

**Bratcher, Mike, EMNRD**

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**From:** Susana Rodriguez [office2@sesi-nm.com]  
**Sent:** Monday, October 19, 2009 11:38 AM  
**To:** Bratcher, Mike, EMNRD  
**Subject:** RE: SCB 23-19 Workplan (REVISED)  
**Attachments:** SCB 23-19 Injection Facility Work Plan.doc; Lab Results.pdf

Mr. Bratcher:

I have attached a copy of the revised workplan for the South Culebra Bluff 23-19. I have added the field sampling data into the report. If I can be of further assistance please let me know.

Thank you,

**Susana Rodriguez**  
**Administrative Assistant**  
**Safety & Environmental Solutions, Inc.**  
office: 575.397.0510  
fax: 575.393.4388  
[office2@sesi-nm.com](mailto:office2@sesi-nm.com)

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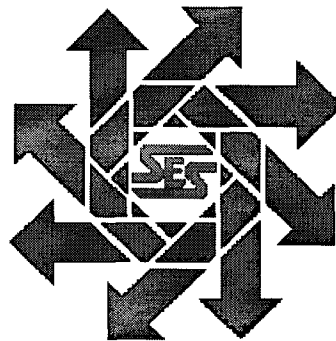
This inbound email has been scanned for malicious software and transmitted safely to you using Webroot Email Security.

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

**Revised Work Plan**

**October 8, 2009**



**Prepared for:**

**Range Operating New Mexico, Inc.  
281 North New Mexico Highway 248  
PO 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

NAME	Company	Telephone	E-mail
Steve Almager	Range Operating NM, Inc.	575-394-1485	<a href="mailto:salmager@rangeresources.com">salmager@rangeresources.com</a>
Sergio Contreras	SESI	575-397-0510	<a href="mailto:scontreras@sesi-nm.com">scontreras@sesi-nm.com</a>

## 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, 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. Field grab samples collected from test trench #1 indicated a gradual increase in chloride concentrations. Field grab samples collected from test trenches #2 & #3 indicated a considerable decrease in chloride concentrations. 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 1' 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.

Sample ID	Field $\text{Cl}^-$ (ppm)
TT#1-2'	976
TT#1-4'	1056
TT#1-7'	1776
TT#1-10'	1908
TT#2-2'	9968
TT#2-5'	2564
TT#2-9'	1324
TT#2-10'	1532
TT#3-2'	6168
TT#3-3'	1648

TT#3-4'	1228
TT#3-6'	1140
TT#3-8'	836
TT#3-10'	596

On September 18, 2008 SESI was onsite with Eco Enviro Drilling to further delineate the affected areas utilizing an auger rig. A total of four (4) boreholes were installed to a depth of 20' bgl within the affected areas. Field grab samples collected from the boreholes in intervals of 5' indicated a decrease in chloride concentration. Due to the estimated depth of the water table, the affected area was unable to be fully delineated. Comparative grab 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	Field Cl <sup>-</sup> (ppm)	Cl <sup>-</sup> (mg/kg)
BH#1-5'	3700	-
BH#1-10'	5236	-
BH#1-15'	1720	-
BH#1. 20'	2564	2000
BH#2-5'	7244	-
BH#2-10'	6168	-
BH#2-15'	348	-
BH#2. 20'	572	496
BH#3-5'	-	-
BH#3-10'	1024	
BH#3-15'	1195	
BH#3. 20'	312	288
BH#4-5'	-	
BH#4-10'	4816	
BH#4-15'	432	
BH#4. 20'	744	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	6320
23-11	3280
23-7	8000
23-6	3040

**V. Action Plan**

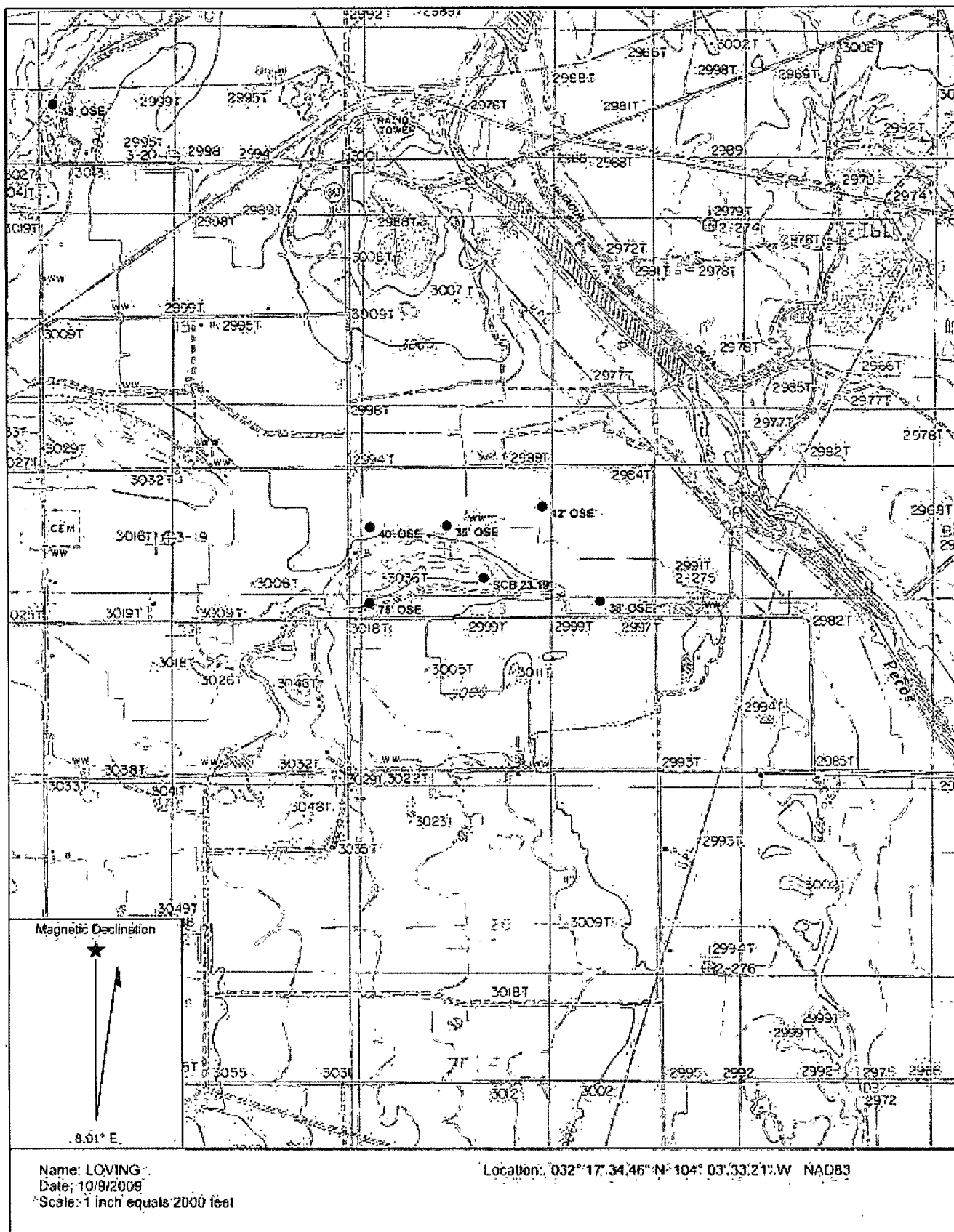
It is requested that the affected area be excavated to a depth of five (5) feet bgl. The excavated soils will be transported to a New Mexico Oil Conservation Division (NMOCD) approved facility for disposal. A 20 mil reinforced geo-membrane liner will be installed and the area will be backfilled with like soils and contoured to grade.

**VI. Figures & Appendices**

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

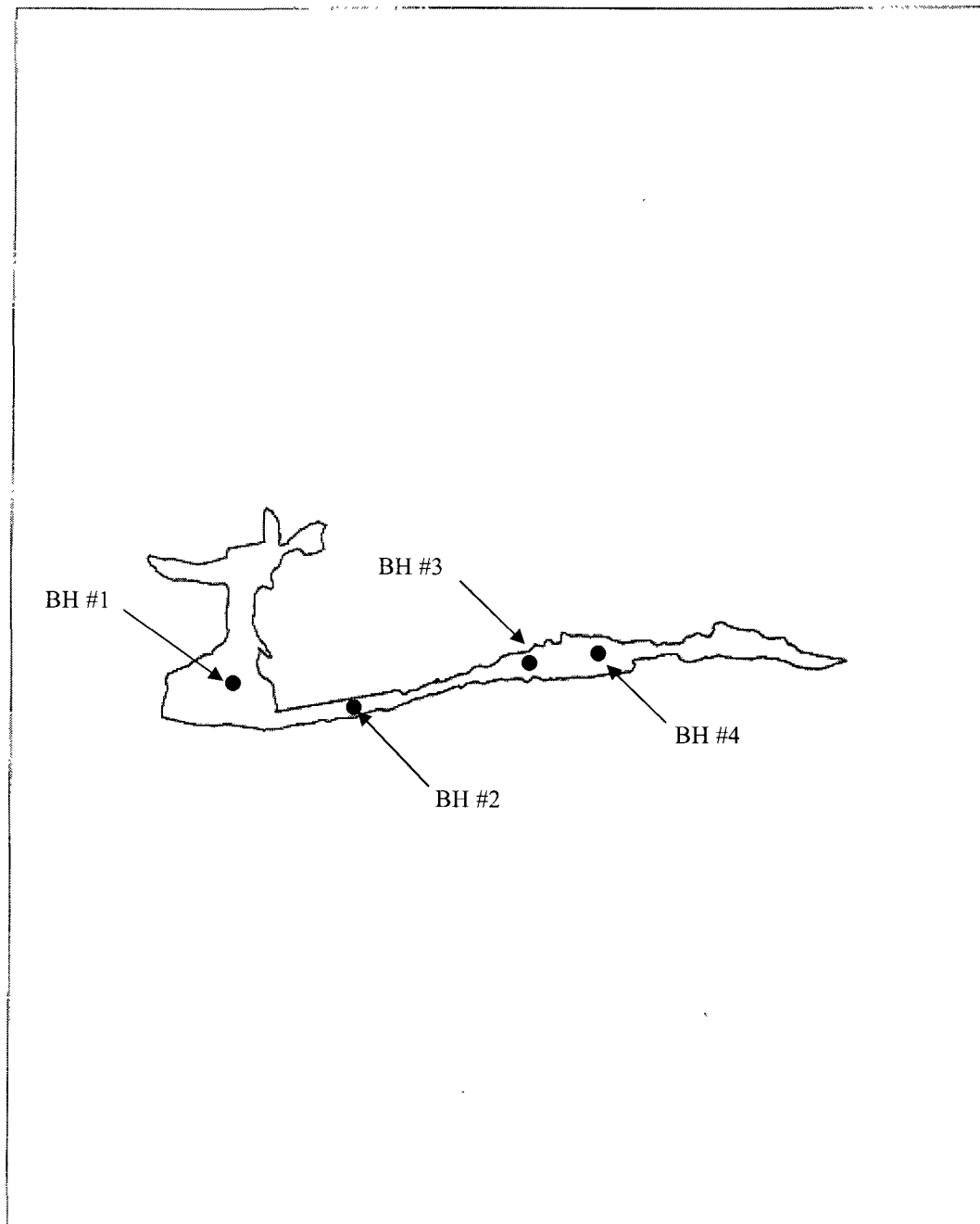
# **Figure 1**

## **Vicinity Map**



## **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**



ANALYTICAL RESULTS FOR  
SAFETY & ENVIRONMENTAL SOLUTIONS  
ATTN: BRIAN CUELLAR  
703 E. CLINTON, #102  
HOBBS, NM 88240  
FAX TO: (575) 393-4388

Analysis Date: 09/21/09  
Sampling Date: 09/18/09  
Sample Type: SOIL  
Sample Condition: INTACT @ 24.0°C  
Sample Received By: ML  
Analyzed By: HM

[illegible]

4500-CIB

Note: Analyses performed on 1:4 w:v aqueous extracts.

Chemist

Date \_\_\_\_\_

H18275 SESI

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



PHONE (575) 393-2328 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR  
SAFETY & ENVIRONMENTAL SOLUTIONS  
ATTN: BOB ALLEN  
703 E. CLINTON, #102  
HOBBS, NM 88240  
FAX TO: (575) 393-4388

Receiving Date: 09/25/09  
Reporting Date: 10/07/09\*\*  
Project Number: RANGE OPERATING  
Project Name: RANDOM SAMPLING  
Project Location: LOVING, NM

Analysis Date: 09/27/09  
Sampling Date: 09/24/09  
Sample Type: SOIL & WATER  
Sample Condition: INTACT @ 13.0°C  
Sample Received By: ML  
Analyzed By: HM


LAB NO.	SAMPLE ID	Cl <sup>-</sup> (ppm)
H18344-2	4B	* 6320
H18344-3	23-11	* 3280
H18344-6	23-7	* 8000
H18344-7	23-6	3,040
Quality Control		500
True Value QC		500
% Recovery		100
Relative Percent Difference		< 0.1

METHOD: Standard Methods

4500-Cl<sup>-</sup>B

\* Note: Analyses performed on 1:4 w:v aqueous extracts.

\*\*Revised Report.

  
Chemist

Date

10/07/09

H18344 SESI

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise. Results pertain only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

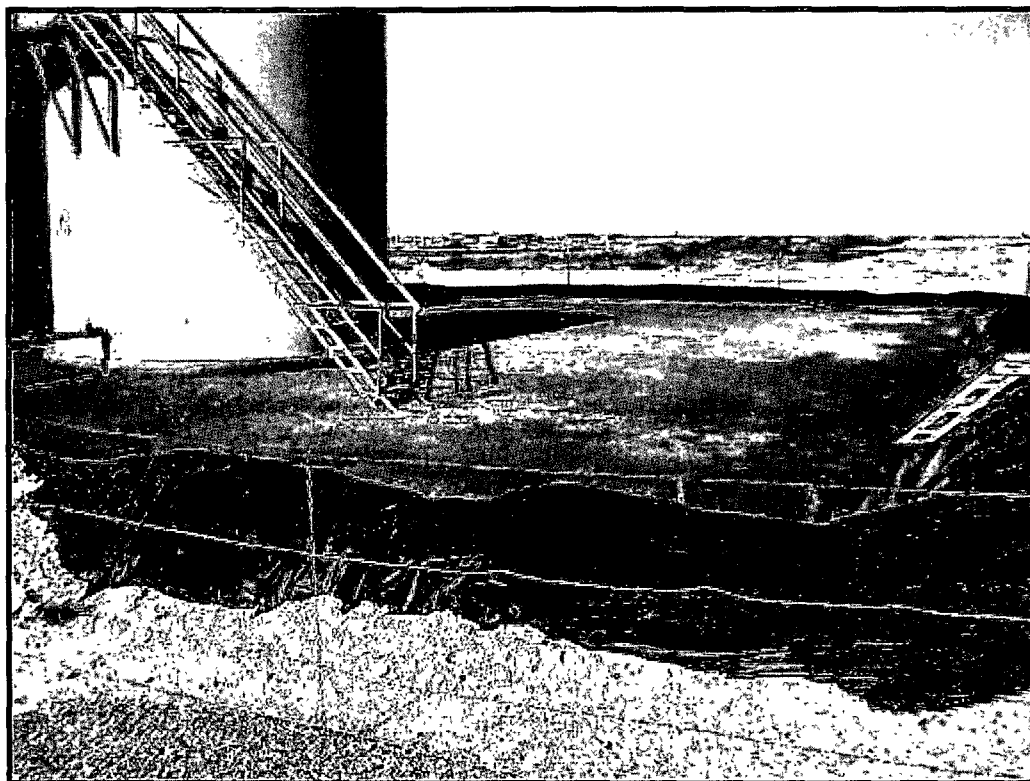
## **Appendix B**

### **Site Photos**

August 17, 2009



Lease Sign



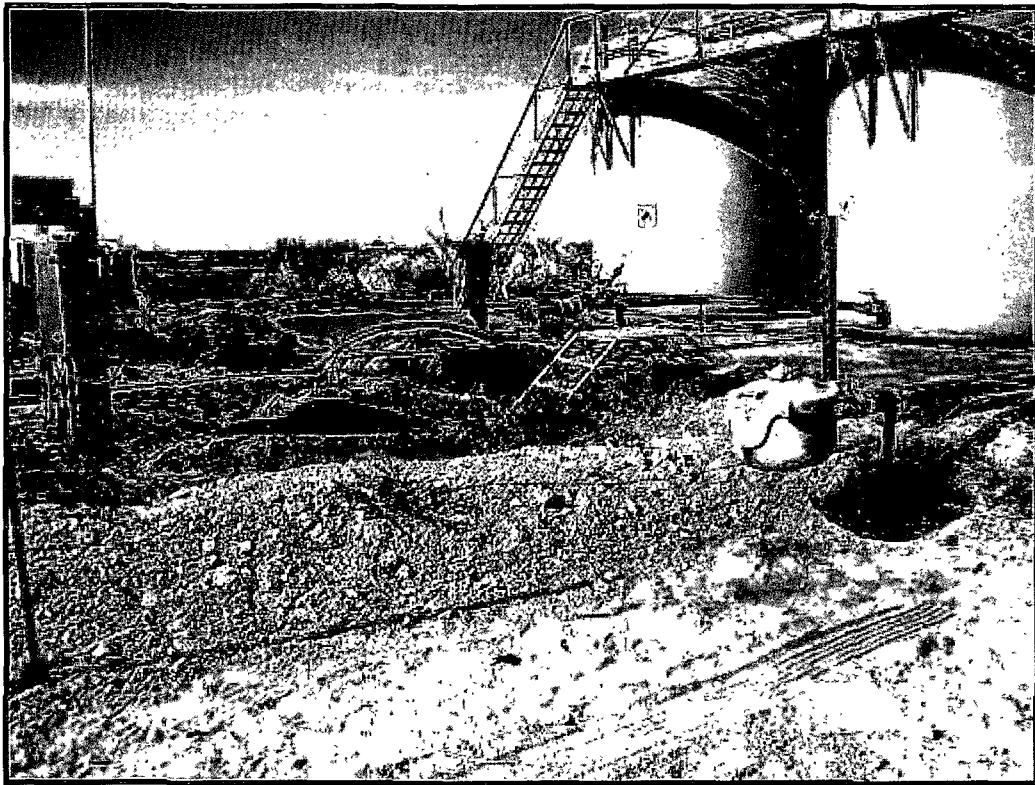
Inside Firewalls Facing SW



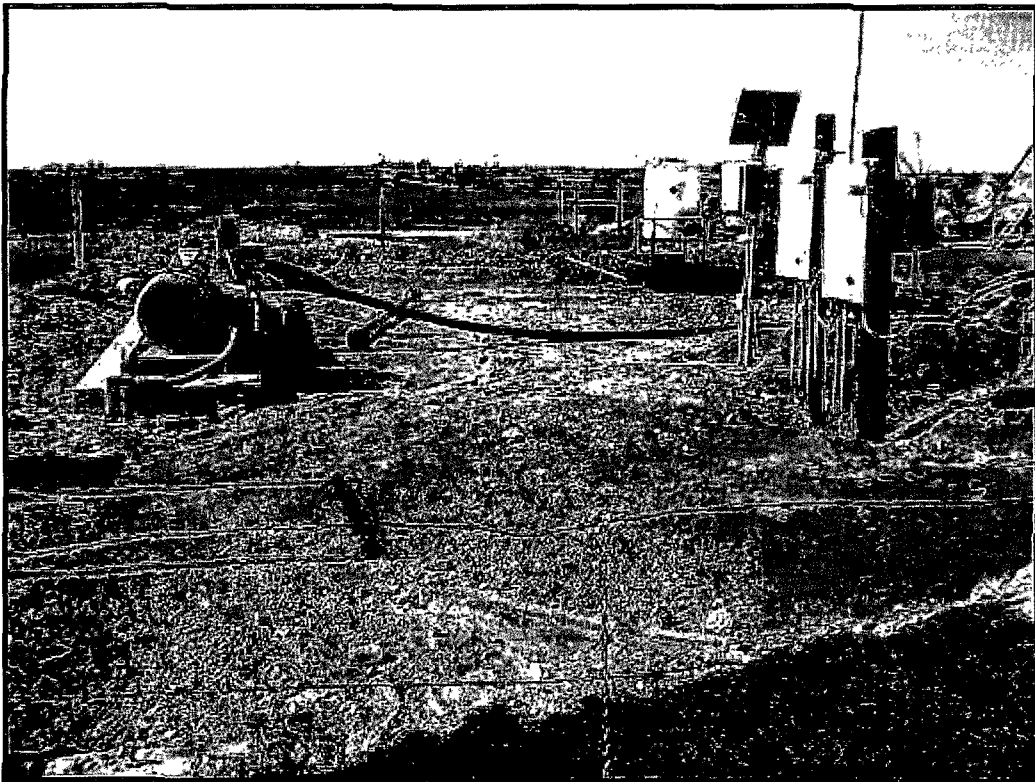
Release Facing SW



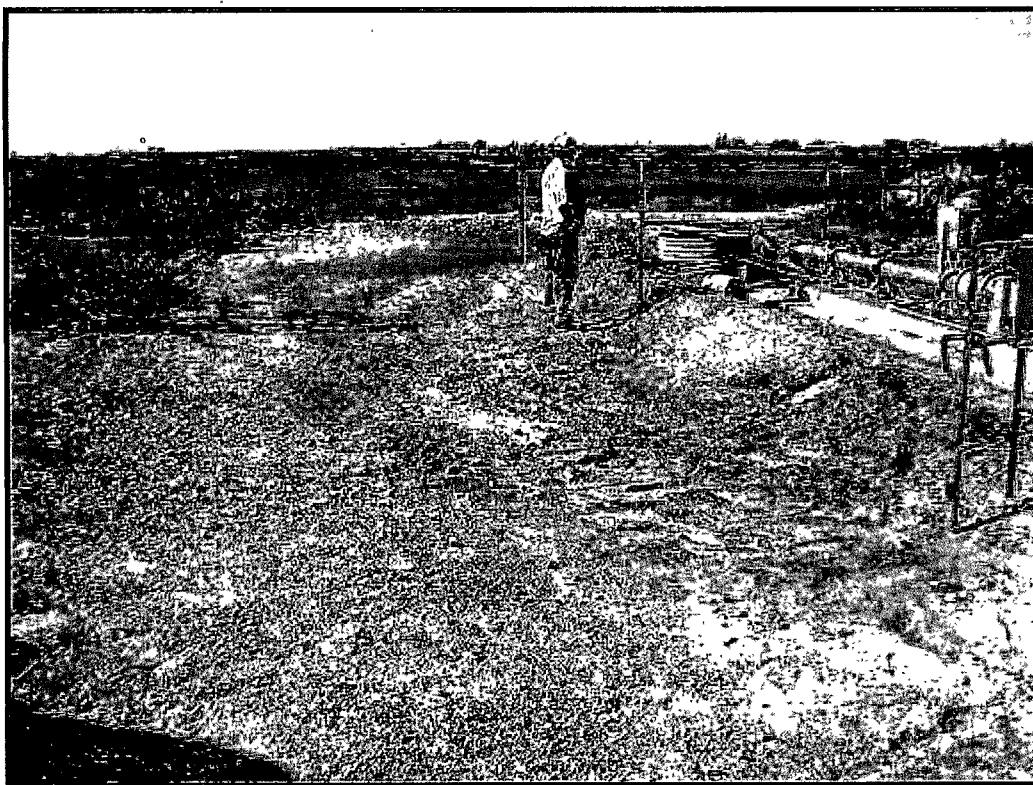
Inside Firewalls Facing South



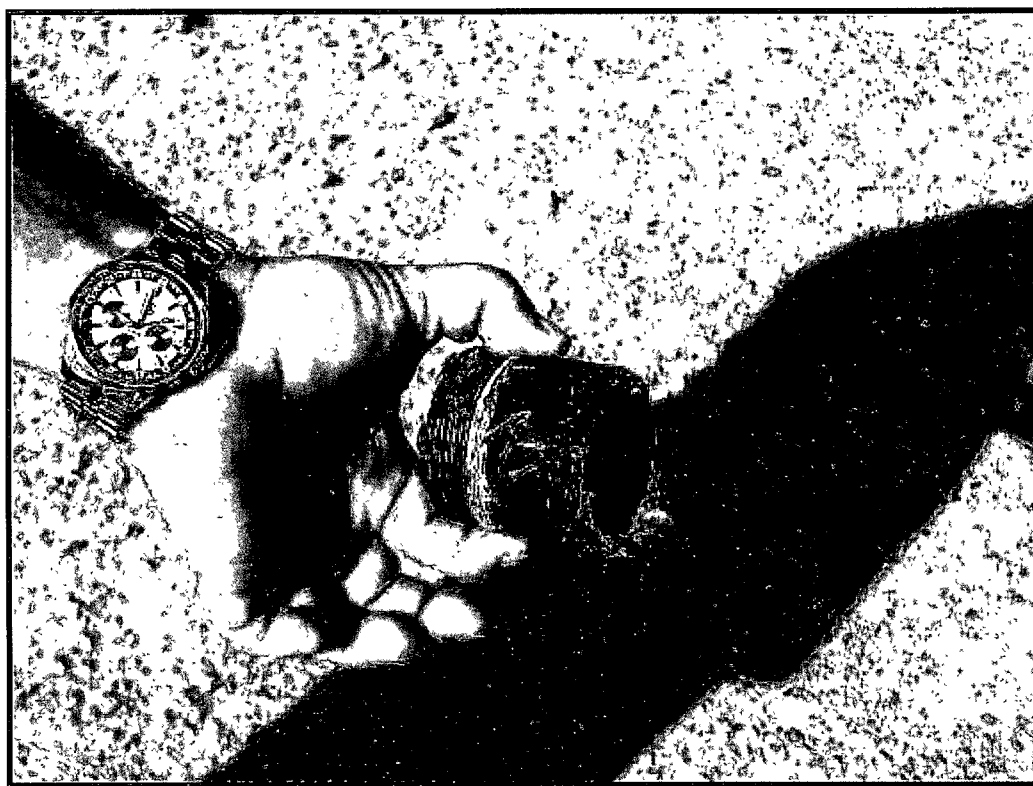
Inside Firewalls Facing SW



Inside Firewalls Facing South



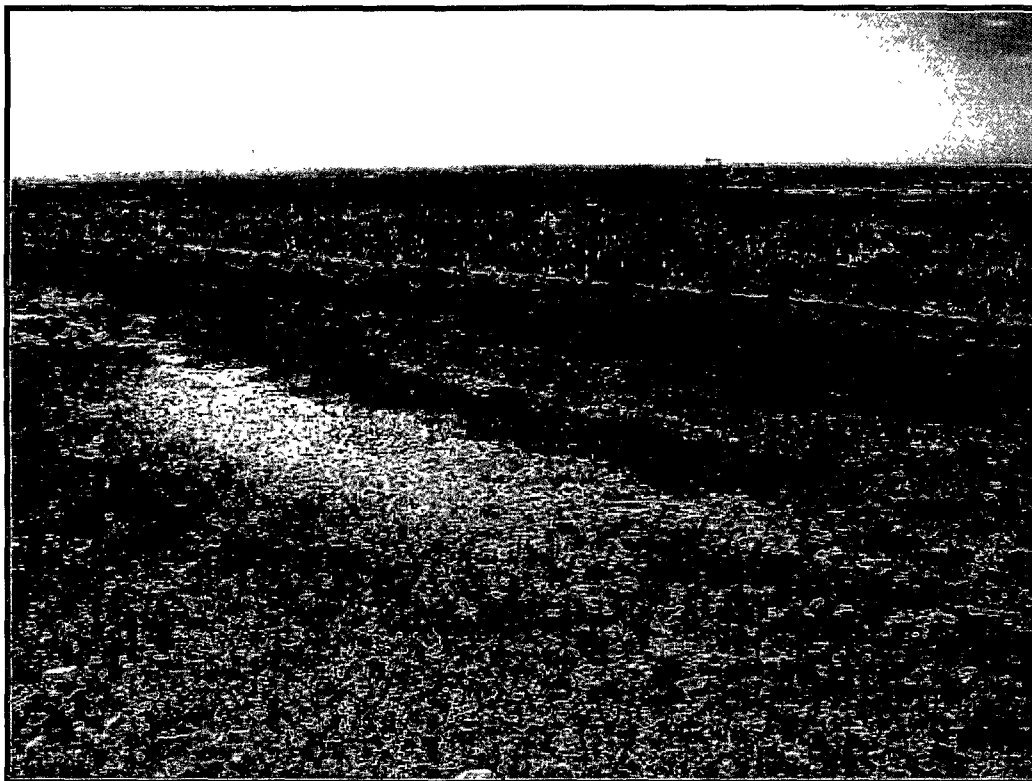
Release Facing South



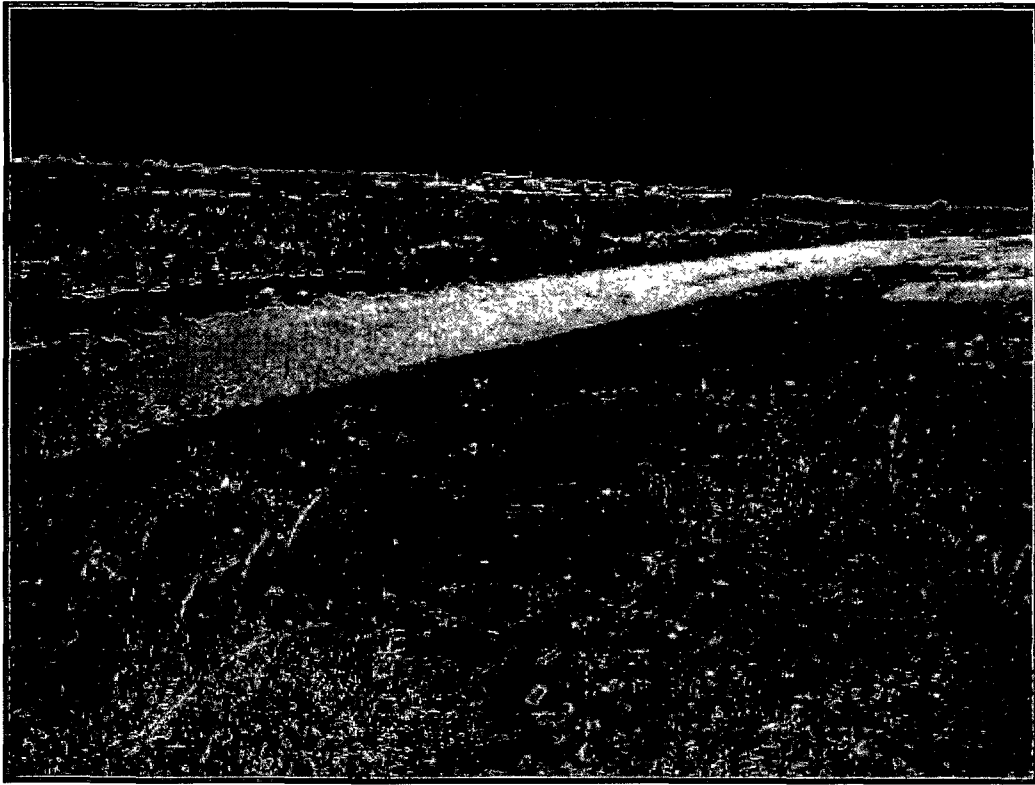
Failed 2" Nipple



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



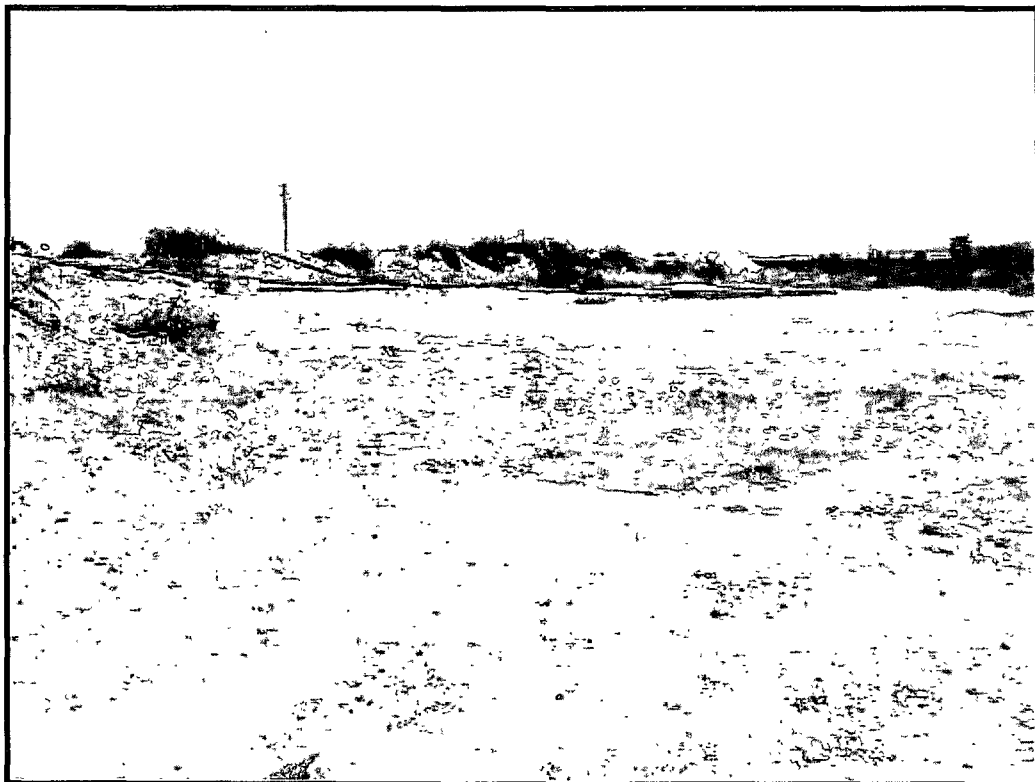
Test Trench #1



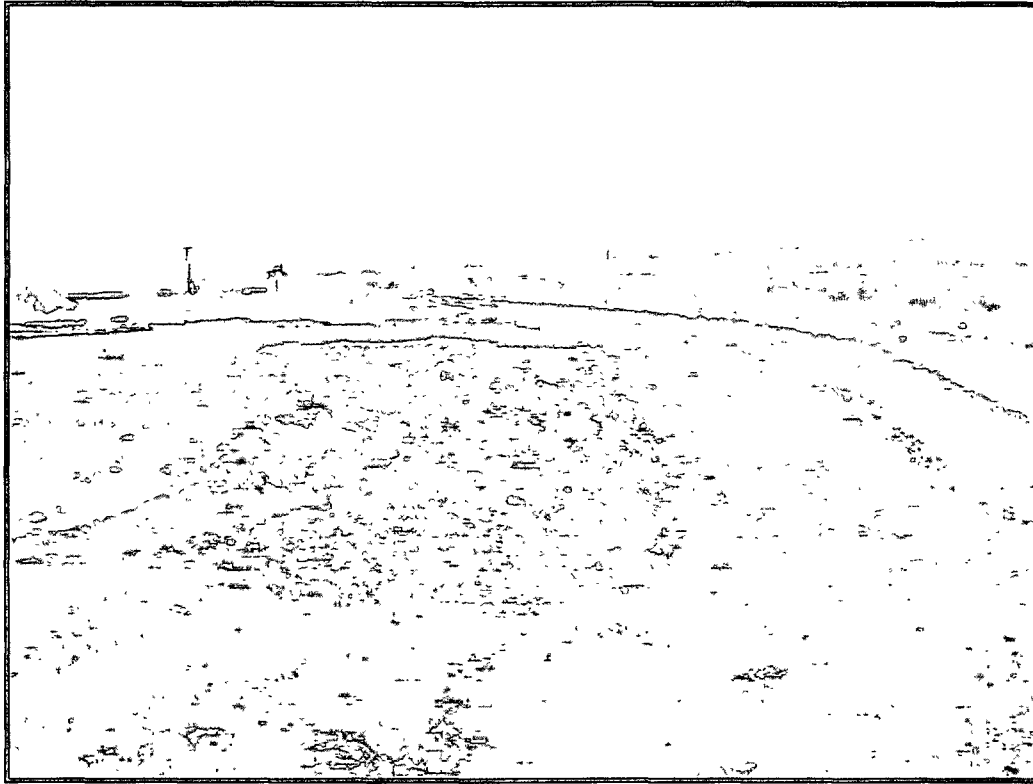
Test Trench #2



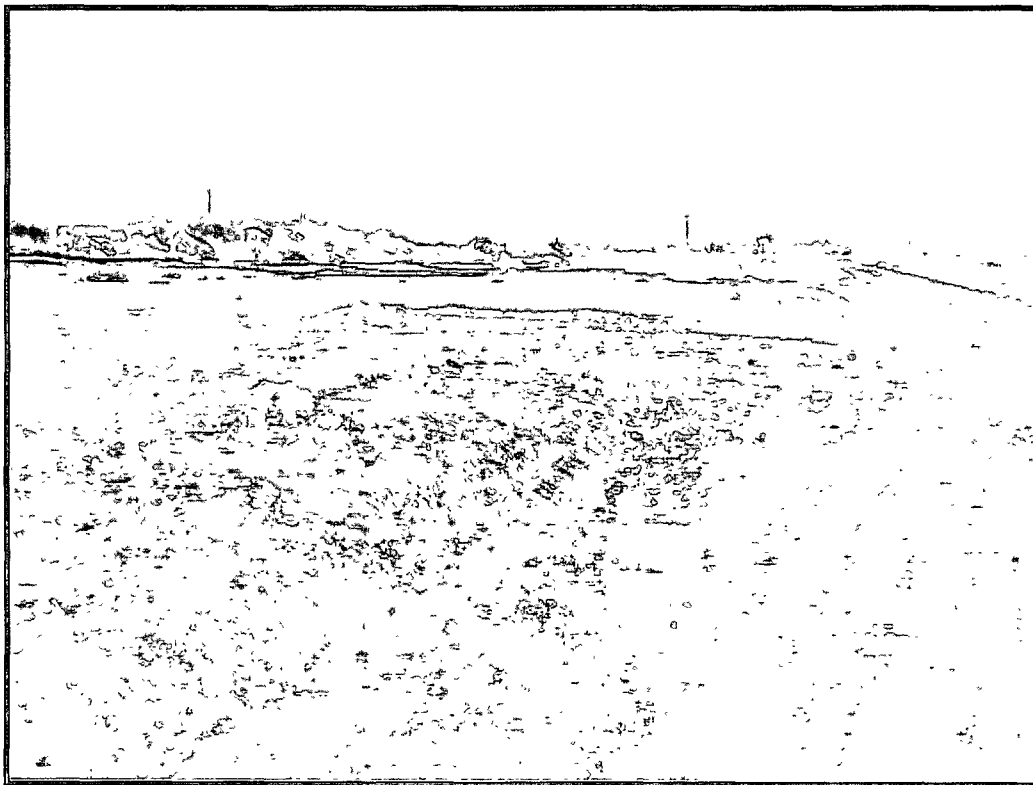
Test Trench #3



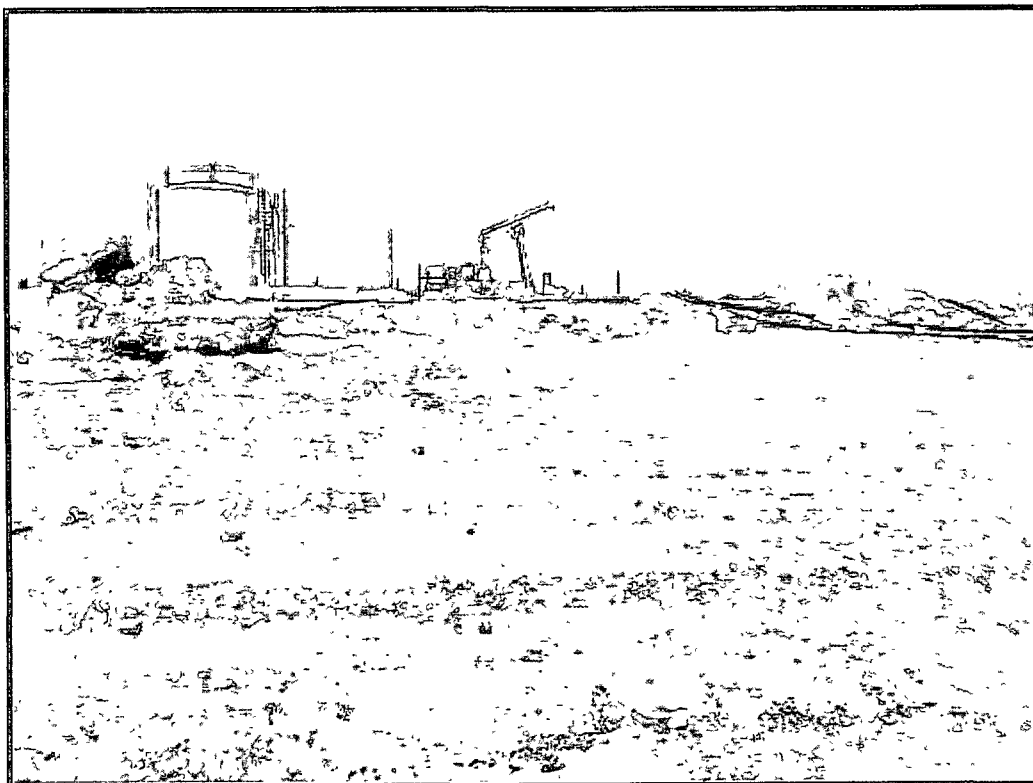
Partially Excavated Area Facing East



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 St 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 23	Township 23 S	Range 28 E	Feet from the	North/South Line	Feet from the	East/West Line	County 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, NMOC	
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 NMOC 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 NMOC 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, NMOC 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.		

**OIL CONSERVATION DIVISION**

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

\* Attach Additional Sheets if Necessary