Bratcher, Mike, EMNRD

From: Susana Rodriguez [office2@sesi-nm.com]
Sent: Monday, October 12, 2009 11:48 AM
To: Bratcher, Mike, EMNRD
Cc: salmager@rangeresources.com
Subject: Work Plan for the SCB Injection Facility
Attachments: SCB 23-19 Injection Facility Work Plan.doc; Lab Results.pdf

Mike,

Attached please find the work plan for the South Culebra Bluff 23-19 Injection Facility. If you have any questions please let us know.

Thank you,

Susana Rodriguez
Administrative Assistant
Safety & Environmental Solutions, Inc.
office: 575.397.0510
fax: 575.393.4388
office2@sesi-nm.com

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

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	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, 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.

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 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^-B).

The results of the analysis are as follows:

Sample ID	Cl^- (mg/kg)
BH#1. 20'	2000
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 and 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^-B).

The results of the analysis are as follows:

Sample ID	Cl^- (ppm)
4B	6320
23-11	3280
23-7	8000
23-6	3040

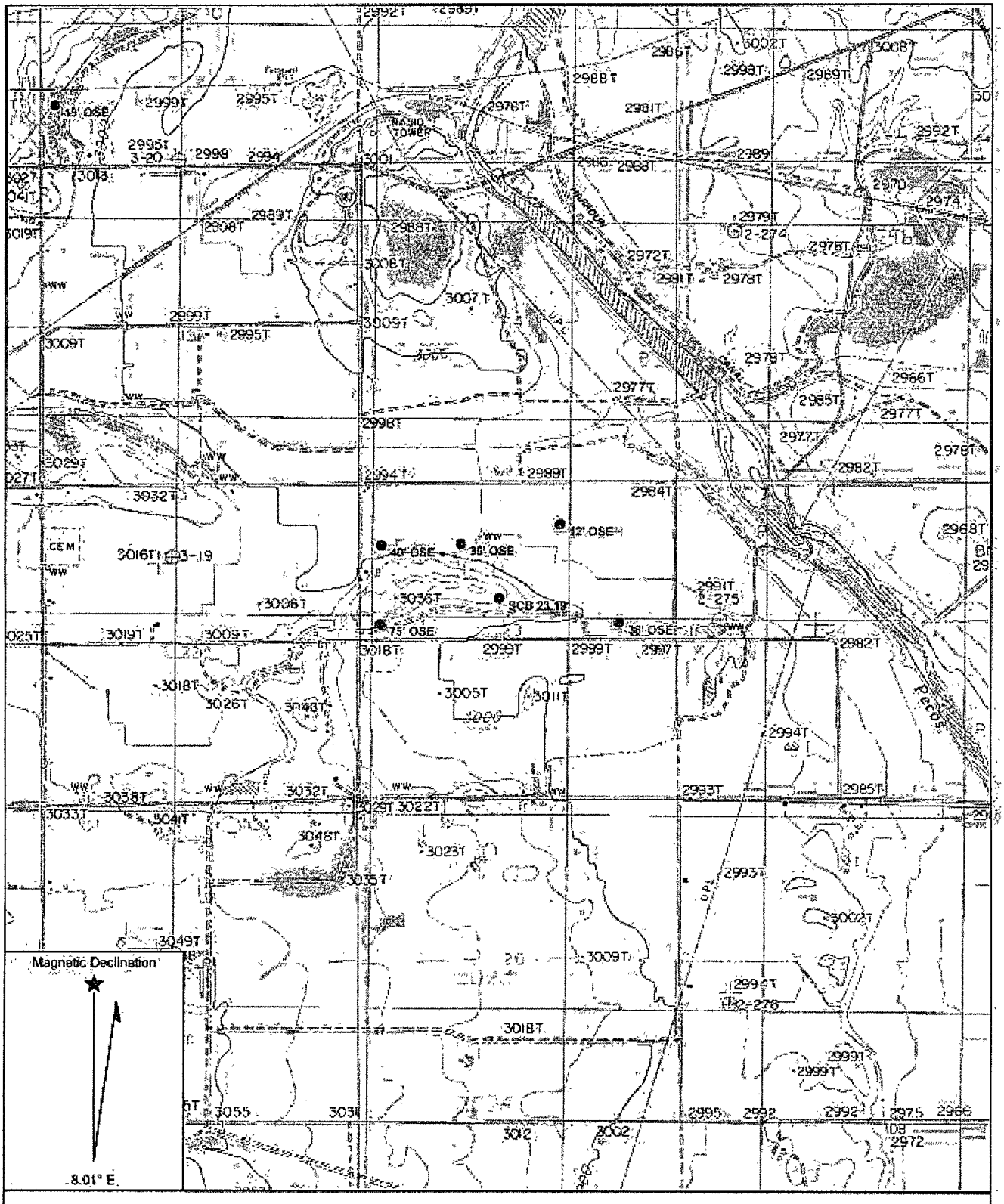
V. Action Plan

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

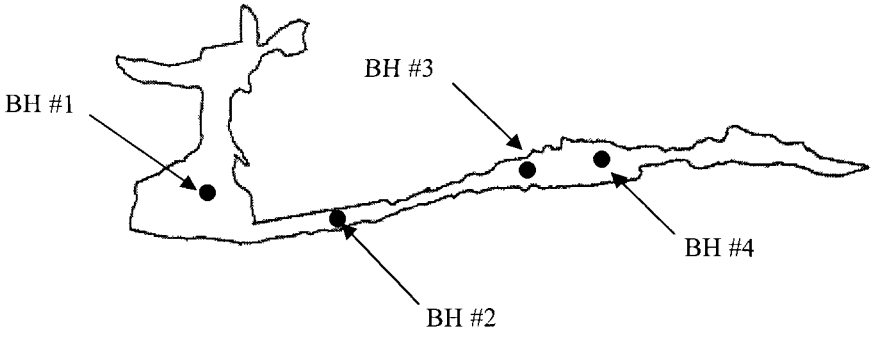
Figure 1
Vicinity Map



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

Location: 032° 17' 34.46" N 104° 03' 33.21" W NAD83

Figure 2
Site Plan



SCB 23-19 Injection Facility

Lat/Long
WGS 1984

N

Scale 1:2,000
0 0.040
Miles

site plan.cor

GPS Pathfinder® Office
Trimble.

Appendix A
Analytical Results

CARDINAL LABORATORIES

PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

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

Receiving Date: 09/18/09
Reporting Date: 09/21/09
Project Number: RAN-09-007 (RANGE OPER.)
Project Name: SCB INJECTION FACILITY
Project Location: LOVING, NM

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

LAB NO.	SAMPLE ID	Cl^- (mg/kg)
H18275-1	BH #1. 20'	2,000
H18275-2	BH #2. 20'	496
H18275-3	BH #3. 20'	288
H18275-4	BH #4. 20'	768
Quality Control		500
True Value QC		500
% Recovery		100
Relative Percent Difference		2.0

METHOD: Standard Methods	4500-Cl^-B

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

Chemist

09/21/09
Date

H18275 SESI

CARDINAL LABORATORIES

PHONE (575) 393-2326 • 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^- (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'B

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

Chemist

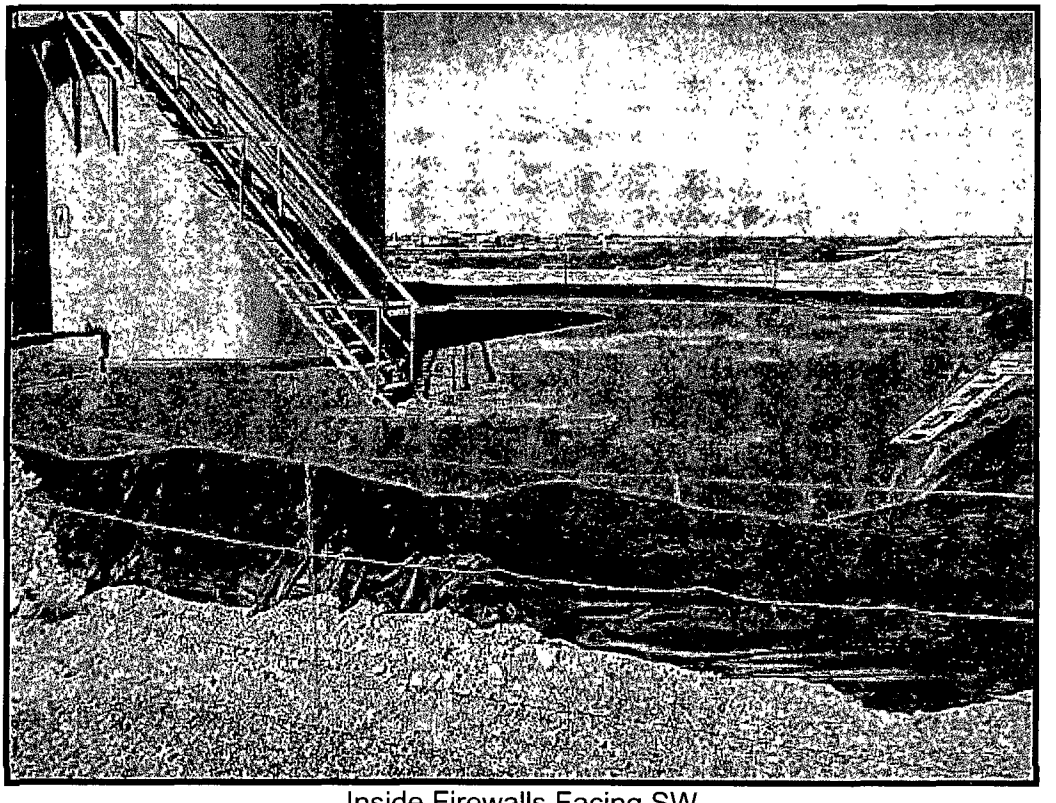
10/07/09
Date

H18344 SESI

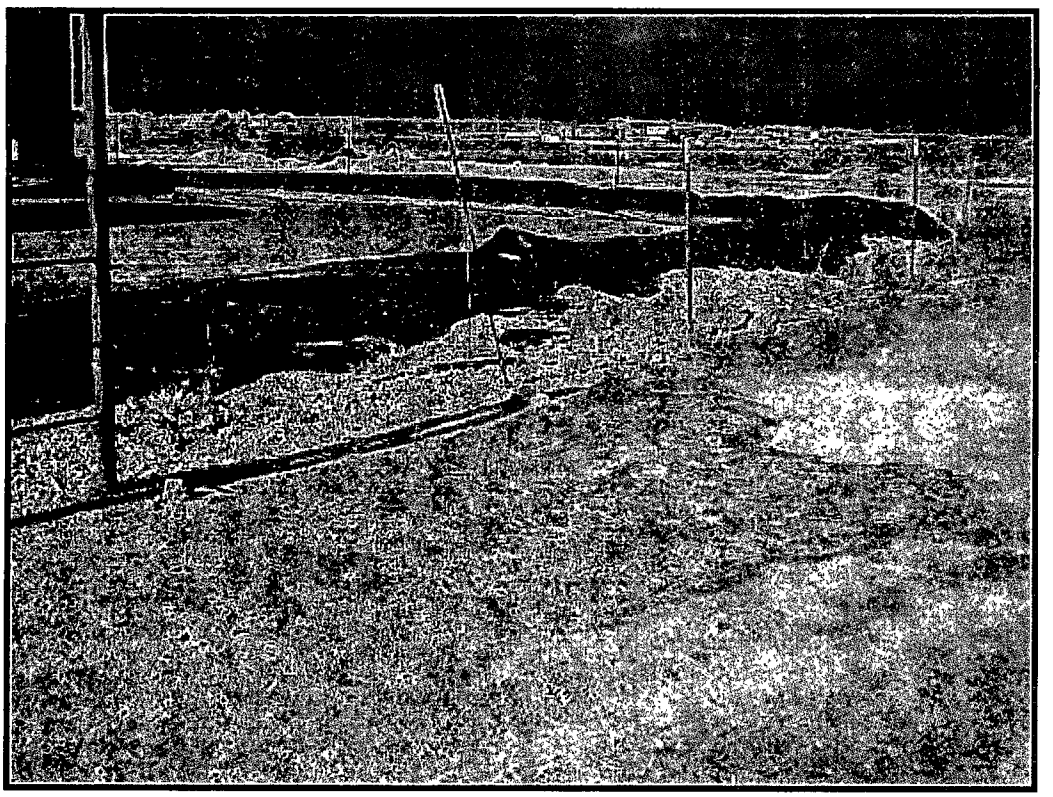
Appendix B
Site Photos

August 17, 2009

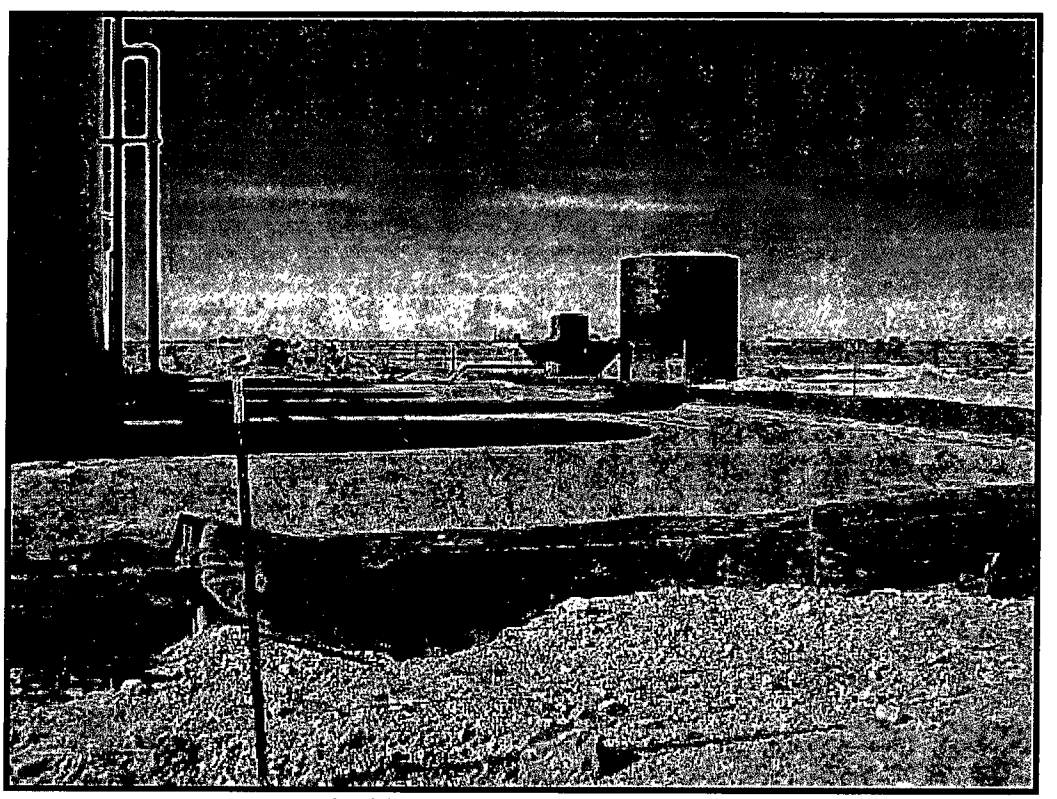
Lease Sign



Inside Firewalls Facing SW



Release Facing SW



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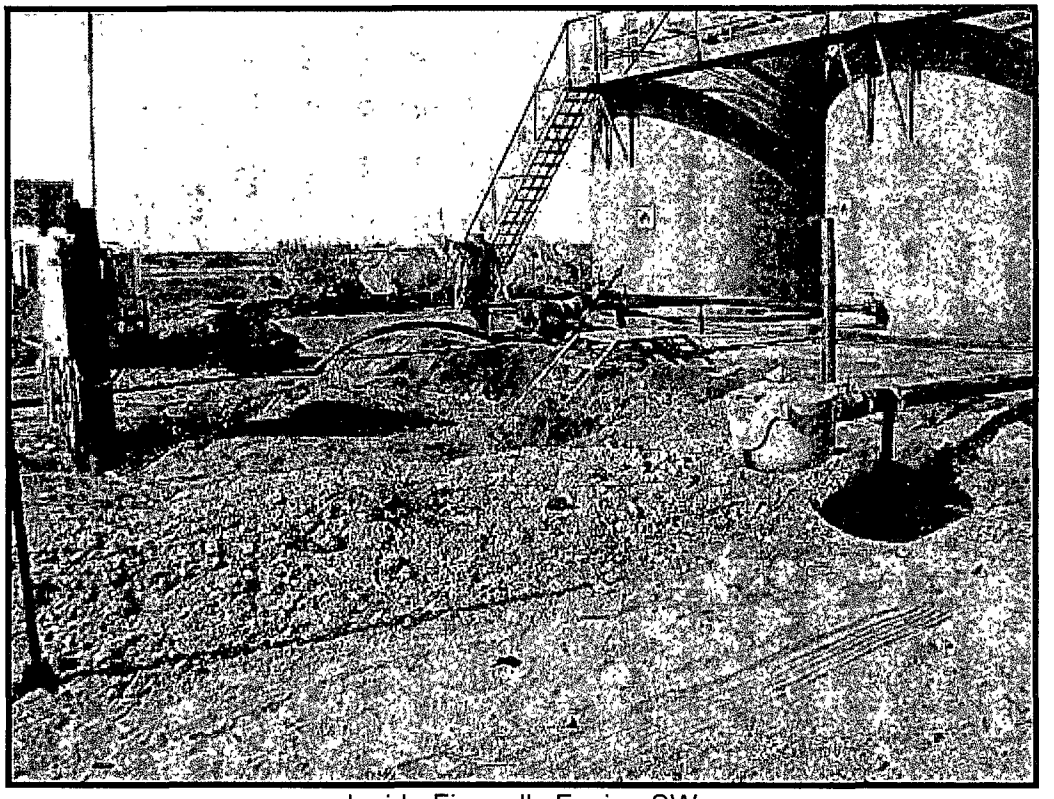

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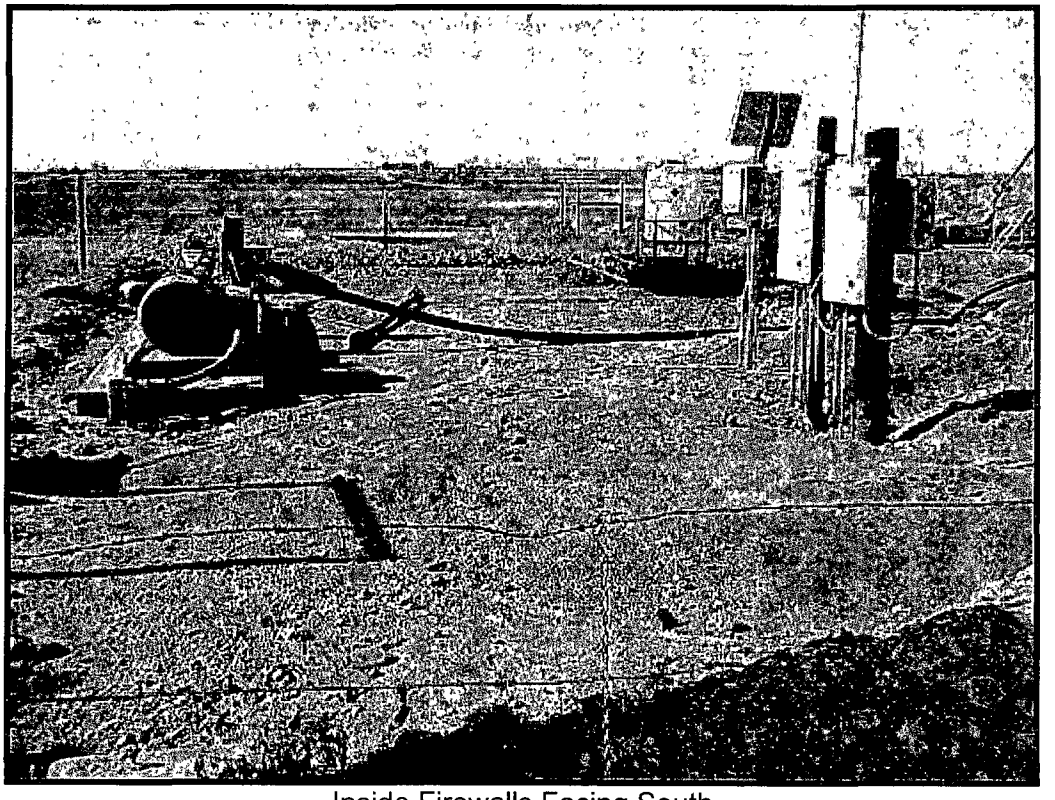

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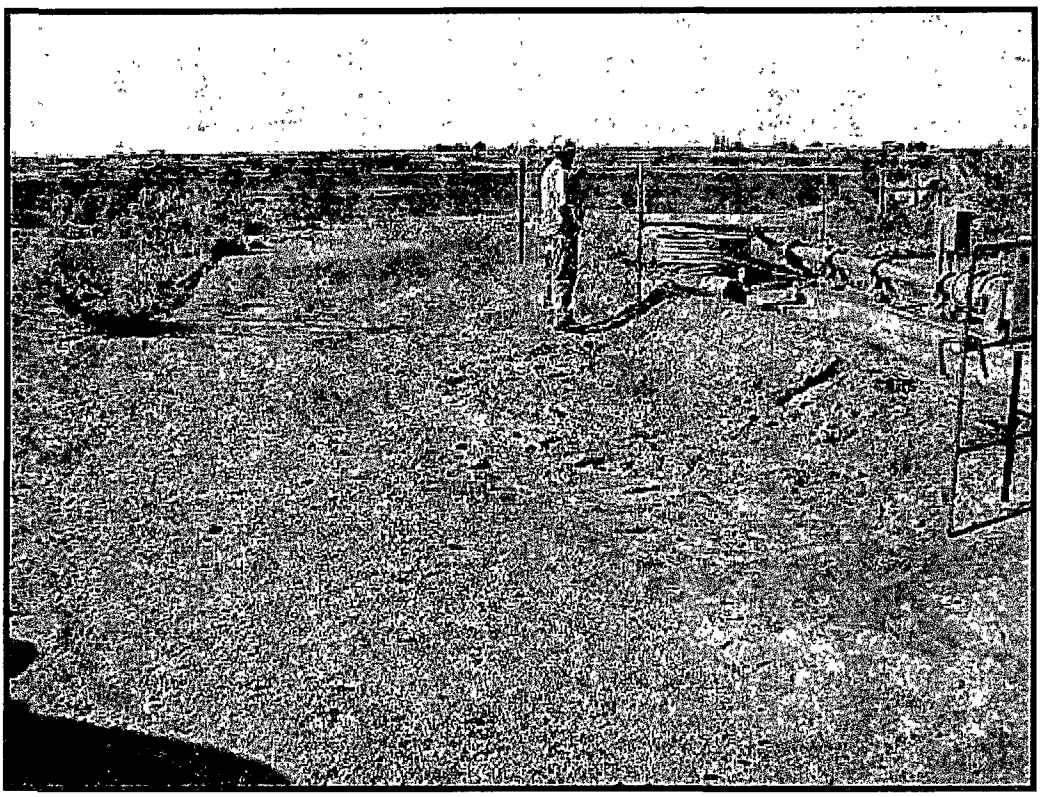

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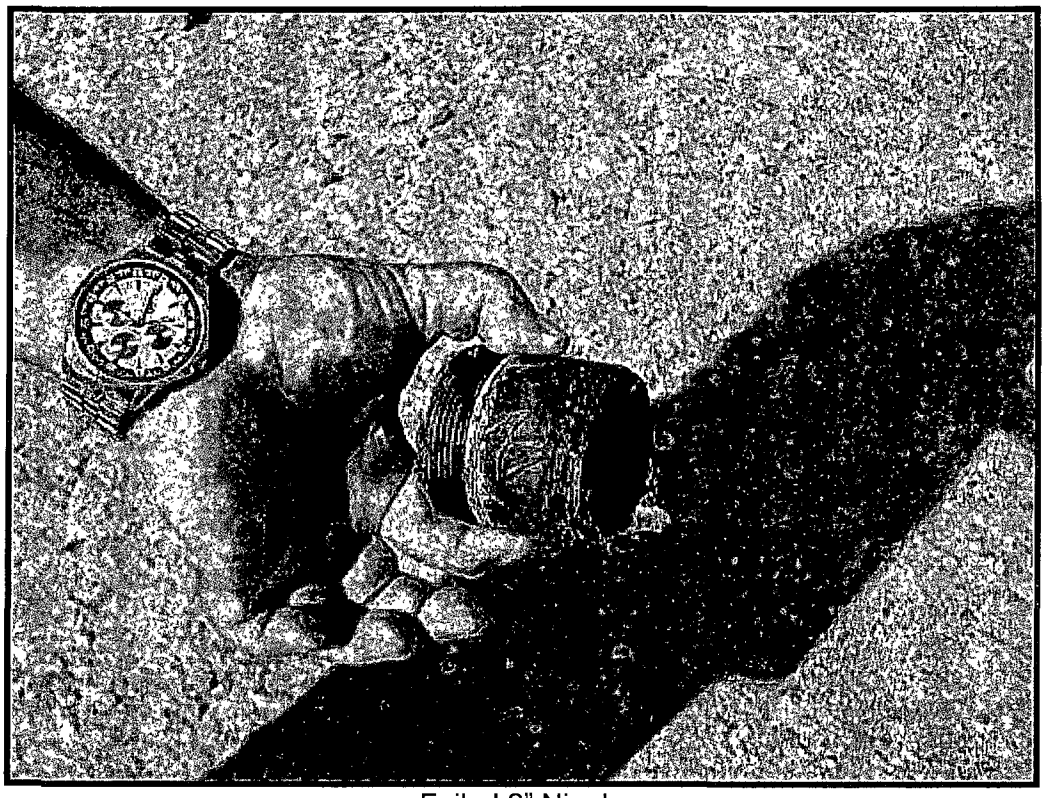
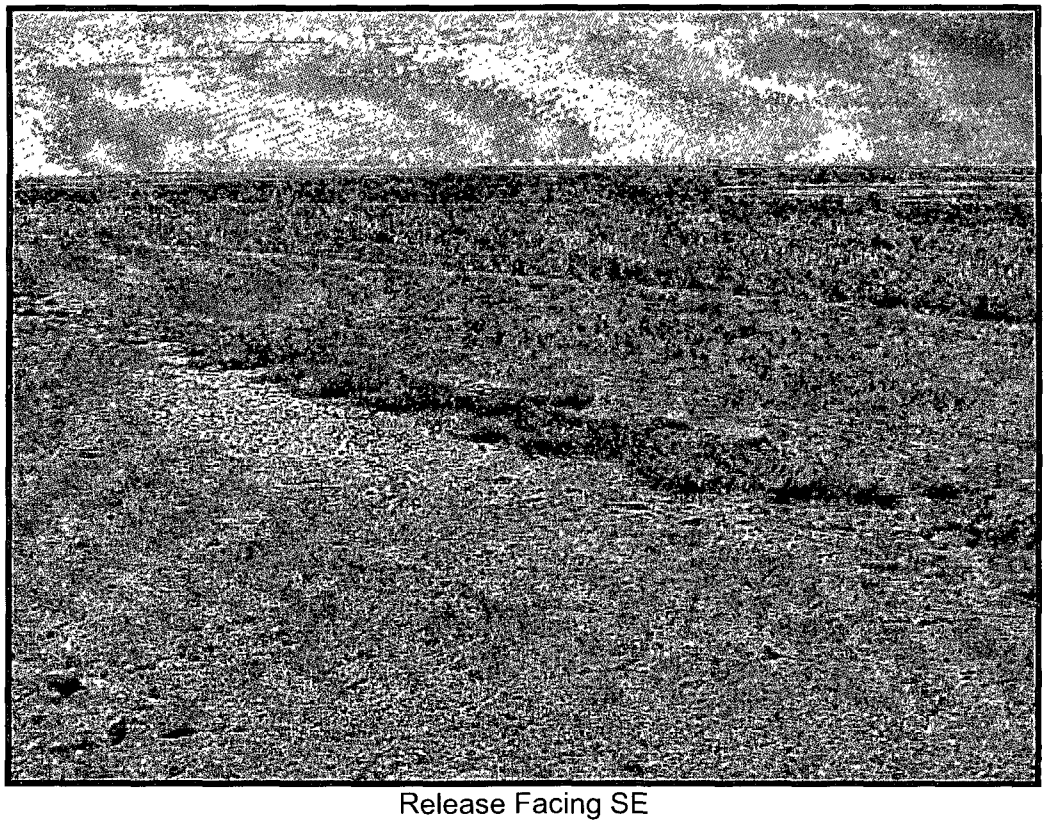
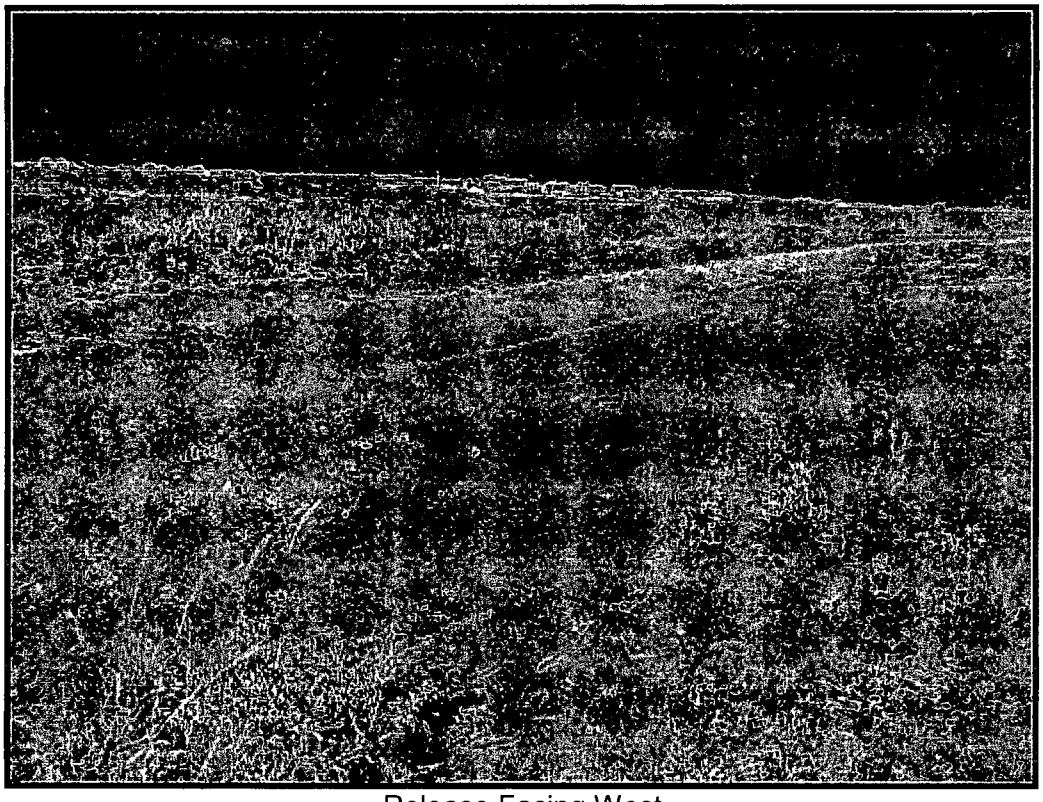


Failed 2" Nipple

Release Facing SW



Release Facing SE



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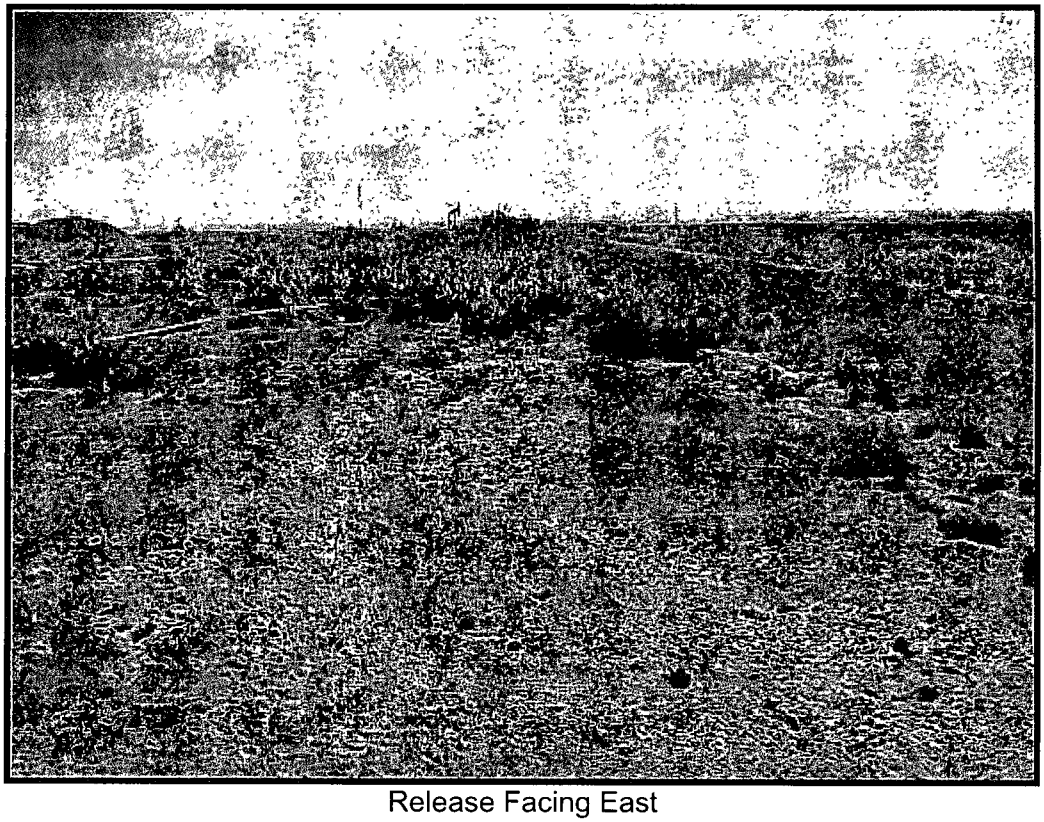
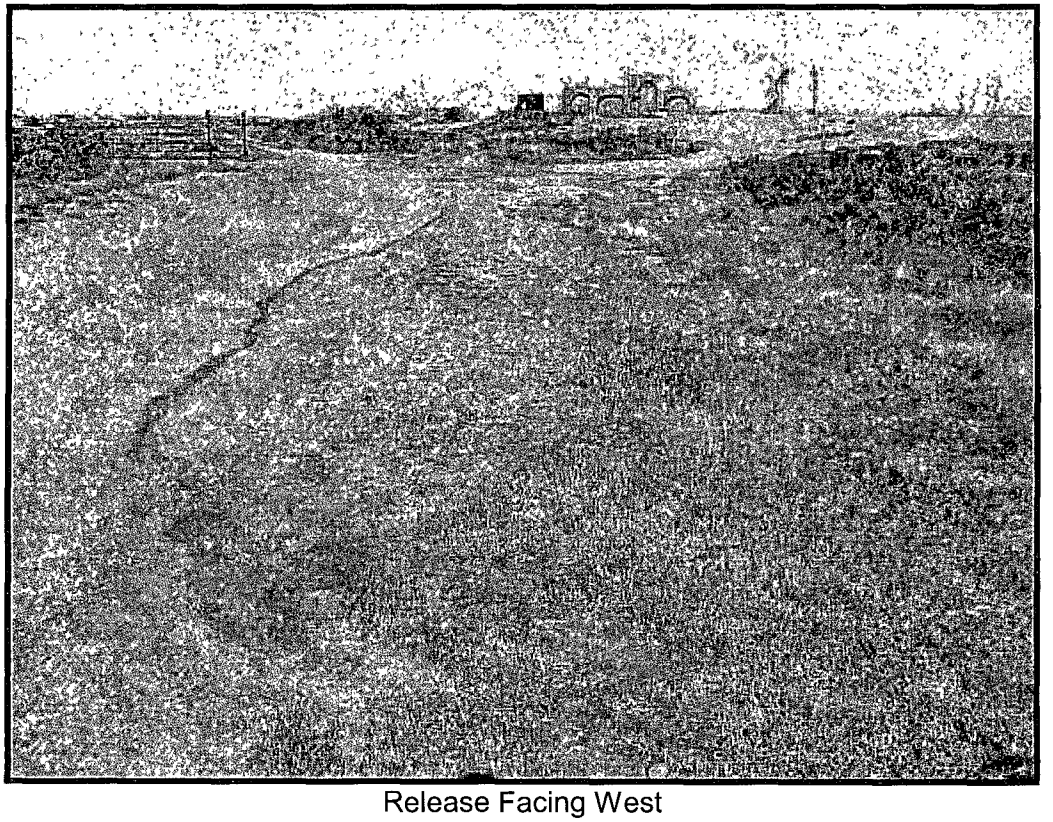


Release Facing East

Release Facing East

Release Facing East

Release Facing East



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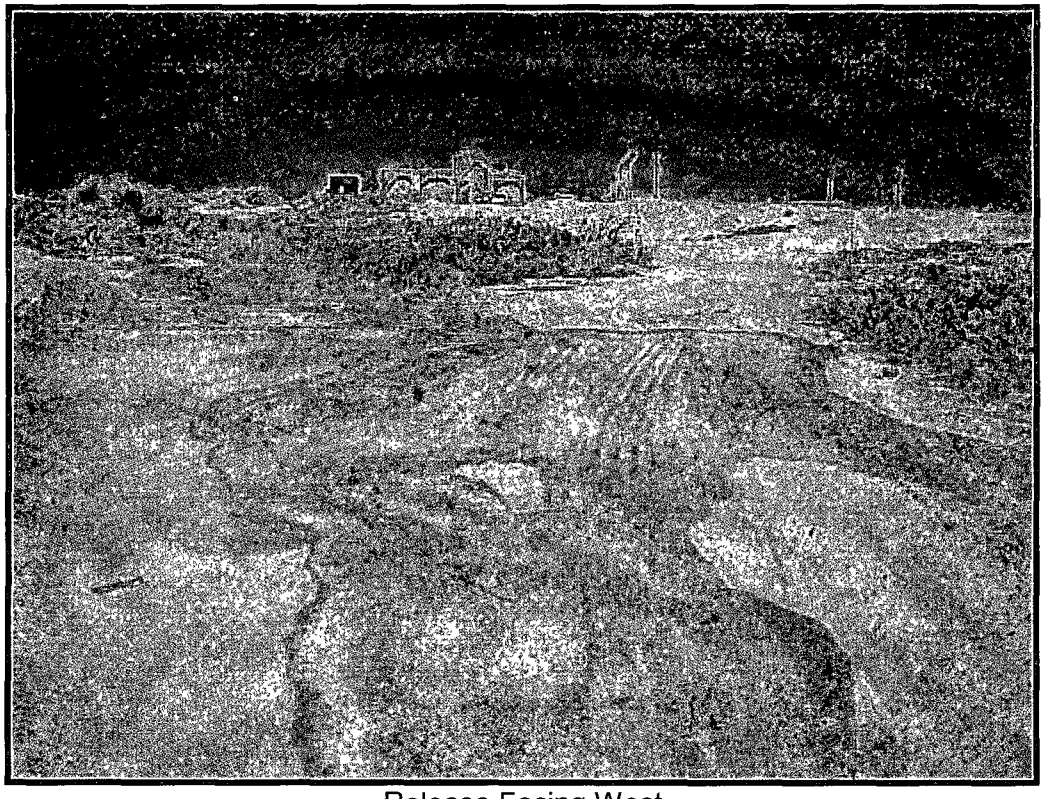
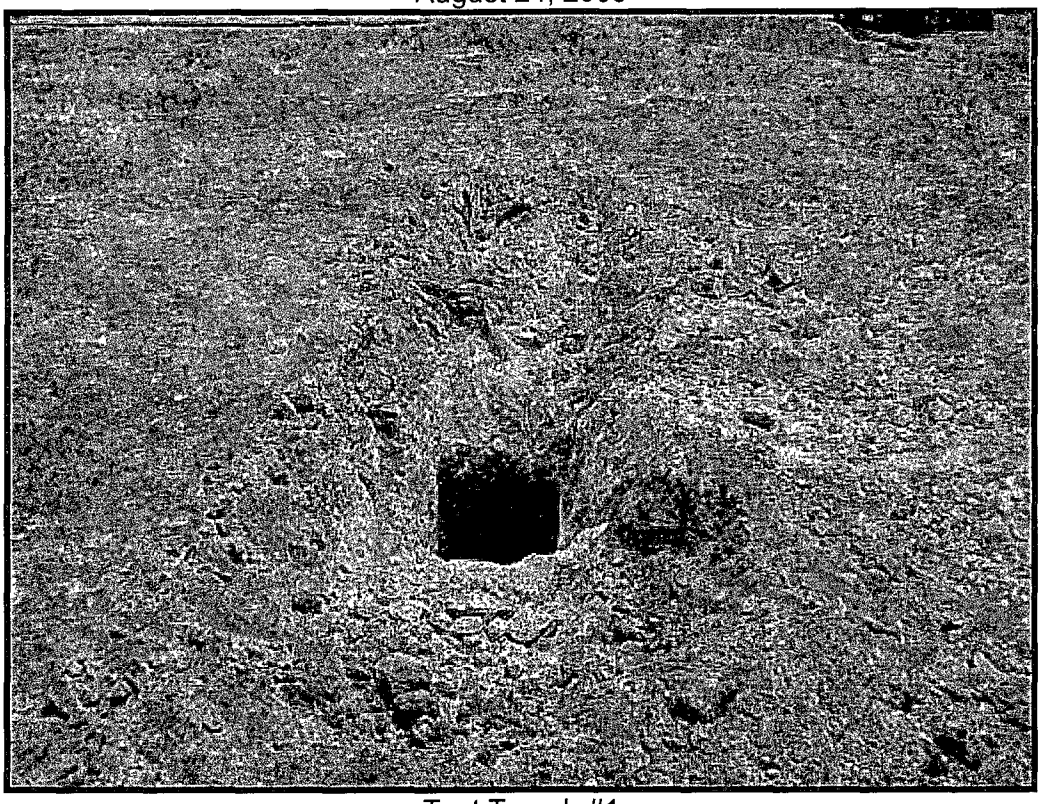


Release Facing West

August 24, 2009



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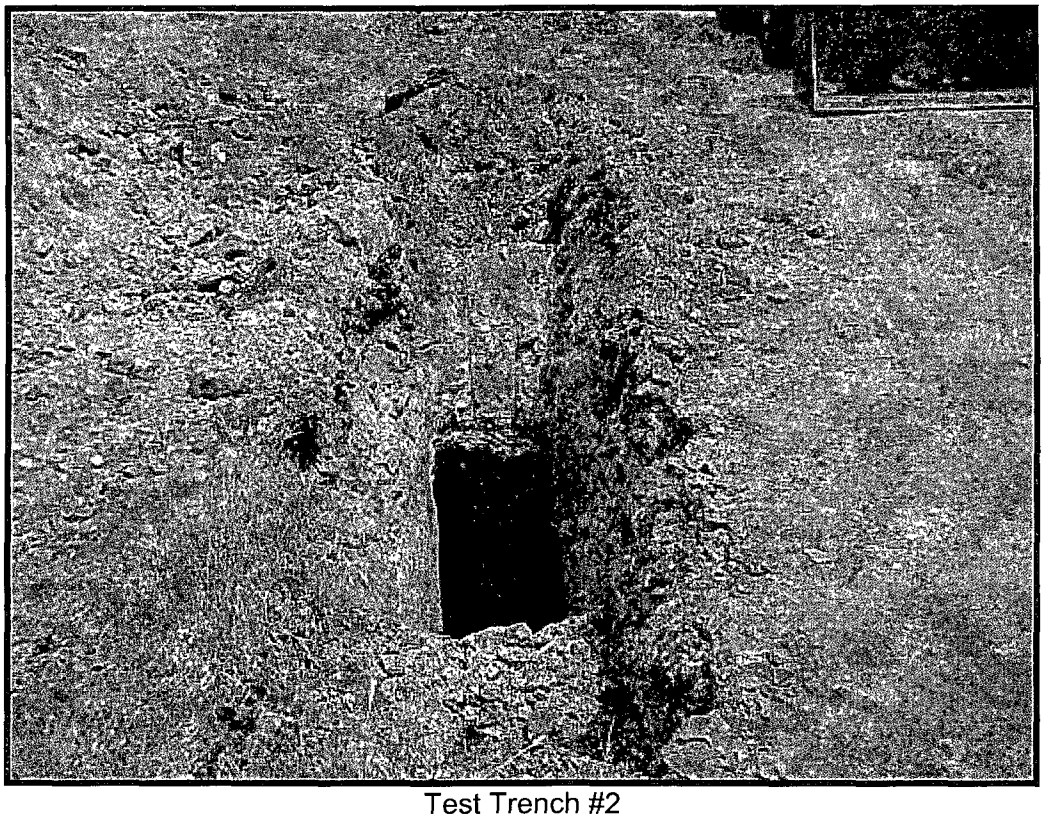

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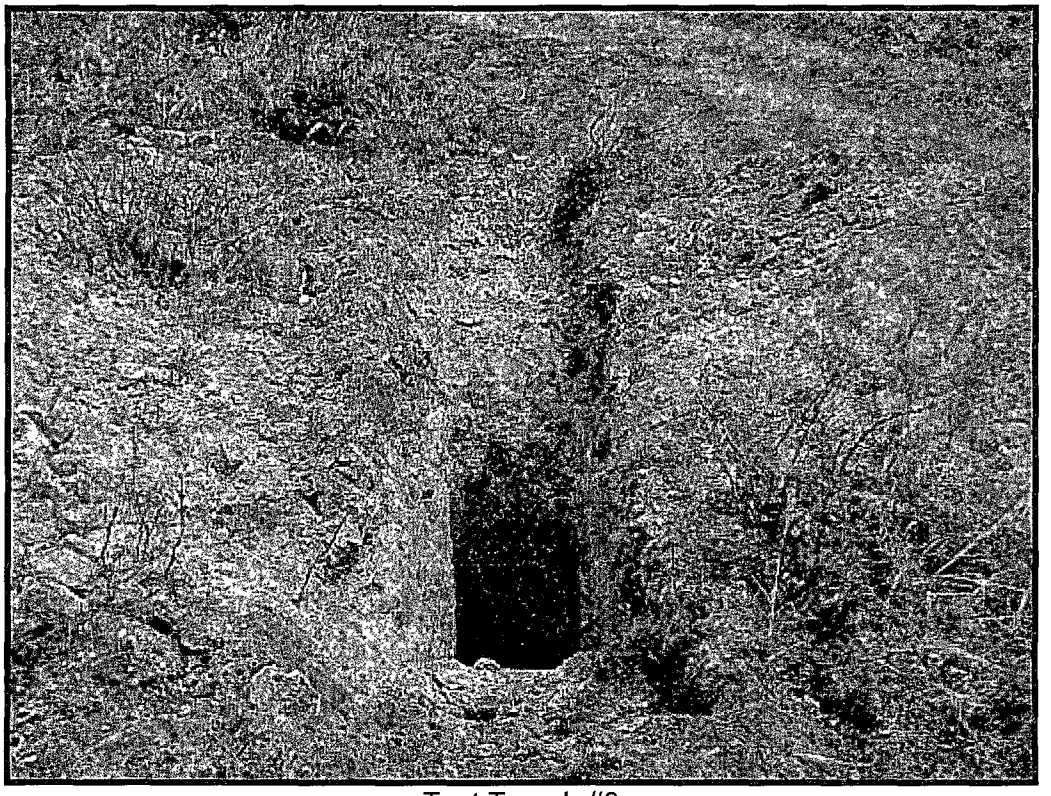

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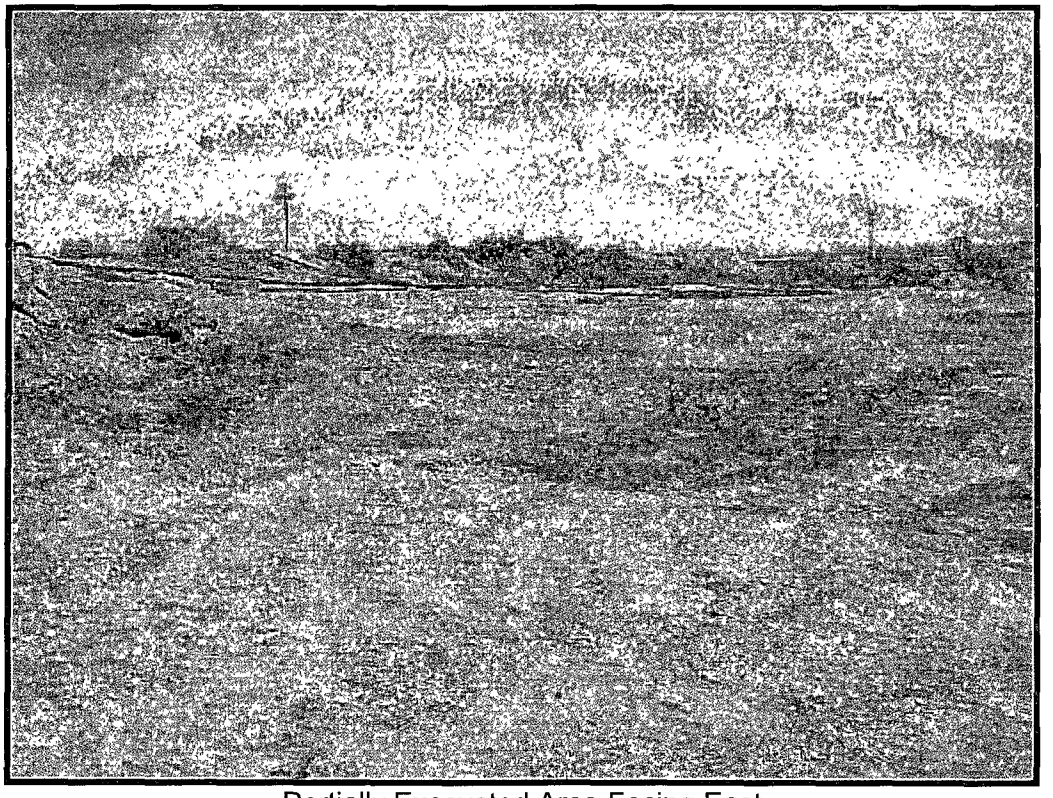
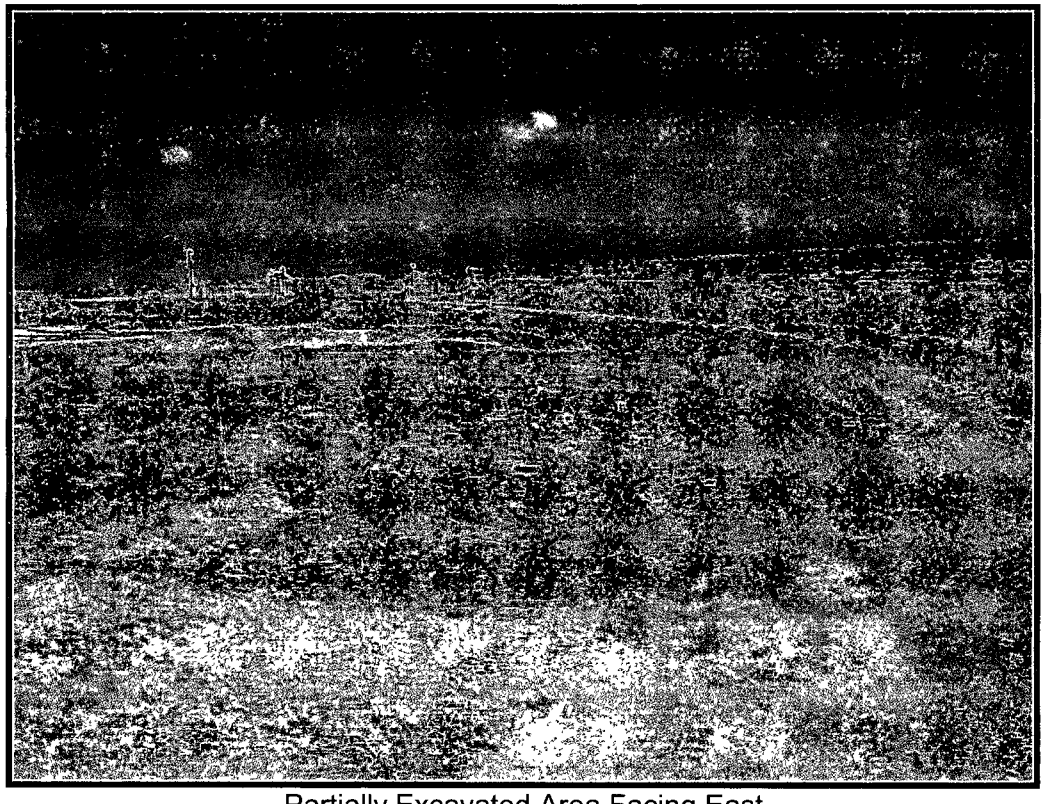


Partially Excavated Area Facing East



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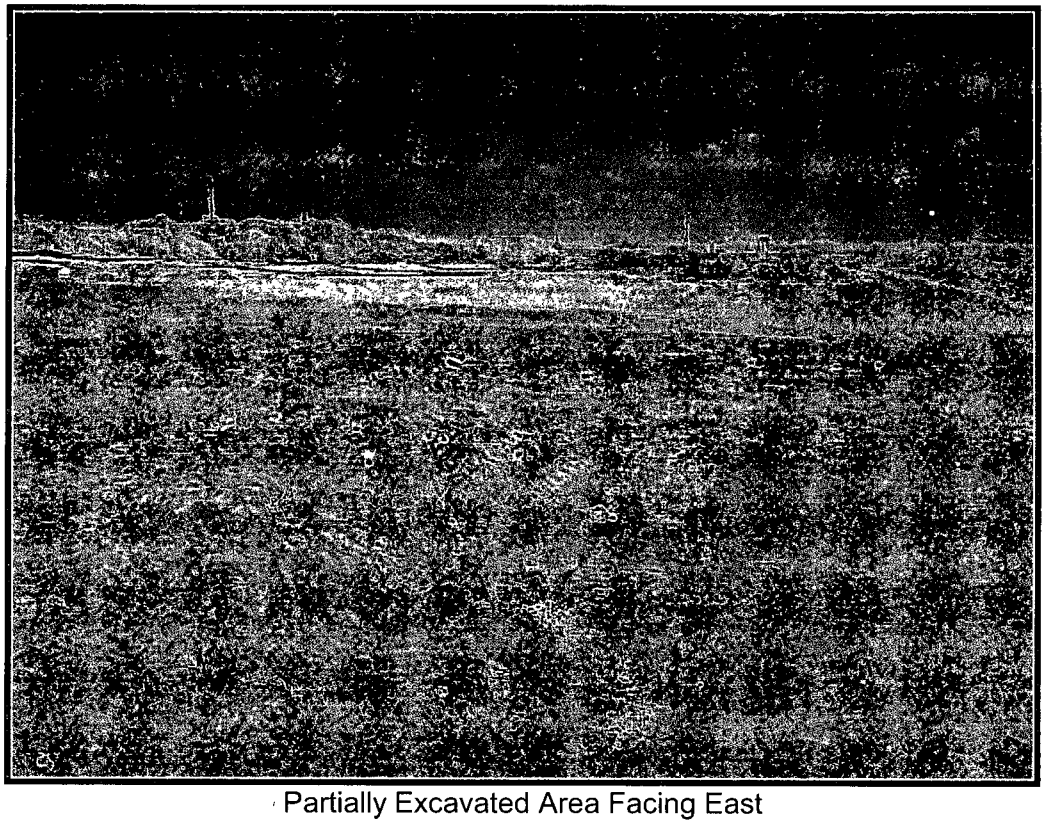
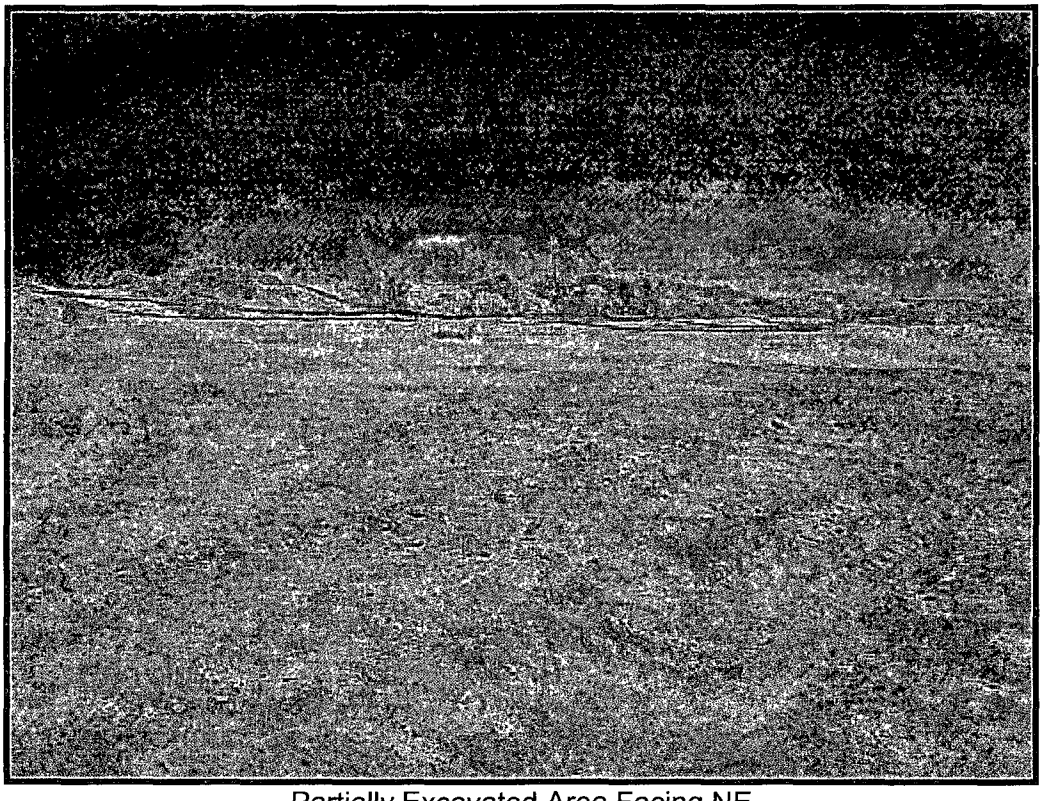


Partially Excavated Area Facing East

Partially Excavated Area Facing North



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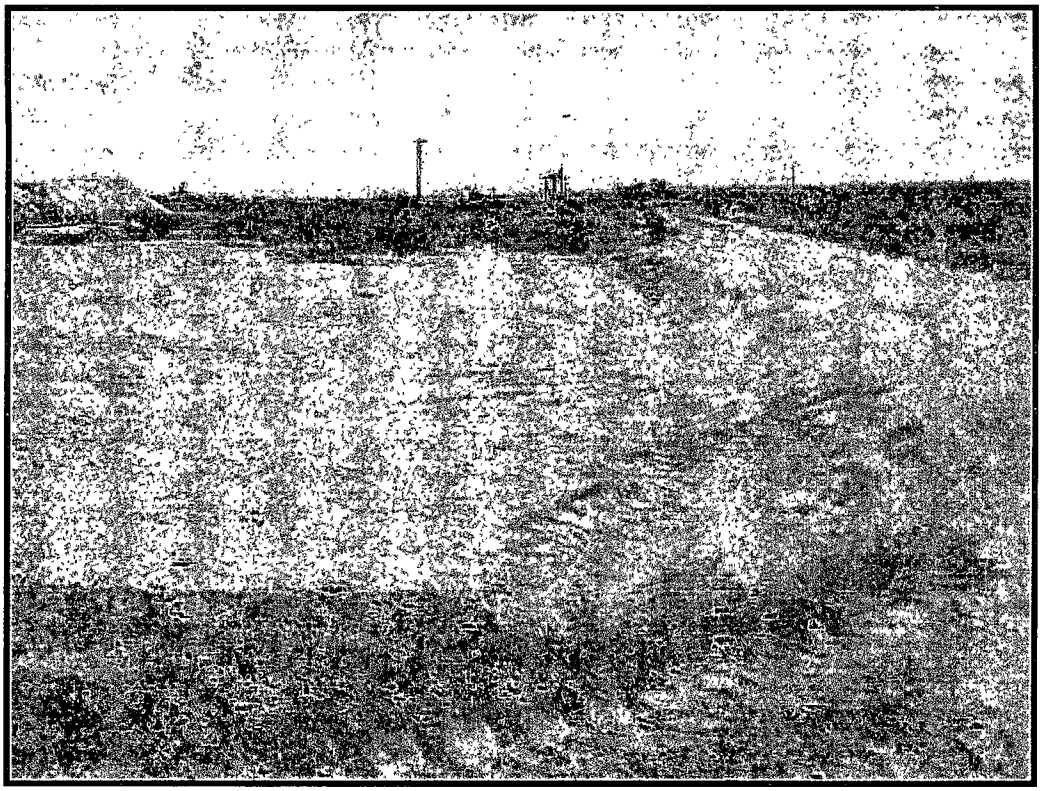

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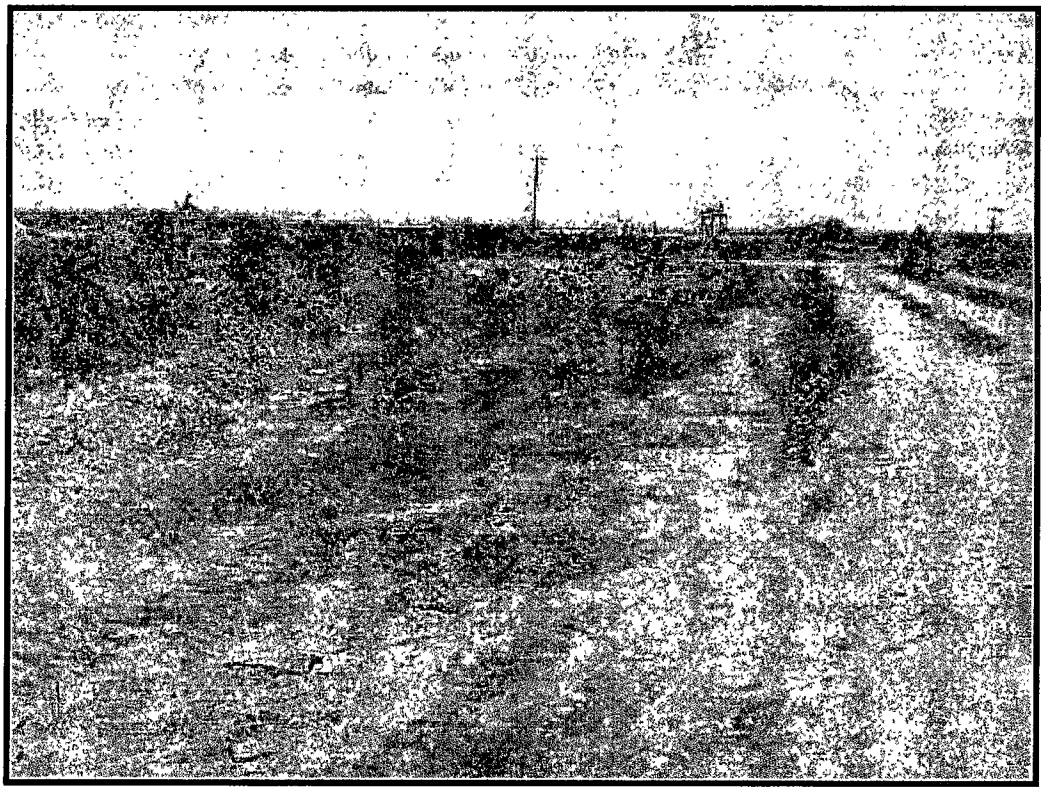

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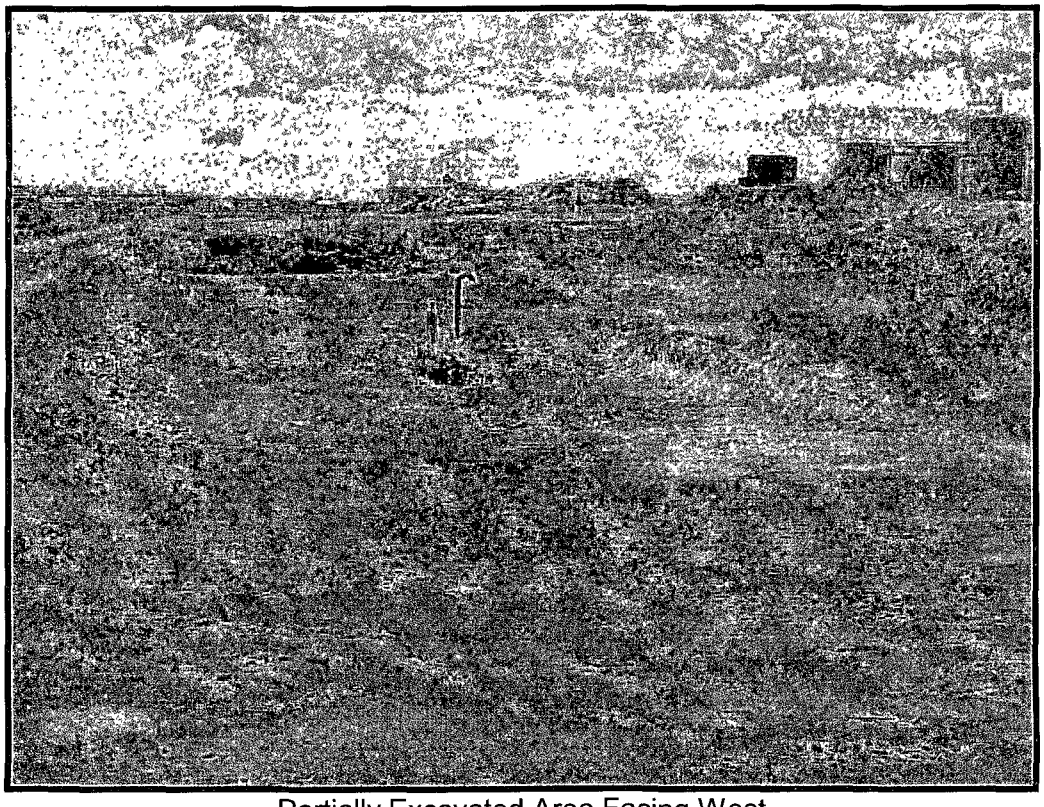

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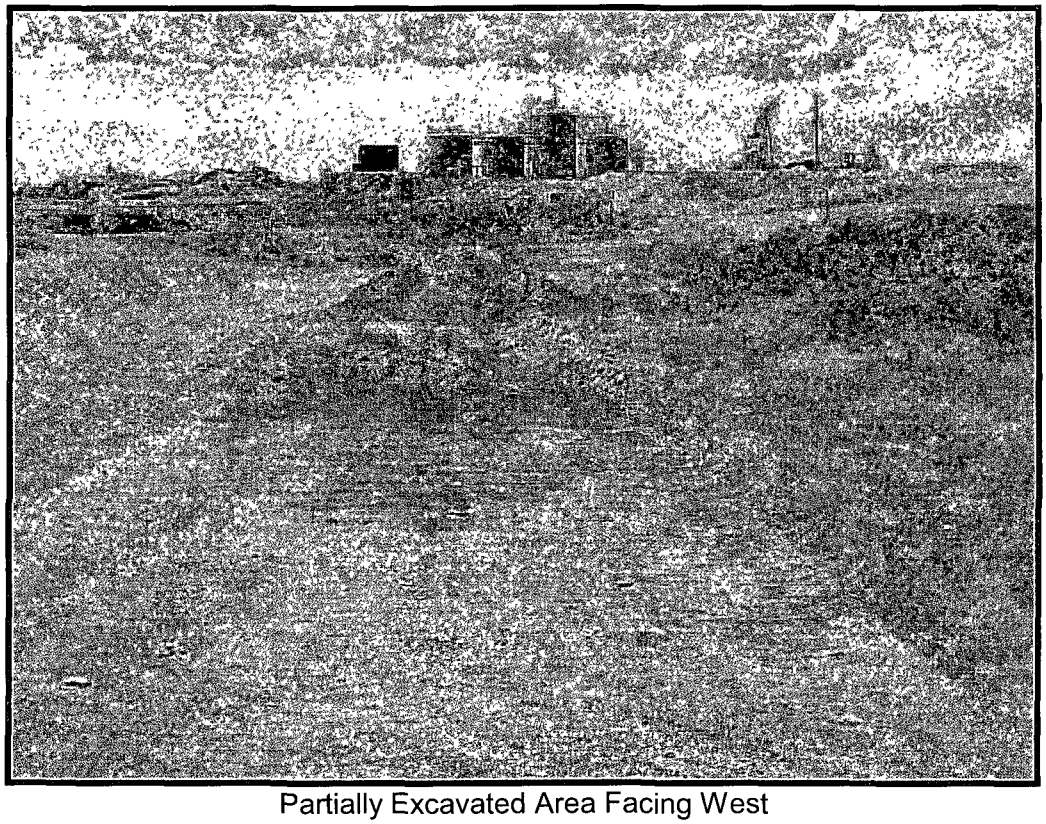

Partially Excavated Area Facing West