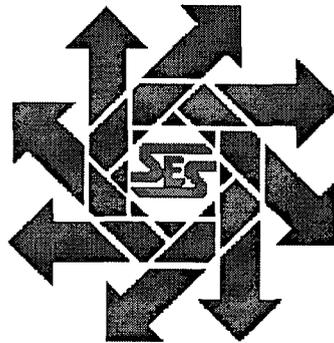


**Range Operating New Mexico, Inc.  
SCB 23-19 Injection Facility  
Section 23, Township 23 South, Range 28 East  
Eddy County, New Mexico**

**Delineation Report/ Work Plan**

**June 30, 2010**



**Prepared for:**

**Range Operating New Mexico, Inc.  
281 North New Mexico Highway 248/ P.O. Box 1570  
Eunice, New Mexico 88231**

**By:**

**Safety & Environmental Solutions, Inc.  
703 East Clinton Street  
Hobbs, New Mexico 88240  
(575) 397-0510**

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**I. Company Contacts**

Representative	Company	Telephone	E-mail
Steve Almager	Range Operating NM, Inc.	575-394-1485	salmager@rangeresources.com
Sergio Contreras	SESI	575-397-0510	scontreras@sesi-nm.com

**II. Background**

Safety and Environmental Solutions, Inc. (SESI) was engaged by Range Operating NM, Inc. to perform a site assessment at the SCB 23-19 Injection Facility. This is an active battery located in Section 23, Township 23 South, and Range 28 East. A 2" nipple eroded off the end of a check valve on the H-pump releasing approximately 300 barrels of produced water of which 290 was recovered.

**III. Surface and Ground Water**

According to the temporary monitor well installed on August 18, 2009 located in the northwest corner of the South Culebra 23 Well #7 location, the depth to water is estimated to be approximately 28' below ground level (bgl) accounting for an increase of 8' in elevation at the SCB 23-19 Injection Facility.

**IV. Work Performed**

On August 17, 2009, SESI was onsite to assess the affected area. The area was mapped using a Trimble Geo XM GPS. SESI observed that the release had runoff into the lined firewalls of the tank battery. The fluid had overflow onto the location on the north end then traveling approximately 200 yards to the east. A hand auger was utilized to attempt to delineate the spill area. A total of eight (8) auger holes were selected all resulting in auger refusal from 6" to 10" bgl.

On August 20, 2009, SESI was onsite with M&J Backhoe Services to attempt to delineate the spill area. A total of three (3) test trenches were installed to a depth of 10' bgl within the affected area. Due to the limited reach of the backhoe, the affected area was unable to be fully delineated. The backhoe was then utilized to excavate the affected areas to a depth of one (1) foot bgl removing the highly contaminated and saturated soils to prevent further migration. The excavated soils were transported to CRI a New Mexico Oil Conservation Division (NMOCD) approved facility for disposal.

On September 18, 2008 SESI was onsite with Eco Enviro Drilling to further delineate the affected areas utilizing and auger rig. A total of four (4) boreholes were installed to a depth of twenty (20) feet bgl within the affected areas. Due to the estimated depth of the water table, the affected area was unable to be fully delineated. Samples were collected from each borehole at a depth of 20' bgl. The samples were transported under chain of custody to Cardinal Labs of Hobbs, New Mexico for Chloride (EPA Method 4500-Cl<sup>-</sup>B).

The results of the analysis are as follows:

Sample ID	Cl <sup>-</sup> (mg/kg)
BH#1. 20'	2,000
BH#2. 20'	496
BH#3. 20'	288
BH#4. 20'	768

On September 24, 2009, SESI conducted a background sampling investigation to determine the chloride concentrations of the surrounding area. Soil samples were collected from the adjacent fields at the Range 4B, 23-11 and 23-7 locations. A water sample was also collected from an irrigation system in the adjacent field from the Range 23-6 location. The samples were transported under chain of custody to Cardinal Labs of Hobbs, New Mexico for Chloride (Method 4500-Cl<sup>-</sup>B).

The results of the analysis are as follows:

Sample ID	Cl <sup>-</sup> (ppm)
4B	6,320
23-11	3,280
23-7	8,000
23-6	3,040

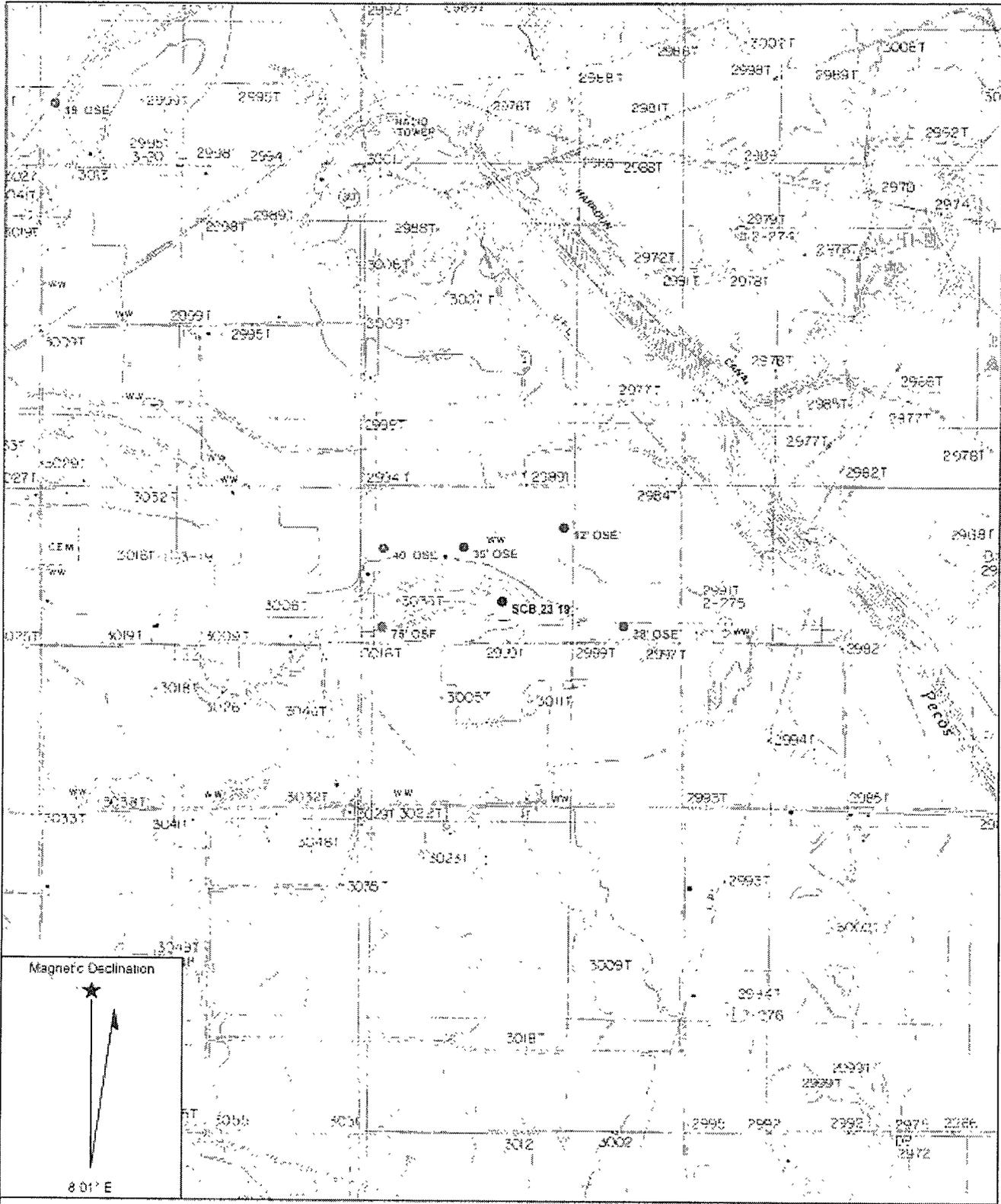
**V. Action Plan**

It is requested that the most highly contaminated soils be excavated to a depth of four (4) to five (5) feet bgl. The excavated soils will be transported to a New Mexico Oil Conservation Division (NMOCD) approved facility for disposal. A 20 mil reinforced geomembrane liner will be installed and the area will be backfilled with like soils and contoured to grade. The firewalls surrounding the battery will be raised to prevent any future contamination.

**VI. Figures & Appendices**

- Figure 1 – Vicinity Map
- Figure 2 – Site Plan
- Appendix A – Analytical Results
- Appendix B – Site Photos
- Appendix C – C-141

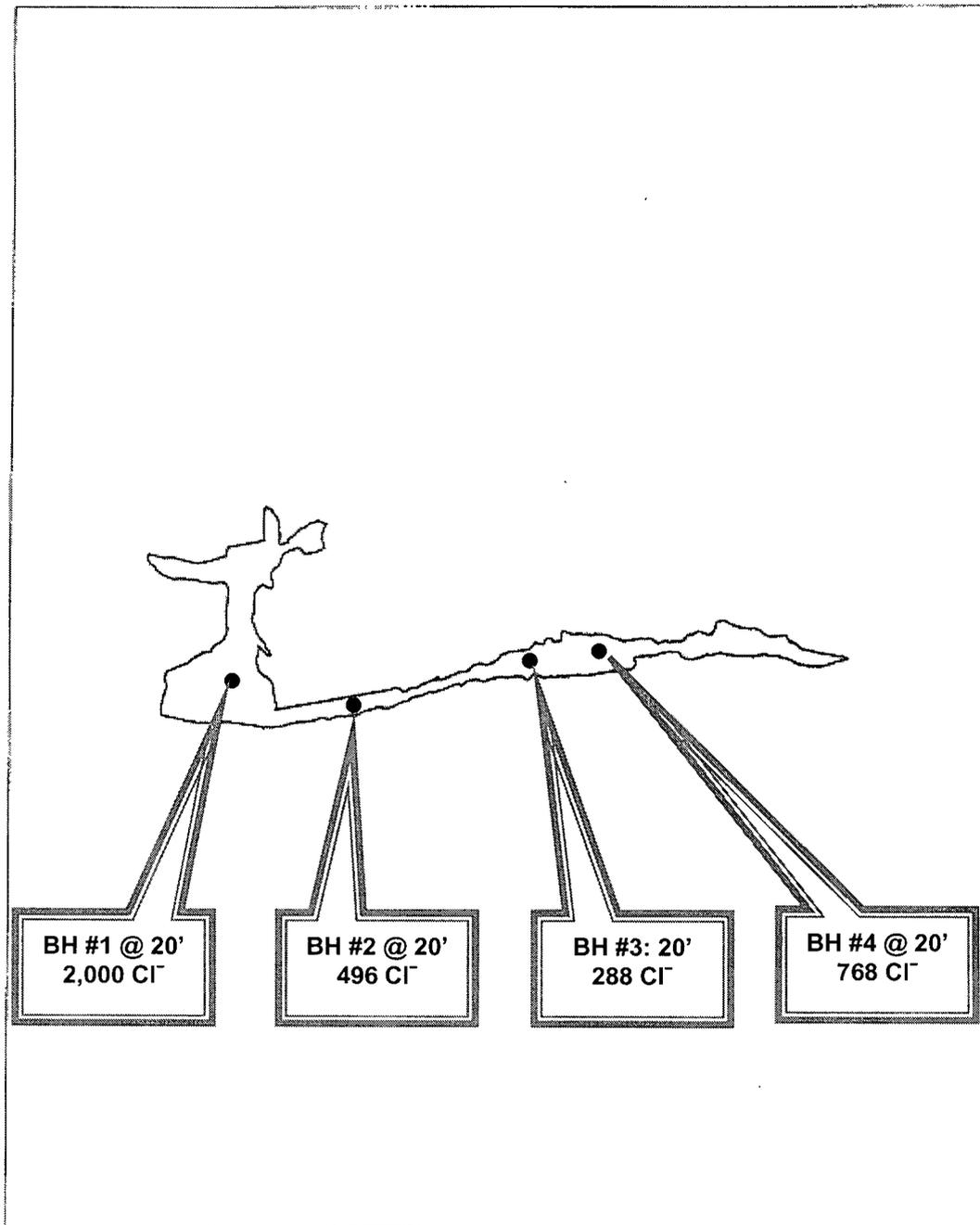
**Figure 1**  
**Vicinity Map**



Name: LOVING  
 Date: 10/9/2009  
 Scale: 1 inch equals 2000 feet

Location: 032° 17' 34.48" N 104° 03' 33.21" W NAD83

**Figure 2**  
**Site Plan**



## SCB 23-19 Injection Facility

Lat/Long  
WGS 1984



Scale 1:2,000  
0 0.040  
Miles

site plan.cor

GPS Pathfinder® Office  
 **Trimble.**

# **Appendix A**

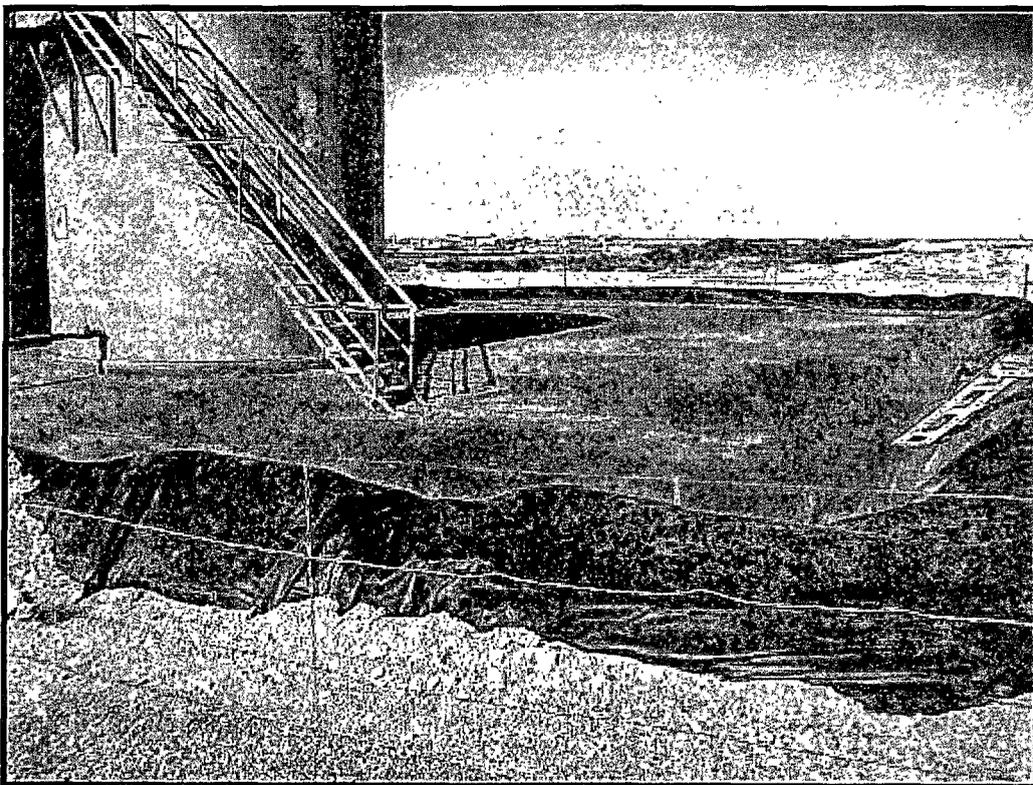
## **Analytical Results**

# **Appendix B Site Photos**

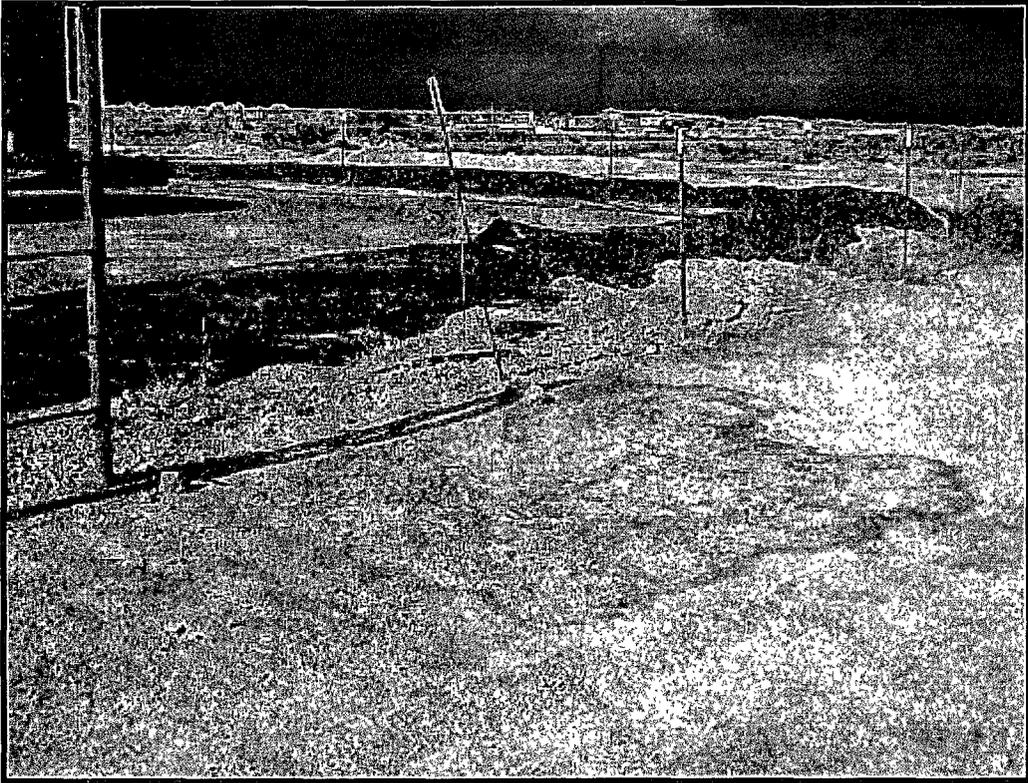
August 17, 2009



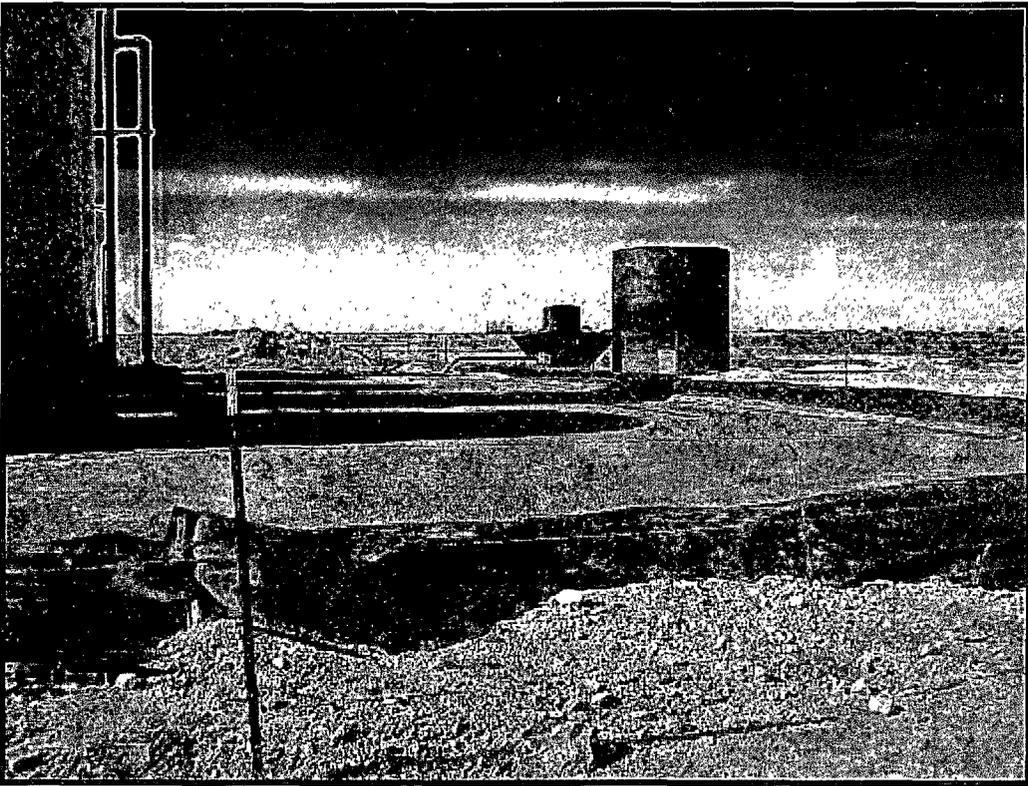
Lease Sign



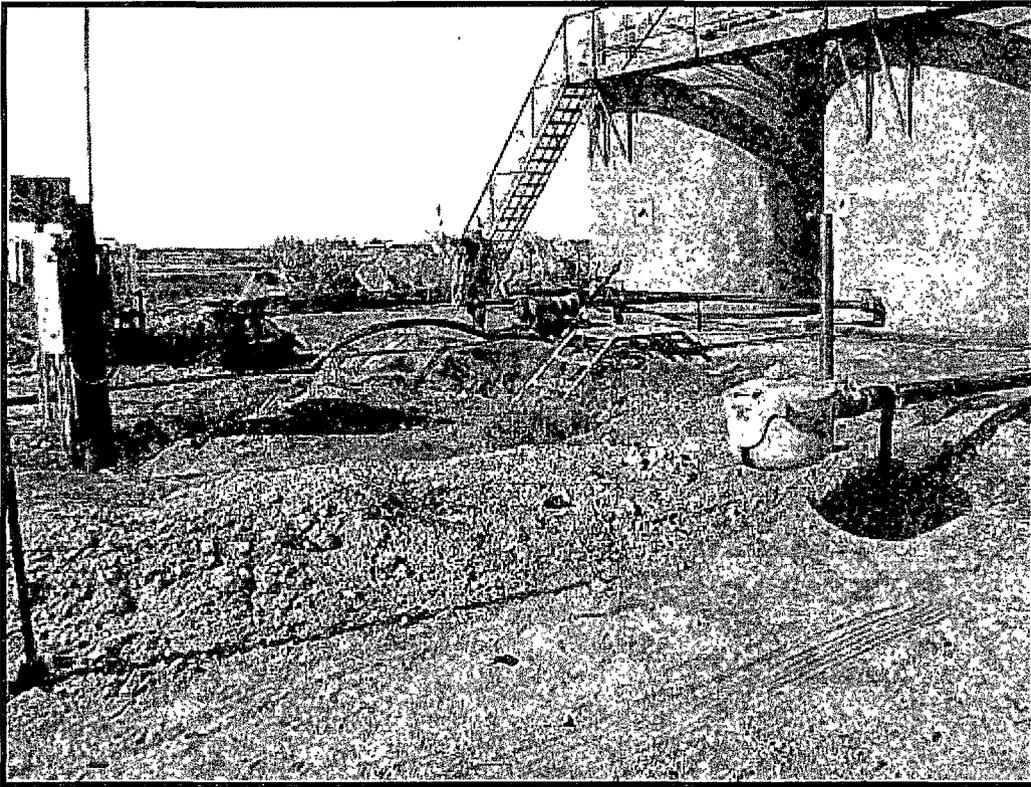
Inside Firewalls Facing SW



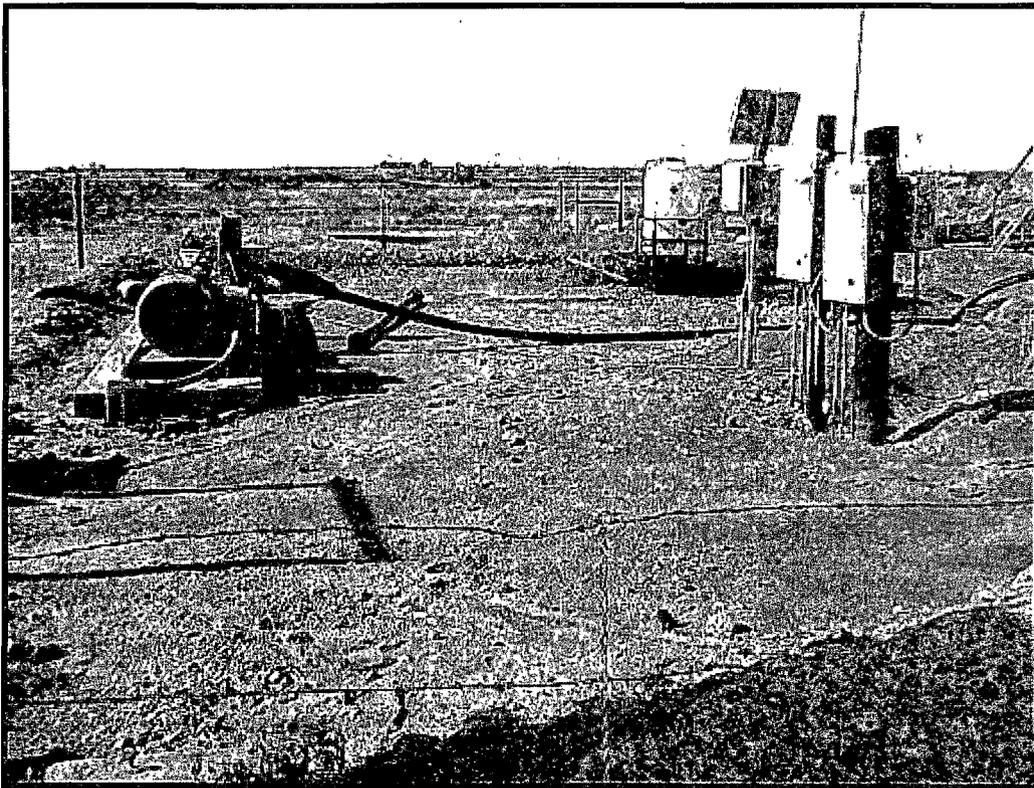
Release Facing SW



Inside Firewalls Facing South



Inside Firewalls Facing SW



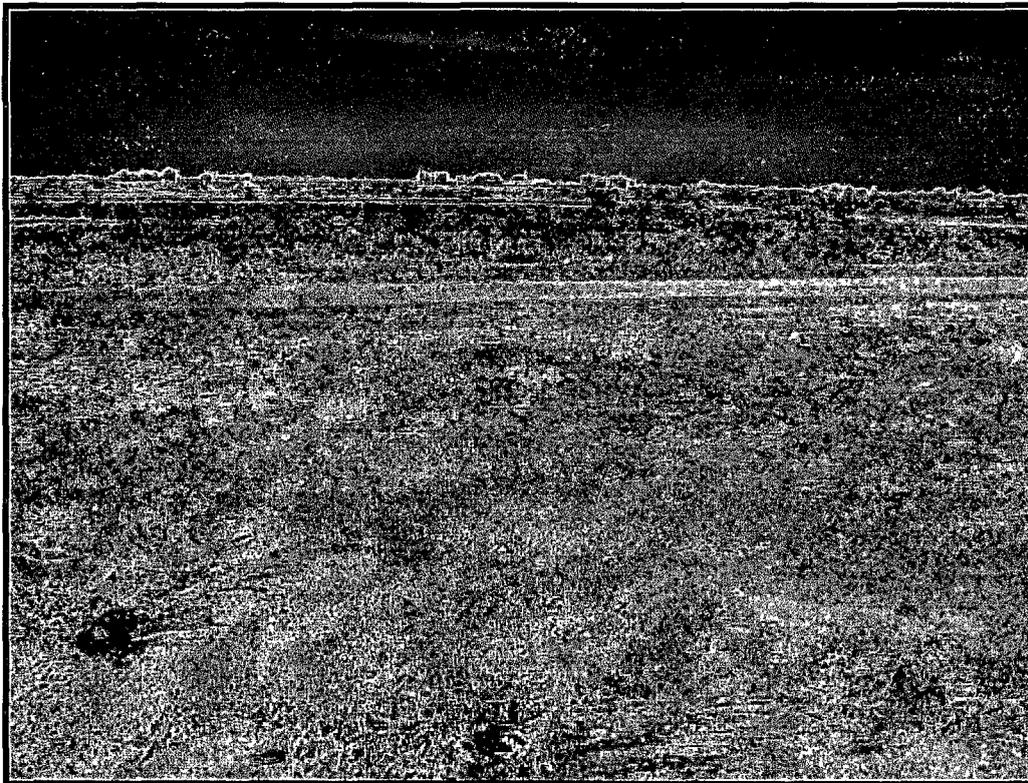
Inside Firewalls Facing South



Release Facing South



Failed 2" Nipple



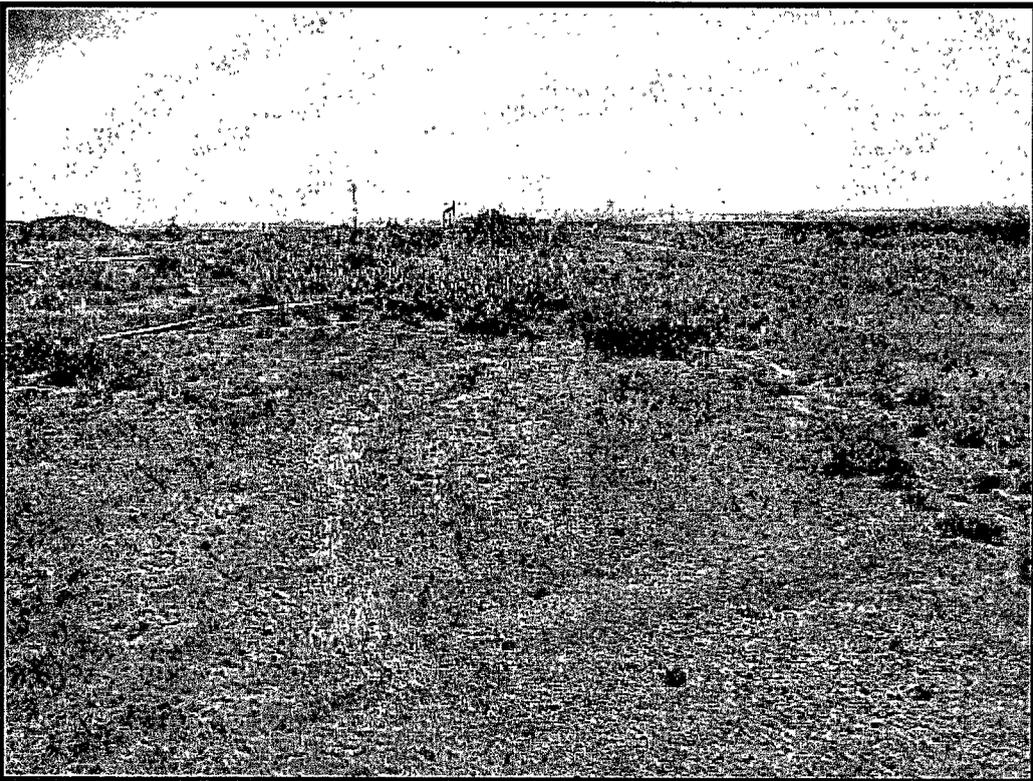
Release Facing SW



Release Facing SE



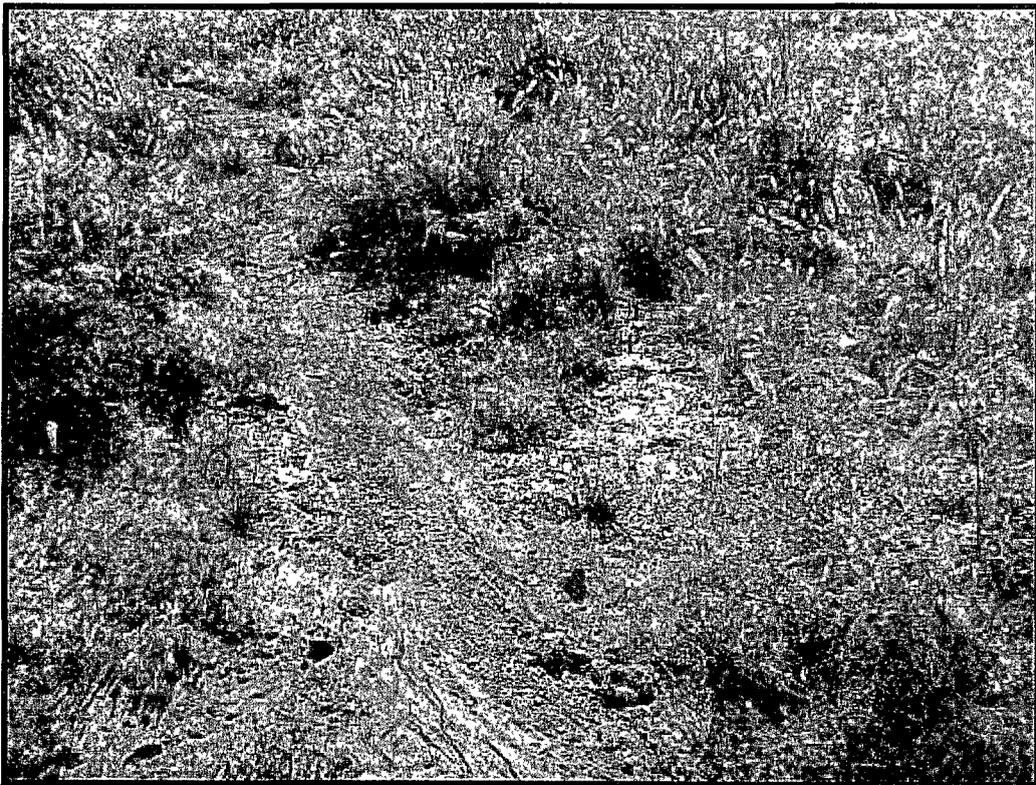
Release Facing West



Release Facing East



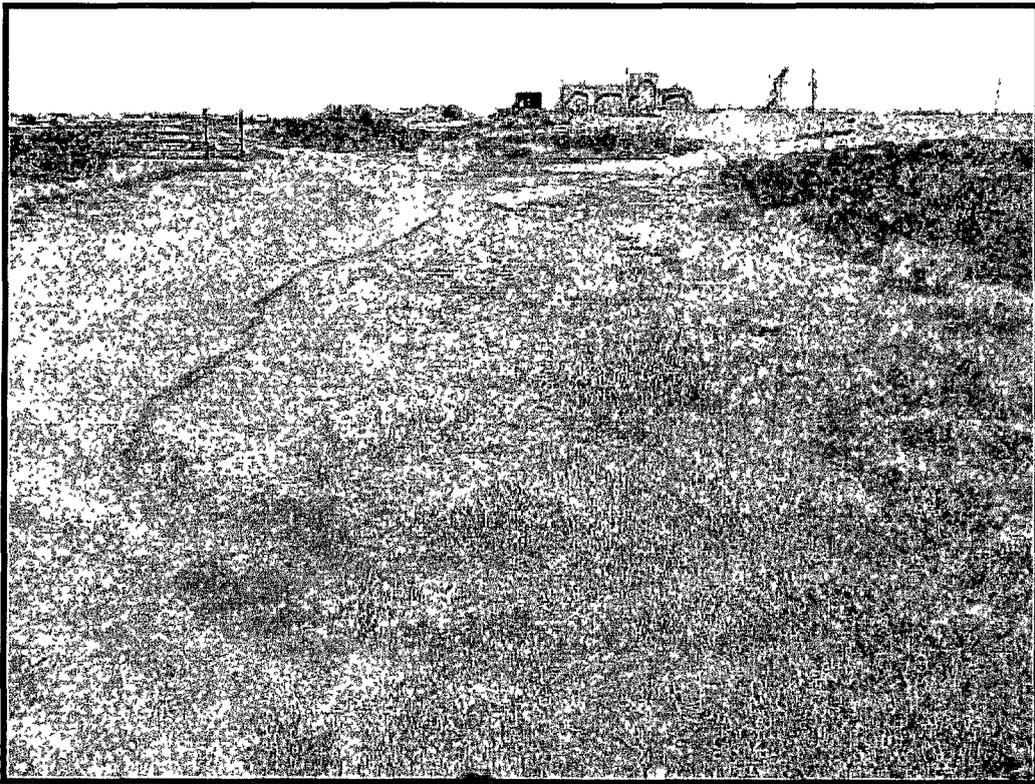
Release Facing East



Release Facing East



Release Facing East

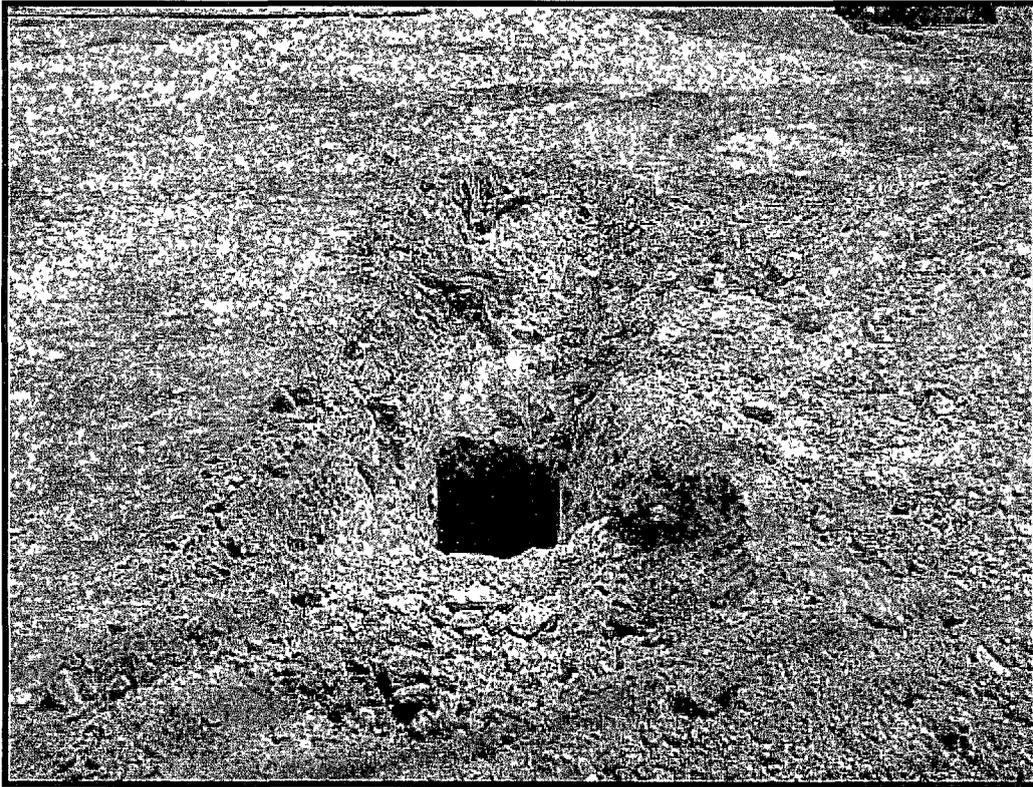


Release Facing West



Release Facing West

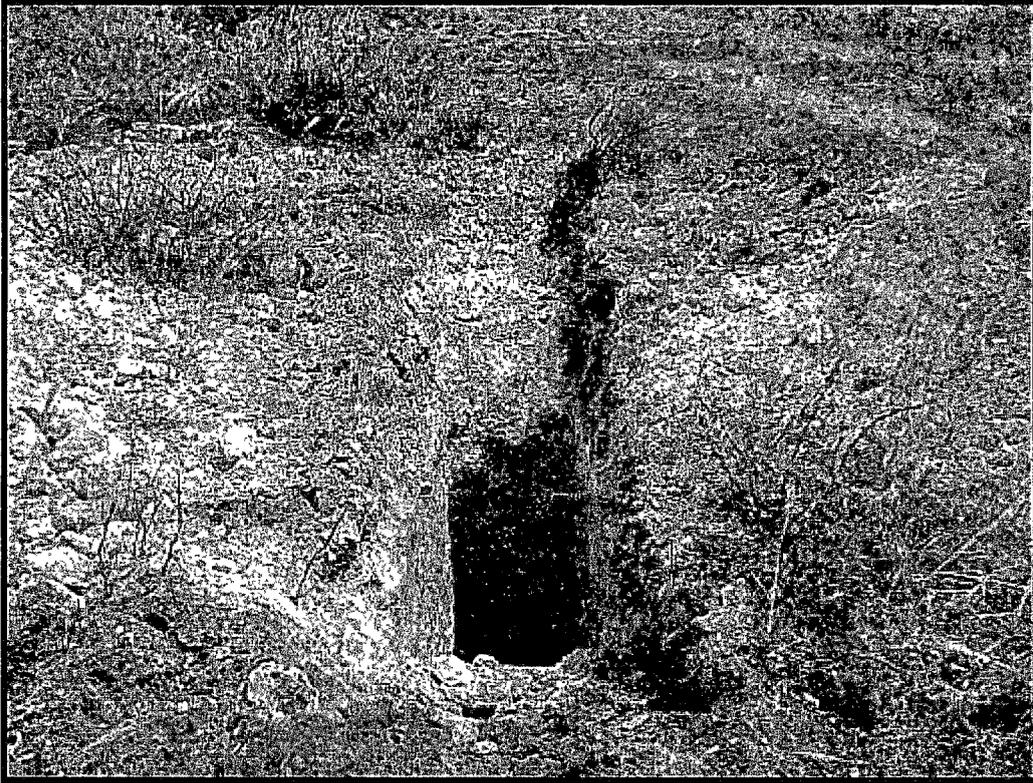
August 24, 2009



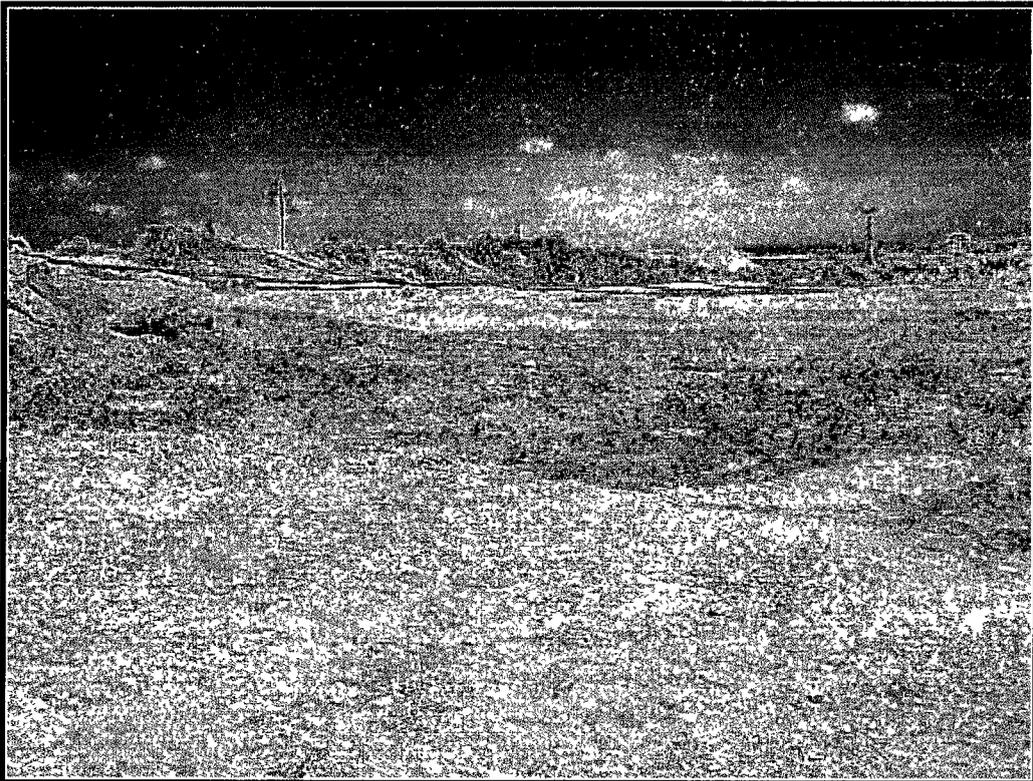
Test Trench #1



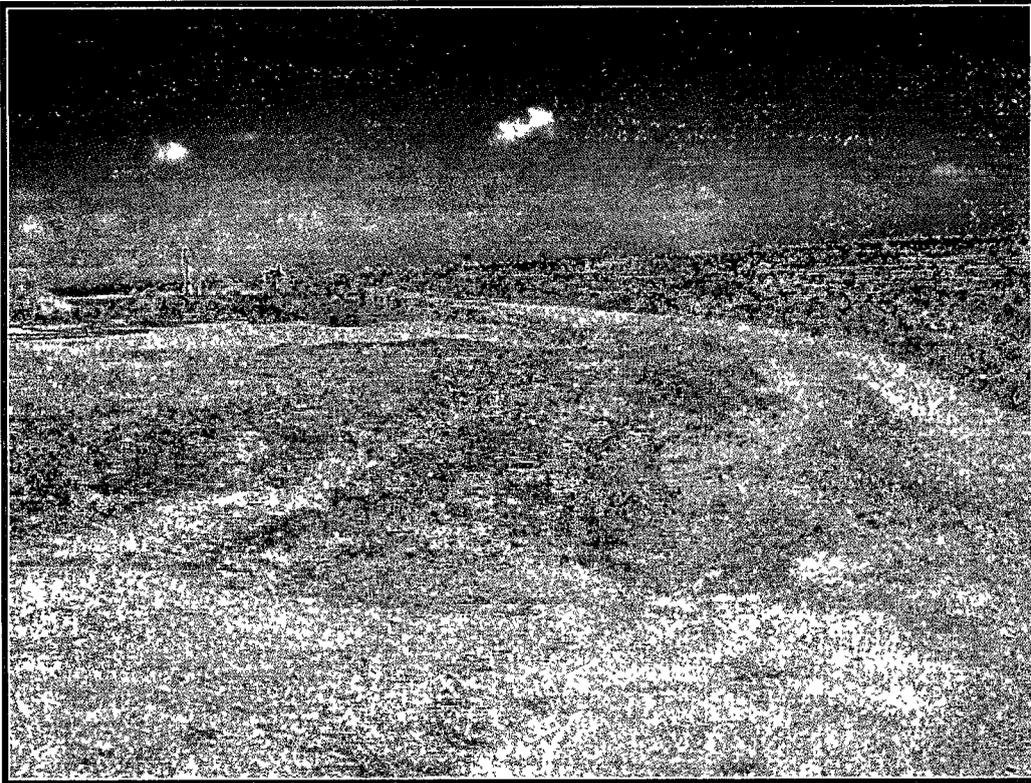
Test Trench #2



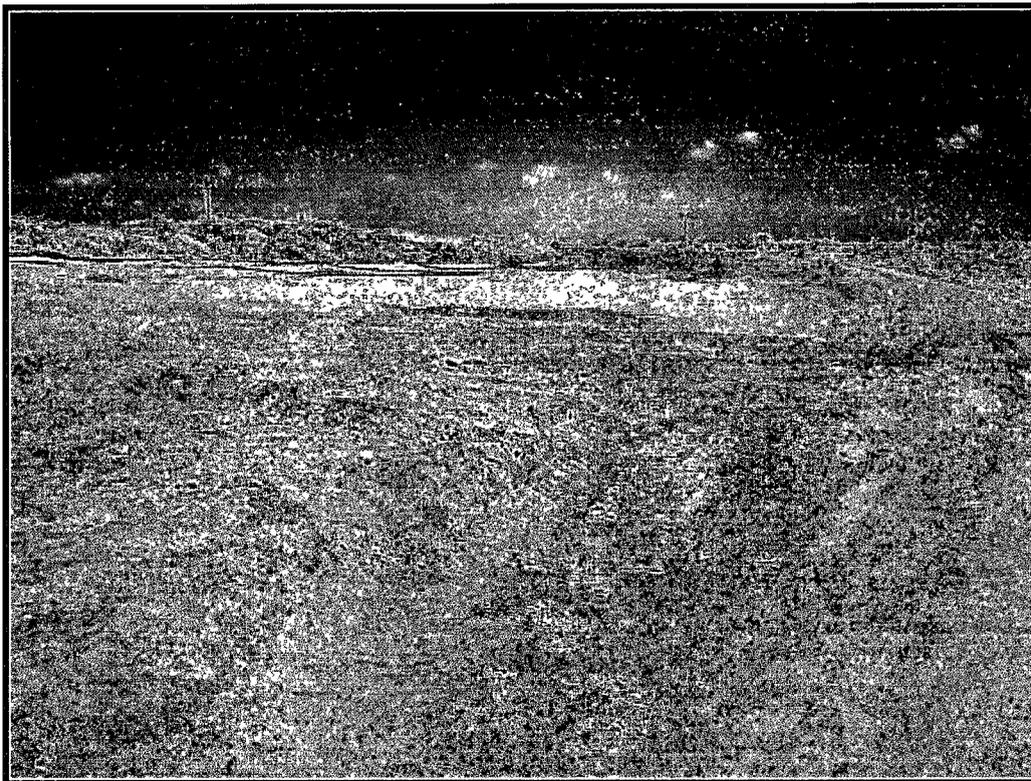
Test Trench #3



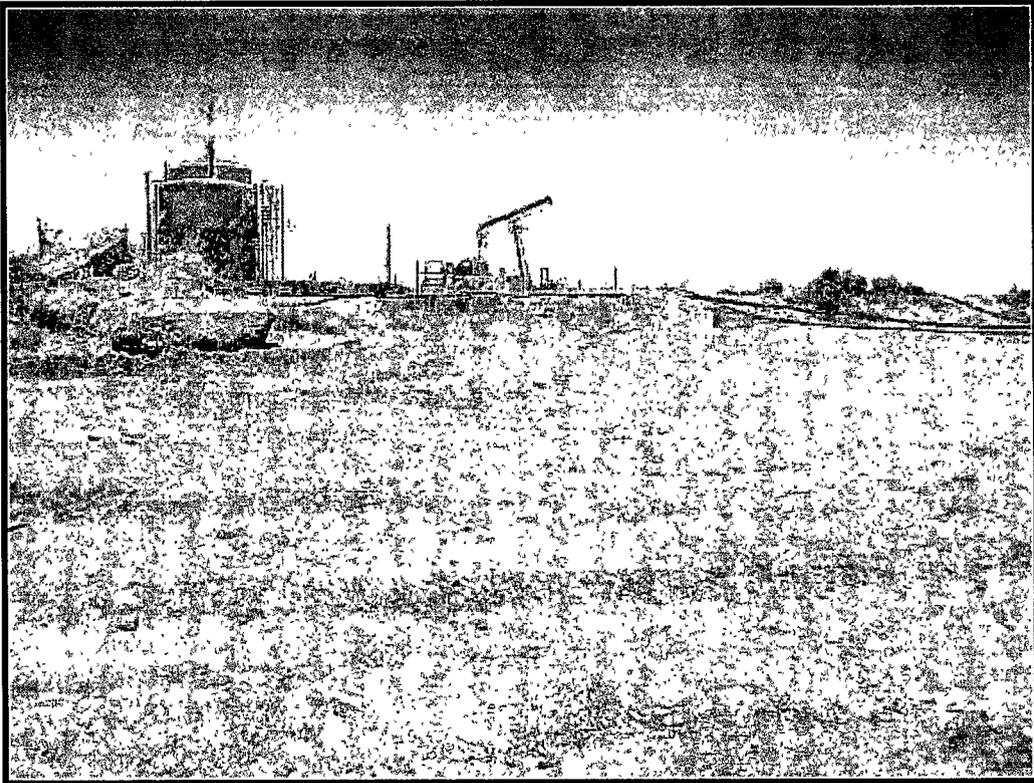
Partially Excavated Area Facing East



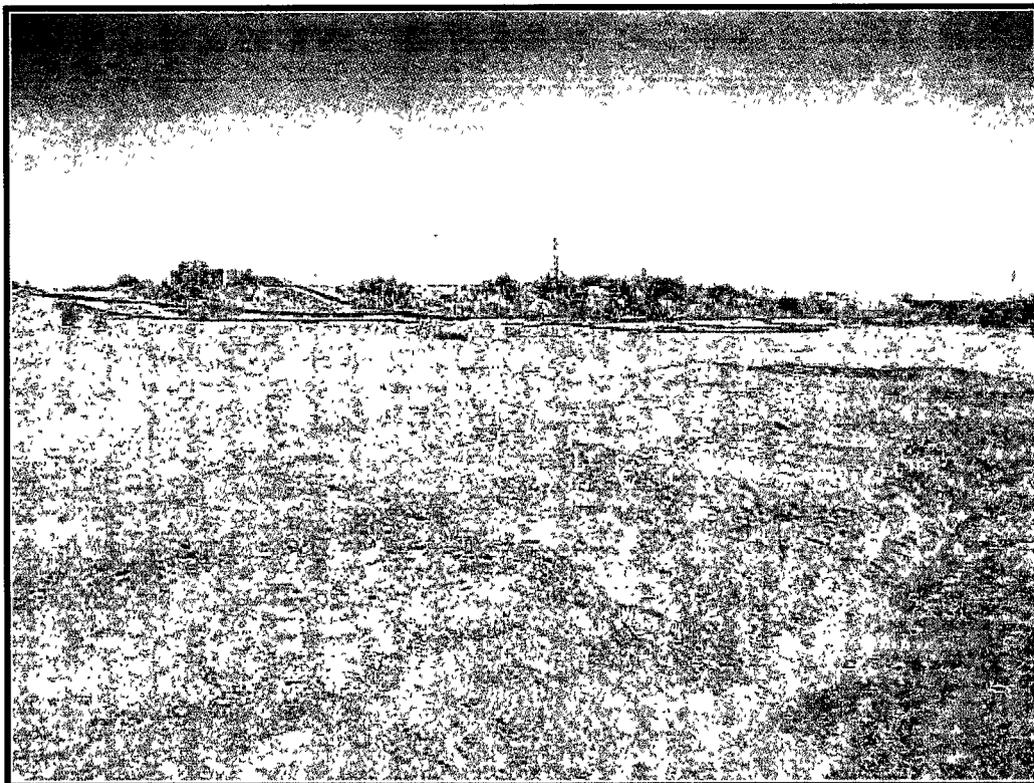
Partially Excavated Area Facing East



Partially Excavated Area Facing East



Partially Excavated Area Facing North



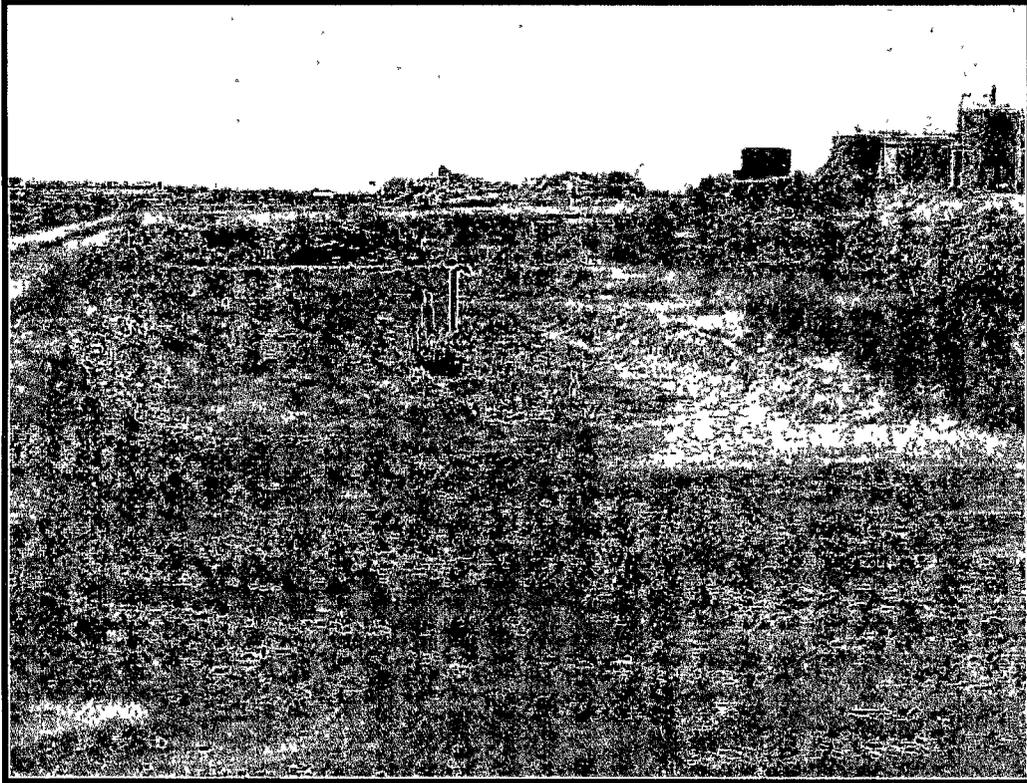
Partially Excavated Area Facing NE



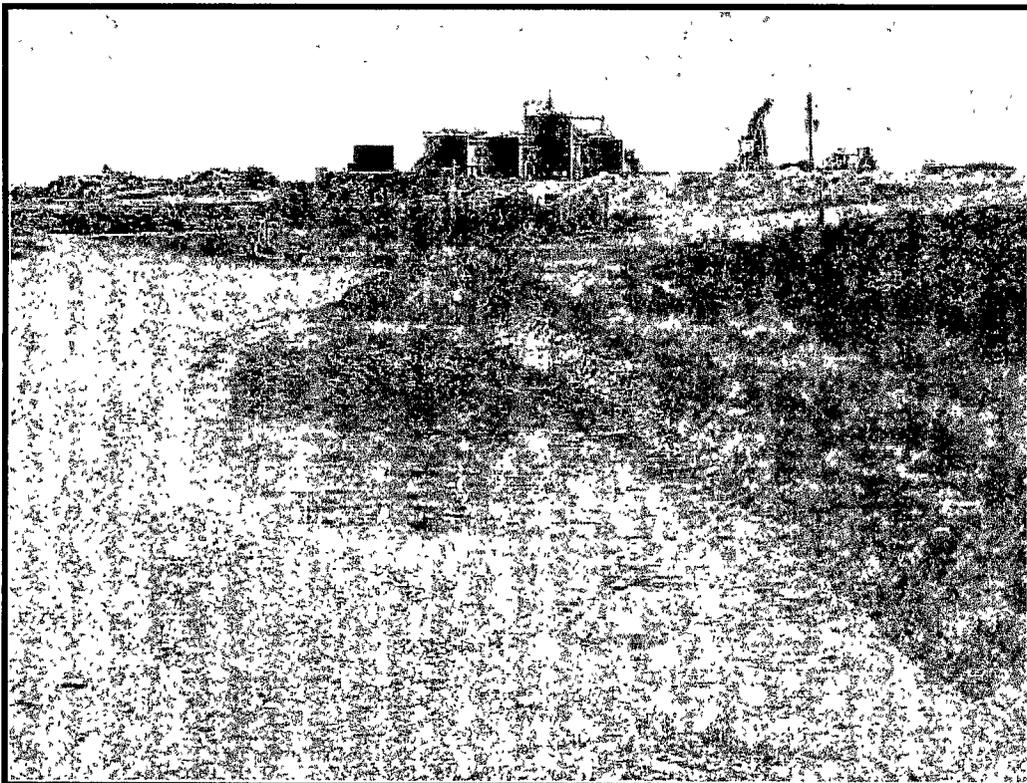
Partially Excavated Area Facing East



Partially Excavated Area Facing East



Partially Excavated Area Facing West



Partially Excavated Area Facing West

# **Appendix C**

## **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 Range Resources Corporation	Contact: Steve Almager
Address: 100 Throckmorton Ste 1200	Telephone No. (575)394-1485
Facility Name: SCB Injection Facility	Facility Type: Battery

Surface Owner	Mineral Owner	Lease No.
---------------	---------------	-----------

**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
	23	23 S	28 E					Eddy

Latitude: 32.173350N Longitude: 104.033302W

**NATURE OF RELEASE**

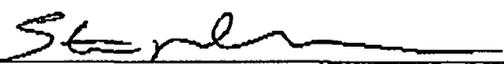
Type of Release Produced Water	Volume of Release 300 bbls	Volume Recovered 290 bbls
Source of Release 2" Nipple Eroded Off Check Valve on the H-Pump	Date and Hour of Occurrence 8-15-09 10:45 Am	Date and Hour of Discovery 8-15-09 10:45 Am
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Mike Bratcher, NMOCD	
By Whom? Sergio Contreras, SESI	Date and Hour 8/17/09 9:30 am	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.\*

Describe Cause of Problem and Remedial Action Taken.\*  
A 2" nipple eroded off the end of the check valve on the H-Pump. The pump failed to shut off and resulted in water pumping into the lined tank battery and overflowing the firewalls.

Describe Area Affected and Cleanup Action Taken.\*  
SESI was contacted for assessment. Area will be delineated and an appropriate work plan submitted upon results.

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: 	<b>OIL CONSERVATION DIVISION</b>		
Printed Name: Steve Almager	Approved by District Supervisor:		
Title: Production Supervisor II	Approval Date:	Expiration Date:	
E-mail Address: salmager@rangeresources.com	Conditions of Approval:		Attached <input type="checkbox"/>
Date: 8/18/09	Phone: (575) 394-1485		

\* Attach Additional Sheets If Necessary