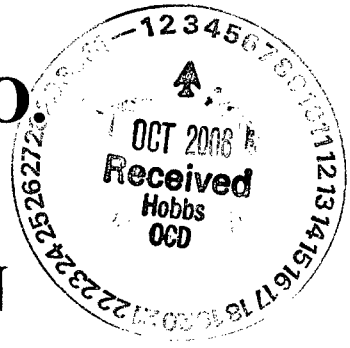
# RAM SERVICES CORPORATION

## CIMAREX ENERGY CO.

### WINNINGHAM NO. 9 WELL SITE

## C-141 REMEDIATION

# SOIL INVESTIGATION PLAN




**PROJECT REF: RAM-06-001**

**UL-B (NW¼ OF THE NE¼) OF SECTION 30 T25S R37E**

**LATITUDE: N32° 06.411' LONGITUDE: 103° 11.980'**

**~1.1 MILES SW (BEARING 214°) OF THE INTERSECTION OF NM HWY 18 AND NM HWY 128**

**CITY OF JAL**

**LEA COUNTY, NEW MEXICO**

**September 24, 2006**

**PREPARED FOR RAM SERVICES INCORPORATED BY:**

*Hungry Horse, LLC*

*P.O. Box 1058, Hobbs, New Mexico 88241*

*Phone/Fax (505) 393-3386; Mobile (505) 390-6149*

incident - nPAC0627727599 RP# 1065

application - pPAC0627728501

# Table of Contents

# 1.0 Introduction and Background

This report addresses a proposed Soil and Ground Water Investigation prior to submittal of a C-141 Remediation Plan for the 60-bbl release of production well work-over fluids that occurred at the Cimarex Energy Co. (CIMAREX) Winningham No. 9 well-site. The release occurred during the night of August 22, 2006 when the valves of a parked Ram Services Inc. (RAM) vacuum truck were maliciously opened. This plan proposes to delineate the vertical and horizontal extents of the chloride contamination on the CIMAREX location that resulted from the above described release.

The CIMAREX Willingham No. 9 production well and associated drilling pit are located on State owned land in Unit Letter B, (NW¼ of the NE¼), Section 30, T25S, R37E. . The GPS coordinates are: Latitude: N32° 06.411'; Longitude: 103° 11.980'. A location map, topographical map, aerial photo of the site and a site detail drawing are included as Plates 1-4 in the Attachments.

CONTACT INFORMATION

RAM Services Incorporated:

Brad Roberts, RAM Services Inc., Owner
Phone: 505-395-3502 email: ariesbradstar@aol.com
Mailing Address: P.O. Drawer 1265, Jal, NM 88252-1265

Hungry Horse, LLC:

Jerry Brian, General Manager/Registered Environmental Manager
Phone: 505-393-3386 email: jrbrian@verizon.net
Mailing Address: P.O. Box 1058, Hobbs, NM 88241

# 2.0 Site Description

## *2.1 Geological Description*

*The United States Geological Survey (USGS) Ground-Water Report 6, "Geology and Ground-Water Conditions in Southern Lea County, New Mexico," A. Nicholson and A. Clebsch, 1961*, describes the near surface geology of southern Lea County as "an intergrade of the Quaternary Alluvium (QA) sediments, i.e., fine to medium sand, with the mostly eroded Cenozoic Ogallala (CO) formation. Typically, the QA and CO formations in the area are capped by a thick interbed of caliche and generally overlain by sandy soil." The release site is located at the southern extent of the Eunice Plain physiographic subdivision, described by Nicholson & Clebsch as an area "underlain by a hard caliche surface that is almost entirely covered by reddish-brown dune sand". The thickness of the sand cover ranges from 2-5 feet in most areas to as much as 20-30 feet in drift areas. (*Nicholson & Clebsch - 1961*).

## *2.2 Ecological Description*

The area is typical of the Upper Chihuahuan Desert Biome consisting primarily of hummocky sand hills covered with Harvard Shin Oak (*Querqus harvardi*) interspersed with Honey Mesquite (*Prosopis glandulosa*) along with typical desert grasses, flowering annuals and flowering perennials. Mammals represented, include Orrd's and Merriam's Kangaroo Rat, Deer Mouse, White Throated Wood Rat, Cottontail Rabbit, Black Tailed Jackrabbit, Mule Deer, Bobcat, Red Fox and Coyote. Reptiles, Amphibians, and Birds are numerous

and typical of area. A survey of Listed, Threatened, or Endangered species was not conducted.

### *2.3 Area Ground Water*

Based on available evidence, depth to ground water is projected to be >175-feet below ground surface (bgs).

### *2.4 Area Water Wells*

There are no recorded or observed water wells within 1000 horizontal feet of the site.

### *2.5 Area Surface Water Features*

No permanent surface water bodies exist within 1000 horizontal feet of the site.

## 3.0 Contaminant and Size of Area

The primary Contaminants of Concern (COC's) are total chlorides and, to a lesser extent, petroleum based hydrocarbons. The dimensions of the release affected area are approximately 50-ft X 200-ft; ~11,000-$ft^2$ when the narrow release area along the west side of the location is added. (*Plate 4, Attachments*).

The work-over fluids associated with this release are considered RCRA Exempt oilfield waste. No evidence of other contaminants was observed.

## 4.0 NMOCD Site Ranking Table

Preliminary investigation and evaluation of this site indicate that the chemical parameters of the soil and the physical parameters of the ground water are characterized consistent with the characterization and remediation/abatement goals and objectives set forth in the following New Mexico Oil Conservation Division (NMOCD) publications:

- *Guidelines for Remediation of Leaks, Spills and Releases (August 13, 1993)*
- *Unlined Surface Impoundment Closure Guidelines (February 1993)*

Acceptable thresholds for contaminants/constituents of concern (CoCs), i.e., $TPH^{8015m}$, Benzene, and the mass sum of Benzene, Toluene, Ethyl Benzene, and total Xylenes ($BTEX^{8260}$), was determined based on the NMOCD Ranking Criteria as follows:

- *Depth to Ground water, i.e., distance from the lower most acceptable concentration to the ground water.*
- *Wellhead Protection Area, i.e., distance from fresh water supply wells.*
- *Distance to Surface Water Body, i.e., horizontal distance to all down gradient surface water bodies.*

Based on the proximity of the site to area water wells, surface water bodies, and depth to ground water from the lower most contamination, the NMOCD ranking score for the site is 0 points with the soil remedial goals highlighted in the Site Ranking Table on the following page

NMOCD Site Ranking Table

| 1. Ground Water | 2. Wellhead Protection | 3. Distance to Surface Water |
|---|---|---|
| Depth to GW <50 feet: 20 points | If <1000' from water source, or; <200' from private domestic water source: 20 points | <200 horizontal feet: 20 points |
| Depth to GW 50 to 99 feet: 10 points | | 200-1000 horizontal feet: 10 points |
| Depth to GW >100 feet: 0 points | If >1000' from water source, or; >200' from private domestic water source: 0 points | >1000 horizontal feet: 0 points |
| Ground Water Score = 0 | Wellhead Protection Score= 0 | Surface Water Score= 0 |
| Site Rank (1+2+3) = 0 + 0 + 0 = 0 points | | |

| Total Site Ranking Score and Acceptable Remedial Goal Concentrations | | | |
|---|---|---|---|
| Parameter | 20+ | 10 | 0 |
| Benzene | 10 ppm | 10 ppm | 10 ppm |
| BTEX | 50 ppm | 50 ppm | 50 ppm |
| TPH | 100 ppm | 1000 ppm | 5000 ppm |

## 5.0 Proposed Soil Investigation

The delineation of the vertical and horizontal contamination extents will be accomplished with the drilling and sampling of thirteen boreholes within or beyond the perimeter of the contaminated area. Drilling will be accomplished with the use of a hollow stem auger. The release affected area is readily identifiable due to significant NaCl crystallization on the surface of the area. The release area extents and proposed boreholes are displayed in Plate 5- Attachments.

Four boreholes will be drilled several feet beyond the perimeter of the release area to determine background total chloride concentrations. Three boreholes will be drilled at the perimeter of the release area and six boreholes will be drilled within the release area. *(See Plate 5)* All boreholes will be sampled at 5-ft intervals. Each sample will be field-tested for Total Chlorides utilizing high and low range test strips. Final depth of each boring will be determined by the achievement of a <250-ppm chloride concentration. All samples from this delineation process will be submitted to Cardinal Laboratories, Hobbs, NM under Chain of Custody for certified analysis.

Hydrocarbon delineation will be accomplished by obtaining several representative near-surface (0-3 ft) samples from the release area and analyzing them for $TPH^{8015}$; $BTEX^{8270}$ and Benzene. Near-surface sampling locations will be logged and included with the borehole sampling results in the C141 Remediation Work Plan to be submitted subsequent to the findings of this Soil Investigation Plan.

## ATTACHMENTS

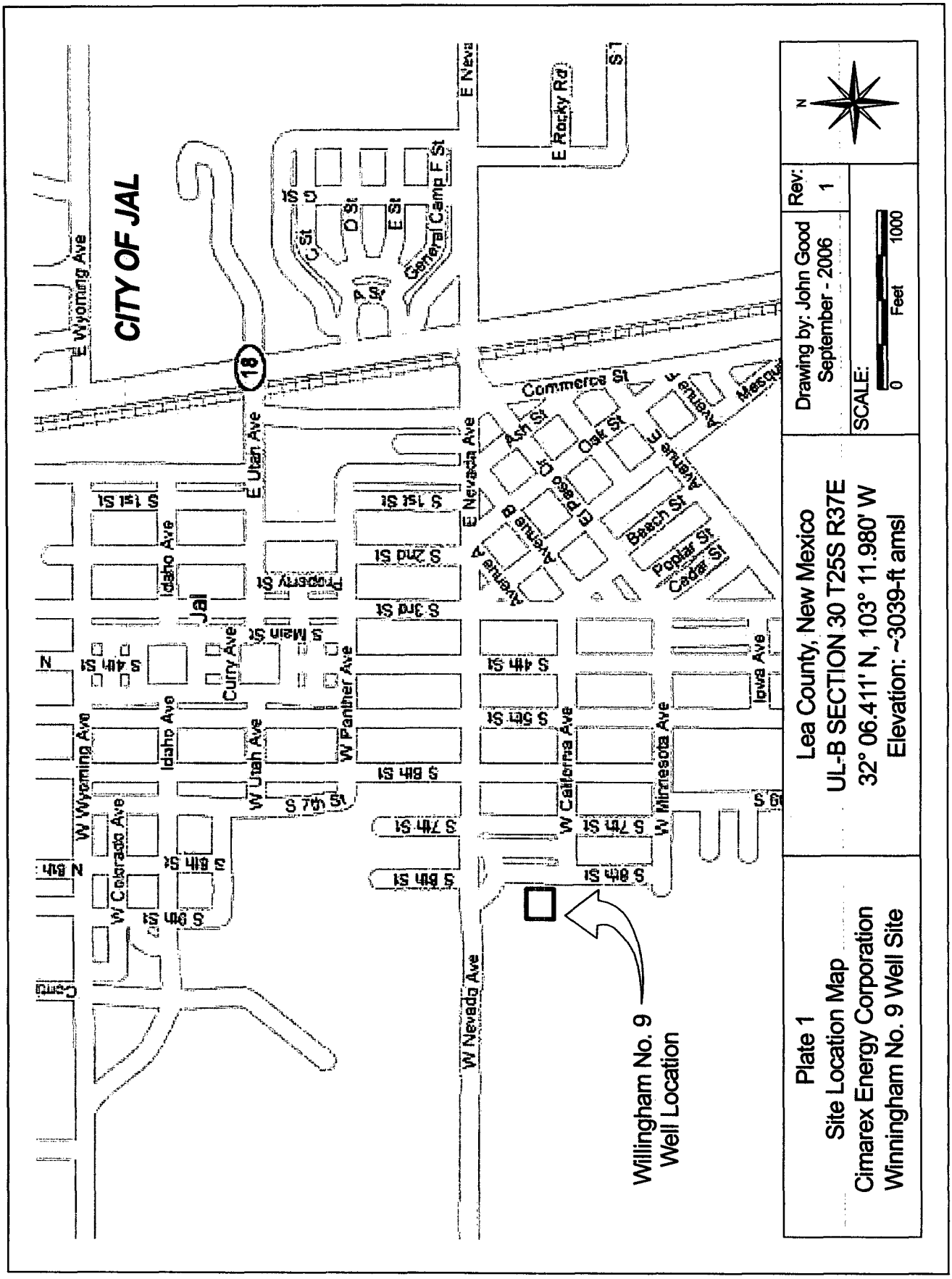
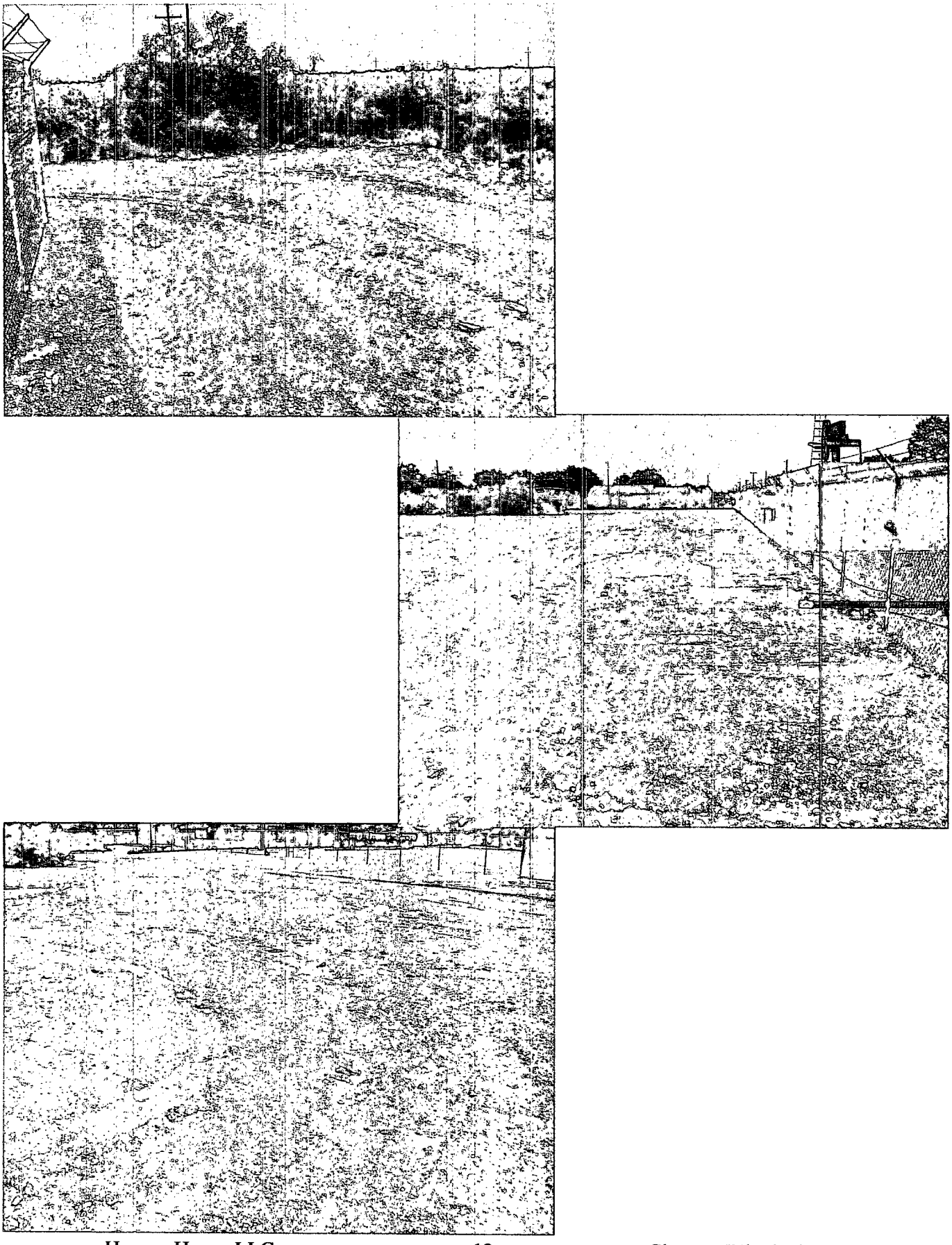

CITY OF JAL
E Wyoming Ave
E Utah Ave
E Nevada Ave
E Rocky Rd
E Neva
Commerce St
Ash St
Oak St
El Paso Ct
Beach St
Poplar St
Cedar St
Avenue A
Avenue B
Avenue E
Avenue F
C St
D St
E St
General Camp F St
Jal
Idaho Ave
Curry Ave
Roberry St
S Main St
W Panther Ave
W Utah Ave
W Wyoming Ave
W Colorado Ave
W California Ave
W Minnesota Ave
W Nevada Ave
Iowa Ave
S 1st St
S 2nd St
S 3rd St
S 4th St
S 5th St
S 6th St
S 7th St
S 8th St
S 9th St
N 8th
N
Willingham No. 9
Well Location
Plate 1
Site Location Map
Cimarex Energy Corporation
Winningham No. 9 Well Site
Lea County, New Mexico
UL-B SECTION 30 T25S R37E
32° 06.411' N, 103° 11.980' W
Elevation: ~3039-ft amsl
Drawing by: John Good
September - 2006
Rev: 1
SCALE:
0
Feet
1000
N

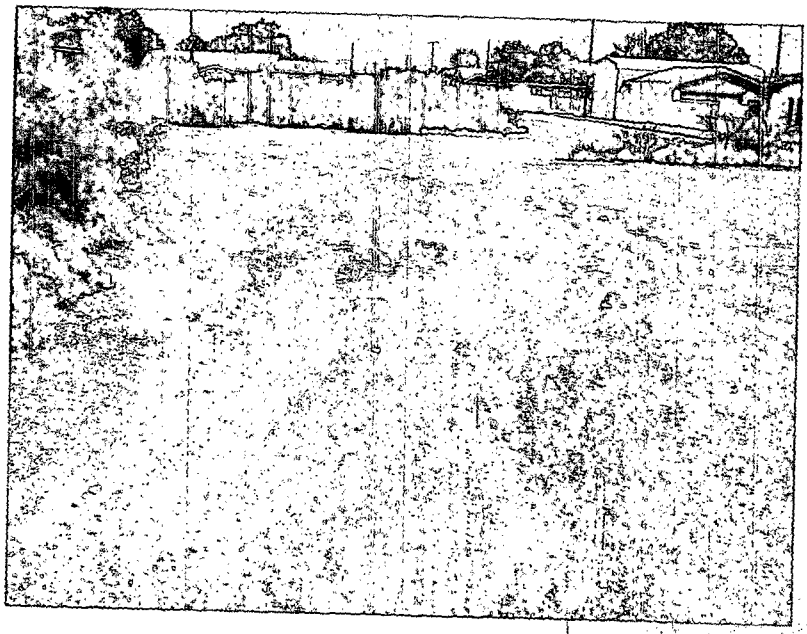
Plate 2
USGS Site Topography Map
Cimarex Energy Corporation
Winningham No. 9 Well Site
Lea County, New Mexico
UL-B SECTION 30 T25S R37E
32° 06.411' N, 103° 11.980' W
Elevation: ~3039-ft amsl
Drawing by: John Good
September - 2006
Rev: 1
SCALE:
0
Feet
4000
N
Winningham No. 9
Well Location
NEW MEXICO
TEXAS
Radio Tower
Gravel Pit
Oil Wells
Pumping Sites
Sewage Disposal Ponds
Drive-In Theater
Aqueduct
Pipeline

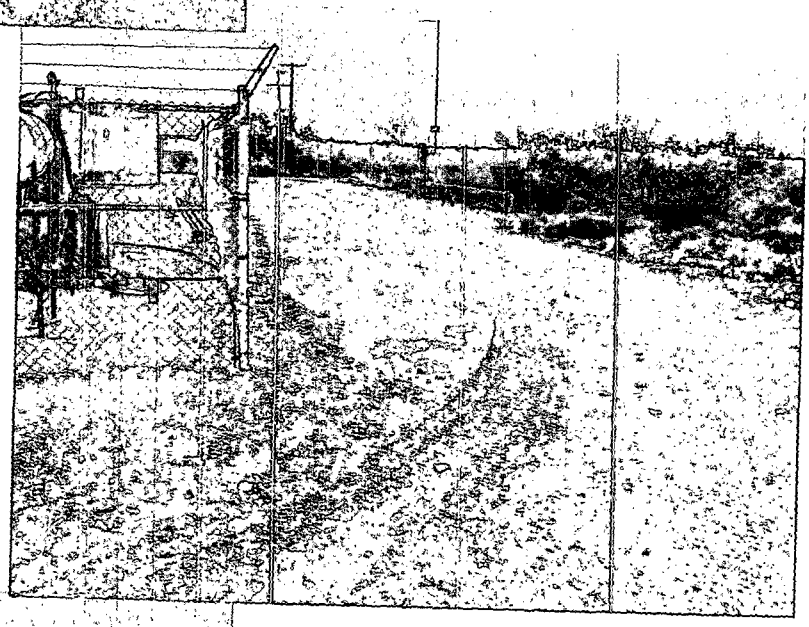
7th Street
W. California Ave.
8th Street
Release Area
Willingham No. 9
Well Location
N
Drawing by: John Good
September - 2006
Rev: 1
SCALE:
0
Feet
200
Plate 3
Well Site/Pit Aerial Photo
Cimarex Energy Corporation
Winningham No. 9 Well Site
Lea County, New Mexico
UL-B SECTION 30 T25S R37E
32° 06.411' N, 103° 11.980' W
Elevation: ~3039-ft amsl

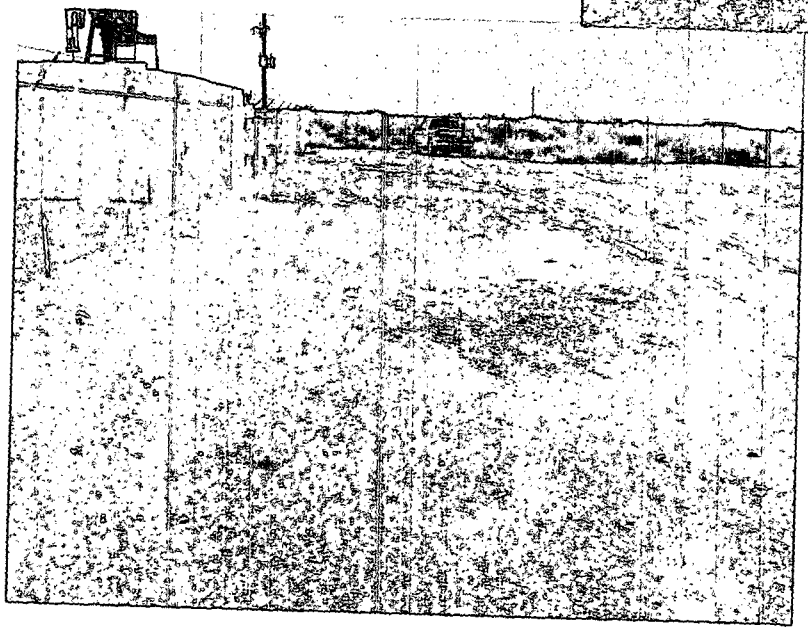
W. Californinia Ave.
Caliche surface
8th Street
Release Area
Well Pad
Container Storage
~190-ft
~52-ft
Heater Treaters
Produced Water
Storage Tanks
Perimeter Fence
Plate 4
Site Detail Drawing
Cimarex Energy Corporation
Winningham No. 9 Well Site
Lea County, New Mexico
UL-B SECTION 30 T25S R37E
32° 06.411' N, 103° 11.980' W
Elevation: ~3039-ft amsl
Drawing by: John Good
September - 2006
Rev: 1
SCALE:
0
Feet
100
N

Background
Background
Point of Release
Background
Background
= Bore Hole Location
Plate 5
Proposed Bore Hole Locations
Cimarex Energy Corporation
Winningham No. 9 Well Site
Lea County, New Mexico
UL-B SECTION 30 T25S R37E
32° 06.411' N, 103° 11.980' W
Elevation: ~3039-ft amsl
Drawing by: John Good
September - 2006
Rev: 1
SCALE:
0
Feet
80
N









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 Ram Services, Inc. | | Contact Clint Widner | |
| Address PO Drawer 1245 Jal, NM | | Telephone No. 505 631-8886 | |
| Facility Name Ram Truck Yard | | Facility Type | |
| Surface Owner S. Fulfer | Mineral Owner | | Lease No. |

API # 30025286370000

## LOCATION OF RELEASE

| Unit Letter | Section | Township | Range | Feet from the | North/South Line | Feet from the | East/West Line | County |
|---|---|---|---|---|---|---|---|---|
| B | 30 | 25-S | 37-E | 660 | North Line | 980 | East Line | Lea |

188'

Latitude _____ Longitude _____

## NATURE OF RELEASE

| | | | |
|---|---|---|---|
| Type of Release WORK OVER FLUID | | Volume of Release 60 BBL | Volume Recovered NONE |
| Source of Release VACUUM TRUCK | | Date and Hour of Occurrence 8-22-06 | Date and Hour of Discovery 8-25-06 Noon |
| Was Immediate Notice Given? ☐ Yes ☒ No ☐ Not Required | | If YES, To Whom? | |
| By Whom? | | Date and Hour | |
| Was a Watercourse Reached? ☐ Yes ☒ No | | If YES, Volume Impacting the Watercourse. | |

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

OPEN VAIVES ON VACUUM TRUCK

Describe Area Affected and Cleanup Action Taken.*

ORDERED BY STATE TROOPER-OFFICER HAYNES FIRST RESPONDER

COVER FLUIDS THAT WAS LEFT ON SOIL - on Location

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: Clint Widner | OIL CONSERVATION DIVISION | |
| Printed Name: Clint Widner | Approved by District Supervisor: | |
| Title: Station Manager | Approval Date: | Expiration Date: |
| E-mail Address: | Conditions of Approval: | Attached ☐ |
| Date: 8-28-06 Phone: 505 631-8886 | | |

* Attach Additional Sheets If Necessary

OCT 2006
Received
Hobbs
OCD