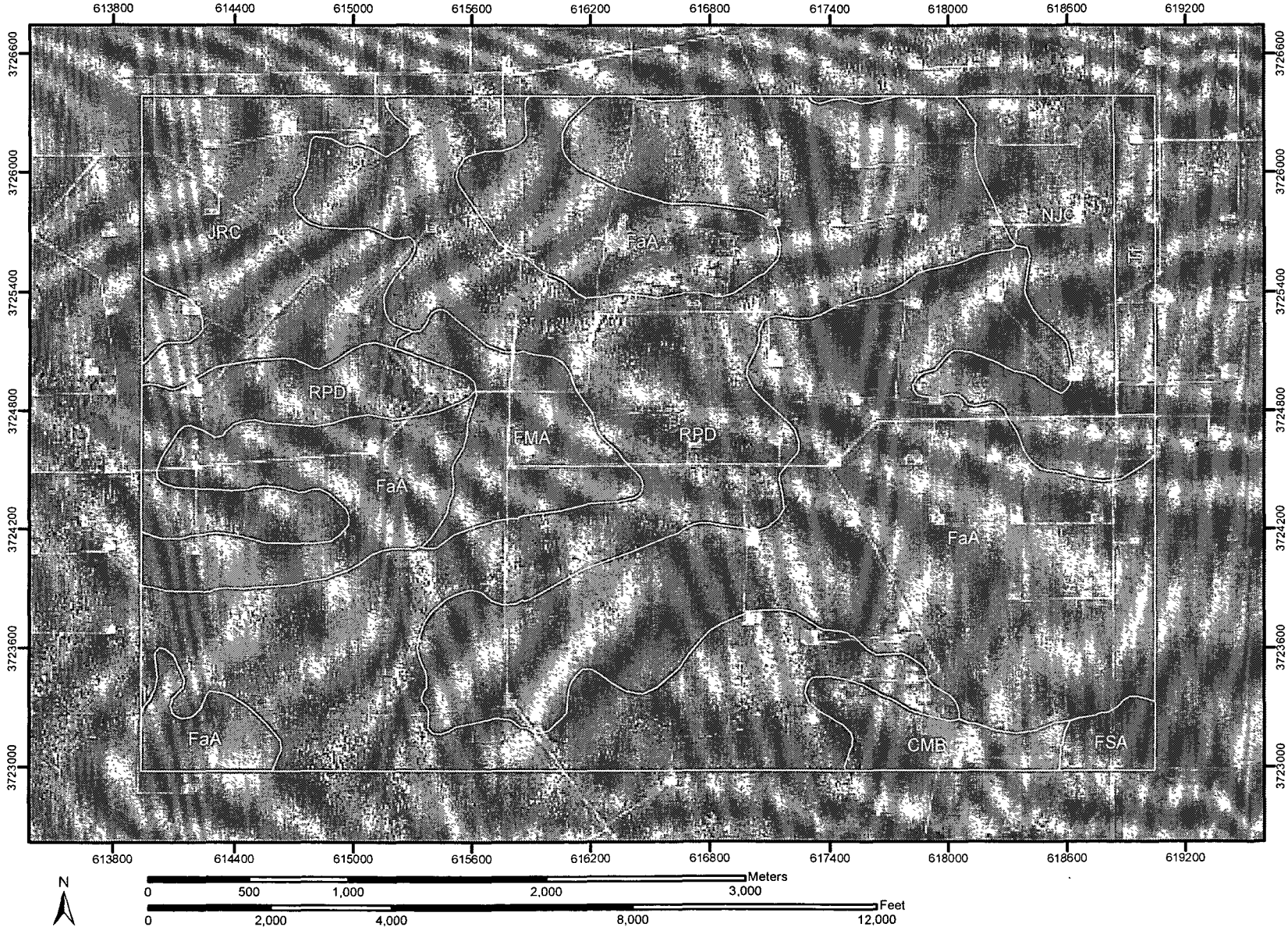
Date	Time	Water level, feet below land surface	Status
1986-08-20		122.18	
1995-01-23		102.68	
1995-04-28		97.12	


Nearest water well
Site location
T7S R31E
T7S R32E
T8S R31E
T8S R32E
28
27
26
25
30
29
28
33
34
35
36
31
4
3
2
1
6
5
4
9
10
11
12
7
8
9
13
18
17
16
0
5972ft


Surface water
Site location
BUTTON MESA
Windmill
Windmill
CO RD 45
CO RD 47
CO RD 44
S ROOSEVELT RD AK
CO RD 42
CO RD 41
CO RD 40
CO RD 43
HANOVER RD
4300
4400
4500
4418
0
10489ft

Appendices D
Soil Survey

Soil Map–Chaves County, New Mexico, Northern Part; and Roosevelt County, New Mexico
(Union SI Tank Battery Soil type)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features

Municipalities
- Cities
- Urban Areas

Water Features
- Oceans
- Streams and Canals

Transportation
- Rails

MAP INFORMATION

Original soil survey map sheets were prepared at publication scale. Viewing scale and printing scale, however, may vary from the original. Please rely on the bar scale on each map sheet for proper map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 13N

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Chaves County, New Mexico, Northern Part
Survey Area Data: Version 6, Jan 28, 2007

Soil Survey Area: Roosevelt County, New Mexico
Survey Area Data: Version 6, Jan 13, 2007

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

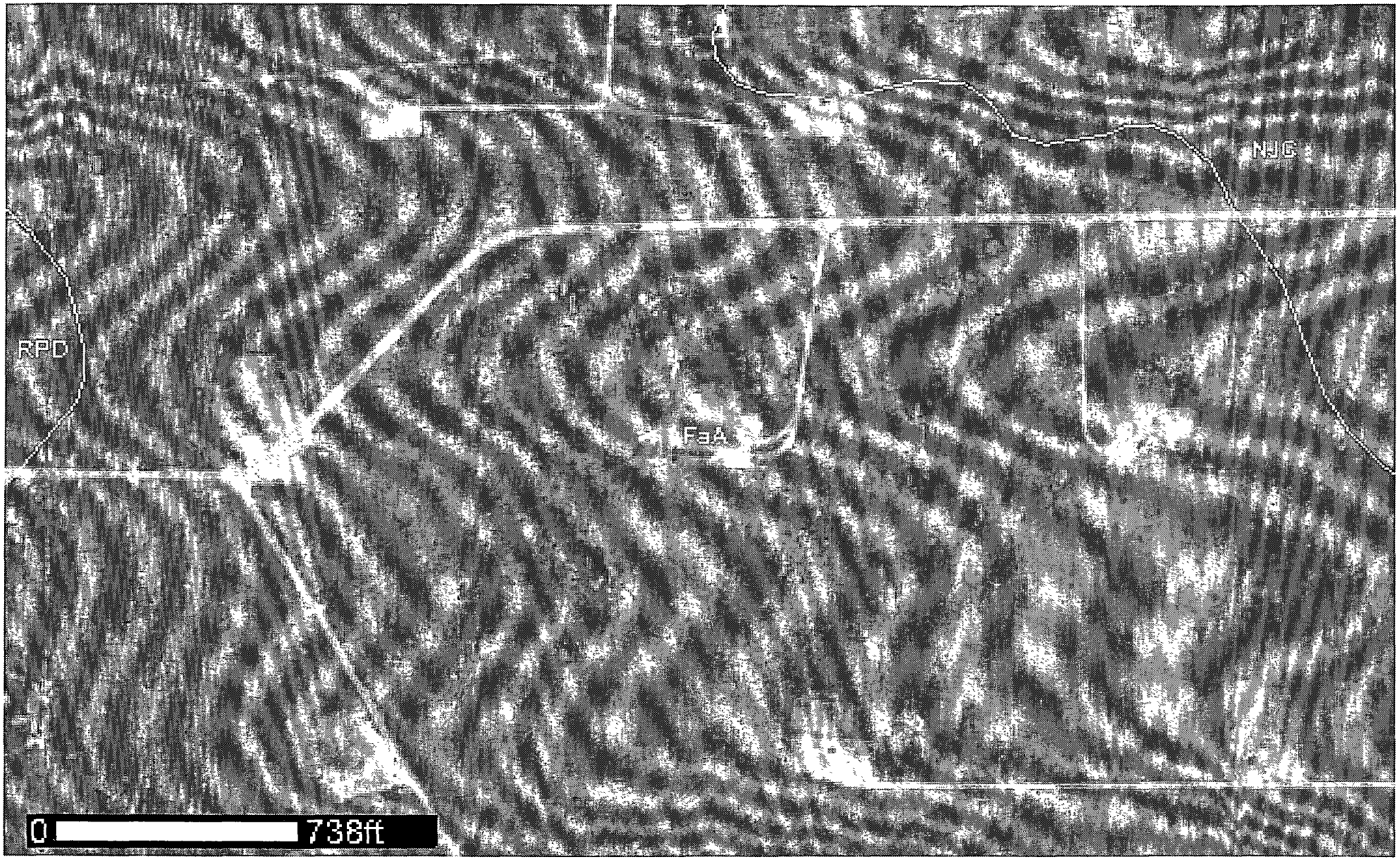
Date(s) aerial images were photographed: 10/22/1996

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Chaves County, New Mexico, Northern Part (NM644)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CMB	Chispa-Malstrom association, moderately undulating	84.7	2.0%
FaA	Faskin fine sand, 0 to 2 percent slopes	1,556.0	36.2%
FMA	Faskin-Malstrom association, gently undulating	165.5	3.9%
FSA	Faskin, moist-Douro association, gently undulating	36.1	0.8%
JRC	Jalmar-Roswell-Pyote association, moderately undulating	359.8	8.4%
NJC	Nutivoli-Jalmar, moist fine sands, moderately rolling	280.3	6.5%
RPD	Roswell-Jalmar fine sands, hilly	1,734.0	40.3%

Roosevelt County, New Mexico (NM041)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Tf	Tivoli fine sand	81.8	1.9%
Totals for Area of Interest (AOI)		4,298.3	100.0%


RPD
NJG
FaA
0
738ft

Map Unit Description - USGS

Chaves County, New Mexico, Northern Part

FaA—Faskin fine sand, 0 to 2 percent slopes

Map Unit Setting

- *Elevation:* 2,750 to 3,400 feet
- *Mean annual precipitation:* 13 to 17 inches
- *Mean annual air temperature:* 63 to 68 degrees F
- *Frost-free period:* 210 to 240 days

Map Unit Composition

- *Faskin and similar soils:* 90 percent

Description of Faskin

Setting

- *Landform:* Terraces
- *Landform position (two-dimensional):* Toeslope
- *Landform position (three-dimensional):* Side slope
- *Down-slope shape:* Linear
- *Across-slope shape:* Linear
- *Parent material:* Alluvial and eolian deposits

Properties and qualities

- *Slope:* 0 to 2 percent
- *Depth to restrictive feature:* More than 80 inches
- *Drainage class:* Well drained
- *Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)
- *Depth to water table:* More than 80 inches
- *Frequency of flooding:* None
- *Frequency of ponding:* None
- *Calcium carbonate, maximum content:* 50 percent
- *Maximum salinity:* Nonsaline (0.0 to 2.0 mmhos/cm)
- *Available water capacity:* Moderate (about 7.3 inches)

Interpretive groups

- *Land capability classification (irrigated):* 4e
- *Land capability (nonirrigated):* 6e
- *Ecological site:* Sandy Plains (R070XB055NM)

Typical profile

- *0 to 14 inches:* Loamy fine sand
- *14 to 24 inches:* Sandy clay loam
- *24 to 60 inches:* Sandy clay loam

Appendices E
OCD Form C-141

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

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company - Texas ReExploration Operating LC (TREX)	Contact - Dean Brooks
Address –One Petroleum Center, 3300 North A., Bldg 1-234, Midland, TX 79707	Telephone No 432-432-618-2202
Facility Name – Union SI Federal Well #2 and Tank Battery	Facility Type – Tank Battery

Surface Owner - Mayes Jenkins, Sr	Mineral Owner - BLM	API No 30-005-20866

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	South Line / North Line	Feet from the	East/West Line / West Line	County
C	1	08S	31E	660	North Line	1980	West Line	Chaves

Latitude 33.65445 **Longitude** -103.72925

NATURE OF RELEASE

Type of Release - Historic crude oil spill – before current operator	Volume of Release – estimated 50bbls	Volume Recovered – N/A – Historic release before current operator
Source of Release – most likely pipe fittings and storage tank overflow	Date and Hour of Occurrence ?	Date and Hour of Discovery 8/8/07
Was Immediate Notice Given? ☐ Yes ☒ No ☐ Not Required	If YES, To Whom?	
By Whom? OCD Compliance Officer	Date and Hour – Before 2007	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully *
Groundwater for this area is considered to be at a depth of 97ft

Describe Cause of Problem and Remedial Action Taken.*
Texas ReExploration Operating purchased this lease in 2007. This tank battery had historic/past oil spills and leaks No remedial action had been taken. A remediation plan has been compiled by TREX and will be implemented upon NMOCD approval. Please see attached Remediation Action Plan

Describe Area Affected and Cleanup Action Taken.*
The approximate area/s effected is **1.**Drainage area inside fence, immediately behind storage tanks – 30ft X 140ft. **2.**Area immediately outside of fence – south of storage tanks – 40ft X 100ft. **3.**Area immediately south and southwest of storage tanks – 210ft X 110ft. No remedial action had been taken. The remediation for this location will begin upon OCD approval of the remediation plan

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Dean C Brooks	OIL CONSERVATION DIVISION
Printed Name: Dean Brooks	Approved by District ~~Supervisor~~: ENVIRO ENGR Johnson
Title: Vice President of Engineering	Approval Date 10.23.07 Expiration Date: 12.23.07
E-mail Address: dbrooks@tex-rex.com	Conditions of Approval: Attached ☐
Date: 9/20/07 Phone: 432-618-2202	

* Attach Additional Sheets If Necessary

RP# 1609

OCT 2007 Received Hobbs OCD