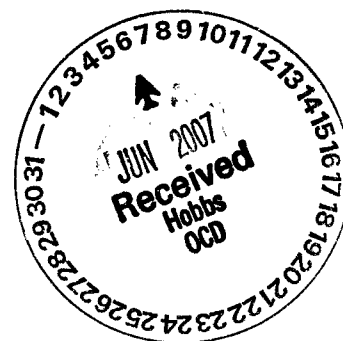


# Ocotillo ENVIRONMENTAL

Dirt Work • On-Site Remediation • Soil Testing • Excavation

June 5, 2007

Mr. Larry Johnson  
Environmental Engineer  
Oil Conservation Division  
New Mexico Energy, Minerals and Natural Resources Department  
1625 N. French Drive  
Hobbs, New Mexico 88240



**Re: Spill Remediation Workplan**  
**Oxy Permian, Federal AB Battery, 1RP #1272**  
**Unit Letter H, Section 11, Township 18 South, Range 33 East**  
**Lea County, New Mexico**  
**Lat. N 32° 45.812', Long. W 103° 37.632'**

Dear Mr. Johnson:

Oxy Permian (Oxy) has retained Ocotillo Environmental, LLC (Ocotillo) to remediate impacts to soil from a produced fluids spill located immediately southwest of the Federal AB Tank Battery. The well and battery are located in the southeast quarter (SE/4) of the northeast quarter (NE/4), Section 11, Township 18 South, Range 33 East, Lea County, New Mexico (Site). Approximately 17 barrels of oil and water were released from the heater treater, and approximately 10 barrels were recovered from the site. A C-141 was submitted to the New Mexico Oil Conservation Division (NMOCD) on March 28, 2007, a copy of which is attached as the final page of this report. Figure 1 shows the site location. Figure 2 shows the spill boundary.

Based on published literature (1961), well records of the New Mexico State Engineer, and well records of the United States Geological Survey, groundwater occurs at approximately 70 feet bgs (below ground surface) at the site. No domestic water wells are located within 1,000 feet of the site. The NMOCD has established RRALs for benzene, total BTEX and TPH resulting from spills of natural gas liquids ("Guidelines for Remediation of Leaks, Spills and Releases, August 13, 1993"). Remediation levels for benzene, total BTEX and TPH were calculated using the following NMOCD criteria:

Criteria	Result	Ranking Score
Depth-to-Groundwater	50 - 99 Feet	10
Wellhead Protection Area	No	0
Distance to Surface Water Body	>1000 Horizontal Feet	0
		<b>Total: 10</b>

The following RRALs have been assigned based on NMOCD criteria:

**Benzene** 10 mg/kg  
**Total BTEX** 50 mg/kg  
**TPH** 1,000 mg/kg

Incident - nPAC 0716337920  
application - pPAC 0716338013

P.O. Box 1816 • Hobbs, NM 88241  
Office (505) 393-6371 • Fax (505) 393-6374

RP# 1345

**Initial Investigation**

On April 9, 2007, Oxy collected grab soil samples from nine (9) locations at the site (A through I), using a backhoe. The samples were placed in clean glass samples jars, labeled, chilled, and delivered under chain-of-custody control to Cardinal Laboratories (Cardinal) in Hobbs, New Mexico for laboratory analysis of BTEX and chloride. Figure 2 shows the sample locations. Table 1 presents a summary of the laboratory results. Appendix A provides a copy of the laboratory data. Photographs are presented in Appendix B.

Referring to Table 1, soil samples collected from locations A through I reported benzene concentrations below the RRAL of 10 mg/kg, and all samples reported BTEX concentrations below the RRAL of 50 mg/kg, with the exception of the sample collected from location A at a depth of 18 inches (65.655 mg/kg). Chlorides concentrations exceeded the RRAL of 250 mg/kg in samples collected from the following locations:

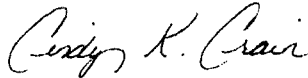
Point A at 18" (2,030 mg/kg)  
Point B at 14" (3,090 mg/kg)  
Point B at 4' (1,060 mg/kg)  
Point C at 1.5' (2,960 mg/kg)  
Point E at 2' (2,815 mg/kg)  
Point E at 4' (5,340 mg/kg)  
Point G at 4.5' (2,050 mg/kg)  
Point H at 20" (1,650 mg/kg)  
Point I at 2' (3,810 mg/kg).

**Proposed Remediation**

Oxy proposes to conduct excavation of the impacted soil until analytical results of soil samples report TPH concentrations below the RRAL (1,000 mg/kg) and chloride concentrations are below 250 mg/kg, or at 250 mg/kg or less above background concentrations. Excavated soil will be stockpiled on site and blended until analytical results report TPH concentrations below 1,000 mg/kg and chloride concentrations are either below 250 mg/kg or at 250 mg/kg or less above background concentrations. Blended soil will be used as backfill of the excavation.

Oxy plans to begin remediation activities on Monday, June 11, 2007, and a final report will be submitted following completion. If you have any questions or need additional information, please call Mr. Rick Kerby at (505) 887-8337 or myself at (505) 441-7244. We may also be reached by email at rick\_kerby@oxy.com or cindy\_krain@gmail.com.

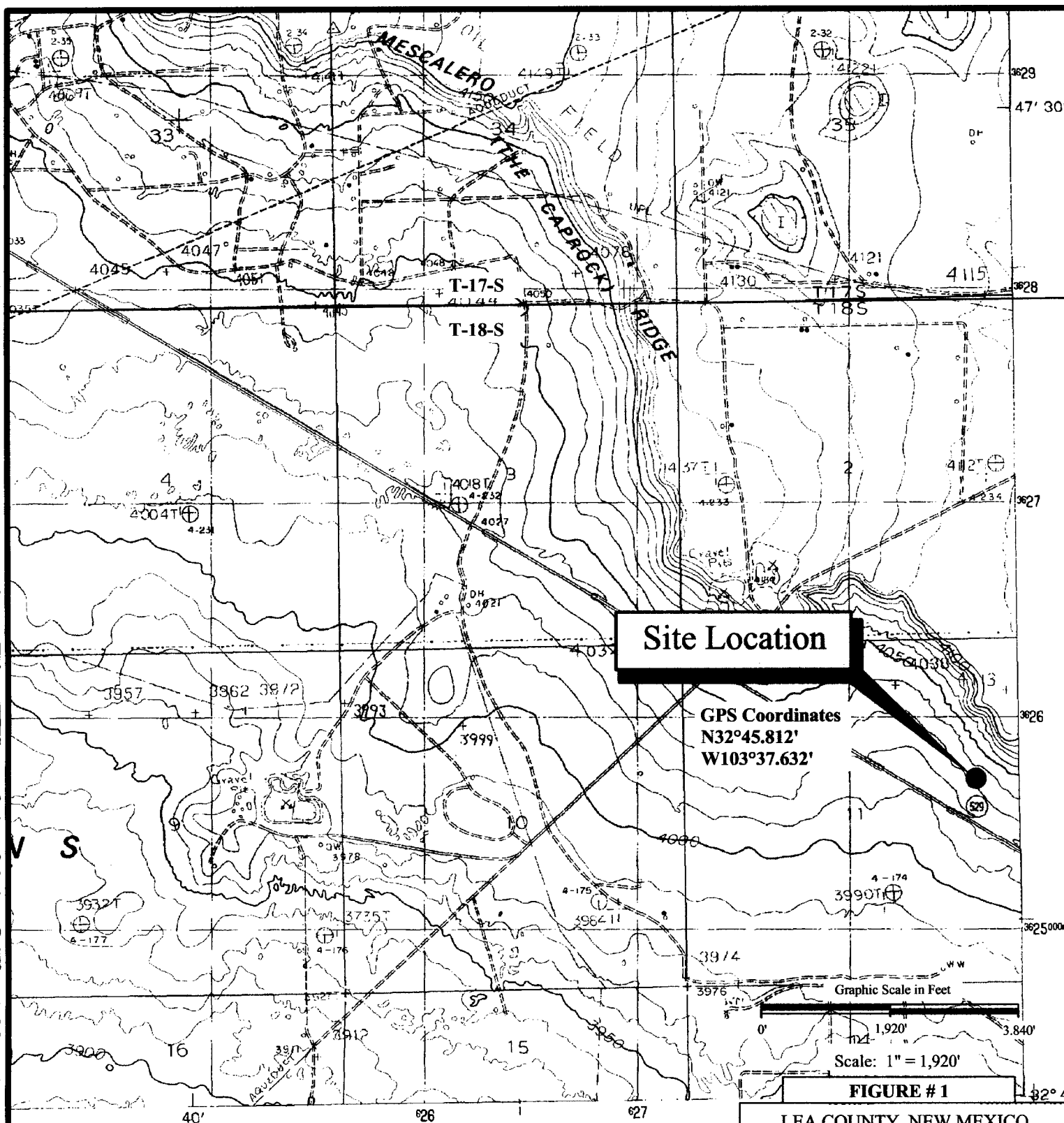
Sincerely,  
**Ocotillo Environmental, LLC**



Cindy K. Crain, P.G.  
Environmental Manager

Cc: Rick Kerby, Oxy  
Jim Amos, BLM

## FIGURES



**Site Location**

**GPS Coordinates**  
**N32°45.812'**  
**W103°37.632'**

Graphic Scale in Feet

Scale: 1" = 1,920'

**FIGURE # 1**

**LEA COUNTY, NEW MEXICO**



**Oxy Federal AB Lease**

**Sec.11, T18S, R33E**  
**1980'FNL, 660' FEL**

**Site Location**

*Ocotillo*



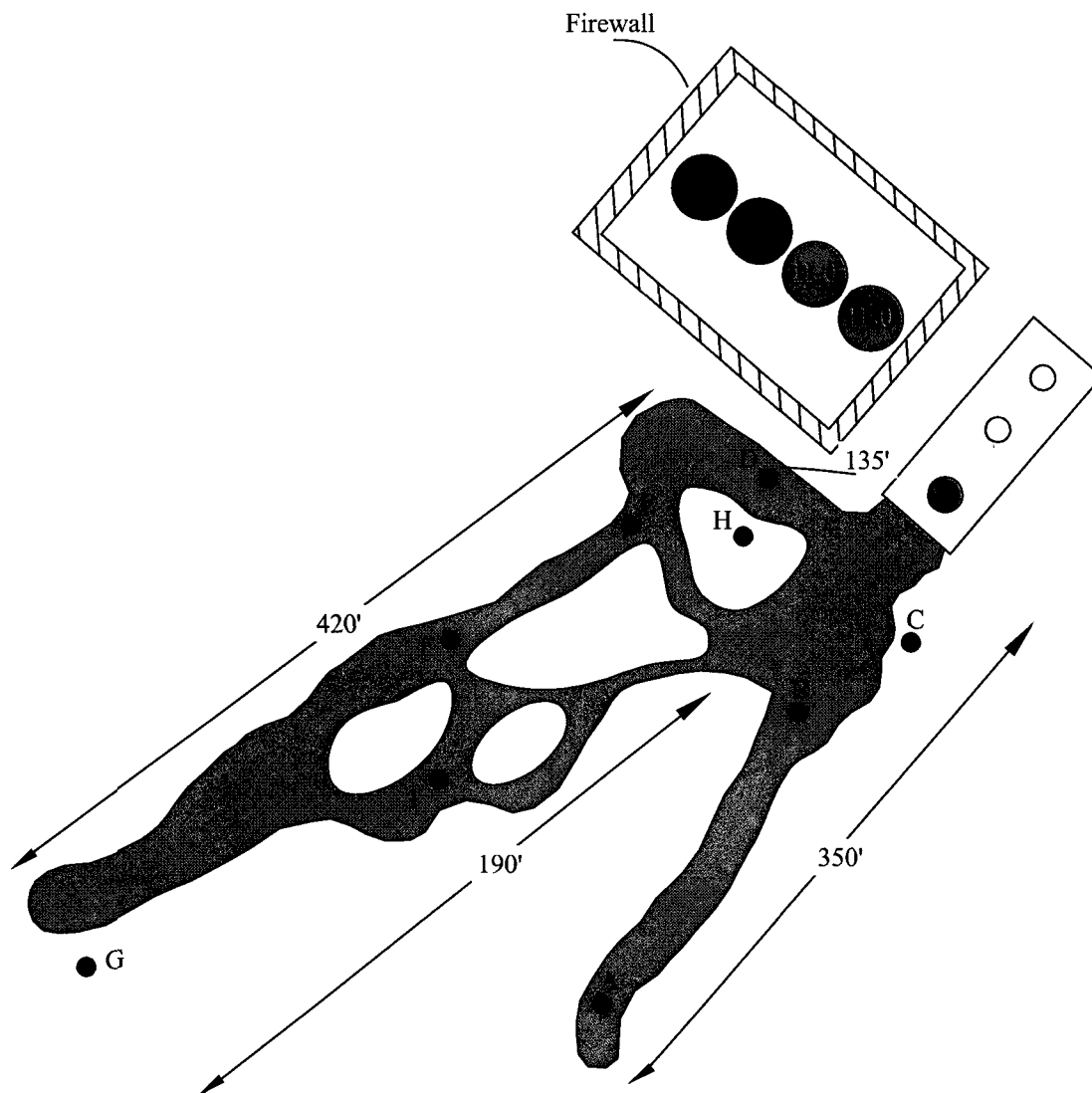
**QUADRANGLE LOCATION**



**DATE:** 5-31-07  
**NAME:** CHH  
**PROJECT NO.:** 7-0601

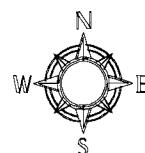
1	2	3	1 Maljamar NE
			2 Buckeye NW
			3 Buckeye NE

1 MILE  
 7000 FEET  
 1000 METER



### LEGEND

- A ● Soil sample locations
- 500 bbl tanks
- Heater Treater
- Separator



DATE: 5-31-07  
 NAME: CHH  
 PROJECT NO.: 7-0601

### FIGURE # 2

LEA COUNTY, NEW MEXICO



Oxy Federal AB Lease

Sec.11, T18S, R33E  
 1980'FNL, 660' FEL

Site Drawing

Ocotillo

ENVIRONMENTAL

**TABLE**

**Table 1: Summary of Laboratory Analysis of Soil Boring Samples**  
**Oxy Permian, Federal AB Battery**  
**Section 11, Township 18 South, Range 33 East**  
**Lea County, New Mexico**

page 1 of 1

Sample Date	Soil Sample Number	Sample Depth (BGS)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
Standard (RRAL)			10				50	1,000
4/9/07	A	18"	0.415	6.44	16.0	42.8	65.655	2030
4/9/07		5	<0.002	<0.002	0.011	0.039	0.050	96
4/9/07	B	4	<0.002	<0.002	<0.002	<0.006	<0.012	1060
4/9/07		14"	<0.002	<0.002	<0.002	<0.006	<0.012	3090
4/9/07	C	1.5	<0.002	<0.002	<0.002	<0.006	<0.012	2960
4/9/07	D	2.5	<0.002	<0.002	<0.002	<0.006	<0.012	272
4/9/07	D	5	<0.002	<0.002	<0.002	<0.006	<0.012	656
4/9/07	E	2	<0.002	<0.002	<0.002	<0.006	<0.012	2815
4/9/07	E	4	<0.002	<0.002	<0.002	<0.006	<0.012	5340
4/9/07	F	2	<0.002	<0.002	<0.002	<0.006	<0.012	432
4/9/07	F	3.5	<0.002	<0.002	<0.002	<0.006	<0.012	736
4/9/07	G	2	<0.002	<0.002	<0.002	<0.006	<0.012	896
4/9/07	G	4.5	<0.002	<0.002	<0.002	<0.006	<0.012	2050
4/9/07	H	20"	<0.002	<0.002	0.002	<0.006	0.002	1650
4/9/07	I	2	<0.002	<0.002	<0.002	0.006	0.006	3810

Notes: Samples were analyzed by Cardinal Laboratories, Hobbs, New Mexico

1. BGS Below ground surface
2. RRAL Recommended Remediation Action Level
3. mg/kg: Milligrams per kilogram
4. <: Below method detection limit

**APPENDIX A**

**Laboratory Data and Chain-of-Custody Documentation**




**ARDINAL  
LABORATORIES**

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR  
OXY PERMIAN  
ATTN: RICK KERBY  
P.O. BOX 1988  
CARLSBAD, NM 88220  
FAX TO: (505) 887-8350

Receiving Date: 04/09/07  
Reporting Date: 04/12/07  
Project Owner: NOT GIVEN  
Project Name: FED AB BATTERY  
Project Location: LEA COUNTY

Sampling Date: 04/09/07  
Sample Type: SOIL  
Sample Condition: COOL & INTACT  
Sample Received By: BC  
Analyzed By: BC

LAB NUMBER	SAMPLE ID	GRO (C <sub>6</sub> -C <sub>10</sub> ) (mg/Kg)	DRO (>C <sub>10</sub> -C <sub>28</sub> ) (mg/Kg)
------------	-----------	--	--

ANALYSIS DATE:		04/11/07	04/11/07
H12442-1	A 18"	1820	5980
H12442-2	A 5'	<10.0	42.0
H12442-3	B 4'	<10.0	31.1
H12442-4	B 14"	<10.0	45.0
H12442-5	C 1.5'	<10.0	69.1
H12442-6	D 2.5'	<10.0	<10.0
H12442-7	D 5'	<10.0	11.9
H12442-8	E 2'	<10.0	55.9
H12442-9	E 4'	<10.0	17.3
H12442-10	F 2'	<10.0	<10.0
H12442-11	F 3.5'	<10.0	13.4
H12442-12	G 2'	<10.0	211
H12442-13	G 4.5'	<10.0	<10.0
H12442-14	H 20"	<10.0	99.1
H12442-15	I 2'	<10.0	587
Quality Control		723	775
True Value QC		800	800
% Recovery		90.3	96.4
Relative Percent Difference		0.4	2.9

METHOD: SW-846 8015 M

Chemist

Date

H12442A OXY

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LABORATORIES**

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PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR  
OXY PERMAN  
ATTN: RICK KERBY  
P.O. BOX 1988  
CARLSBAD, NM 88220  
FAX TO: (505) 887-8350

Receiving Date: 04/09/07  
Reporting Date: 04/12/07  
Project Owner: NOT GIVEN  
Project Name: FED AB BATTERY  
Project Location: LEA COUNTY

Sampling Date: 04/09/07  
Sample Type: SOIL  
Sample Condition: COOL & INTACT  
Sample Received By: BC  
Analyzed By: AB

LAB NUMBER	SAMPLE ID	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE		04/10/07	04/10/07	04/10/07	04/10/07
H12442-1	A 18"	0.415	6.44	16.0	42.8
H12442-2	A 5'	<0.002	<0.002	0.011	0.039
H12442-3	B 4'	<0.002	<0.002	<0.002	<0.006
H12442-4	B 14"	<0.002	<0.002	<0.002	<0.006
H12442-5	C 1.5'	<0.002	<0.002	<0.002	<0.006
H12442-6	D 2.5'	<0.002	<0.002	<0.002	<0.006
H12442-7	D 5'	<0.002	<0.002	<0.002	<0.006
H12442-8	E 2'	<0.002	<0.002	<0.002	<0.006
H12442-9	E 4'	<0.002	<0.002	<0.002	<0.006
H12442-10	F 2'	<0.002	<0.002	<0.002	<0.006
H12442-11	F 3.5'	<0.002	<0.002	<0.002	<0.006
H12442-12	G 2'	<0.002	<0.002	<0.002	<0.006
H12442-13	G 4.5'	<0.002	<0.002	<0.002	<0.006
H12442-14	H 20"	<0.002	<0.002	0.002	<0.006
H12442-15	I 2'	<0.002	<0.002	<0.002	0.006
Quality Control		0.097	0.096	0.097	0.295
True Value QC		0.100	0.100	0.100	0.300
% Recovery		97.7	96.0	97.2	98.5
Relative Percent Difference		1.2	1.4	3.1	3.1

METHOD: EPA SW-846 8021B

Chemist

4/12/07

Date



# ARDINAL LABORATORIES

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

## ANALYTICAL RESULTS FOR

OXY PERMIAN

ATTN: RICK KERBY

P.O. BOX 1988

CARLSBAD, NM 88220

FAX TO: (505) 887-8350

Receiving Date: 04/09/07

Reporting Date: 04/10/07

Project Number: NOT GIVEN

Project Name: FED AB BATTERY

Project Location: LEA COUNTY, NM

Analysis Date: 04/10/07

Sampling Date: 04/09/07

Sample Type: SOIL

Sample Condition: COOL &amp; INTACT

Sample Received By: BC

Analyzed By: AB

LAB NUMBER	SAMPLE ID	Cl <sup>-</sup> (mg/L)
H12442-1	A 18"	2030
H12442-2	A 5'	96
H12442-3	B 4'	1060
H12442-4	B 14"	3090
H12442-5	C 1 1/2'	2960
H12442-6	D 2 1/2'	272
H12442-7	D 5'	656
H12442-8	E 2'	2815
H12442-9	E 4'	5340
Quality Control		520
True Value QC		500
% Recovery		104
Relative Percent Difference		5.9

METHOD: Standard Methods

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

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

*Burgett P. Coche*  
Chemist

4/10/07  
Date

H12442

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LABORATORIES**

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

PHONE (505) 393-2326 • 101 E. MARLAND • HOBBBS, NM 88240

**ANALYTICAL RESULTS FOR****OXY PERMIAN****ATTN: RICK KERBY****P.O. BOX 1988****CARLSBAD, NM 88220****FAX TO: (505) 887-8350****Receiving Date: 04/09/07****Reporting Date: 04/10/07****Project Number: NOT GIVEN****Project Name: FED AB BATTERY****Project Location: LEA COUNTY, NM****Analysis Date: 04/10/07****Sampling Date: 04/09/07****Sample Type: SOIL****Sample Condition: COOL & INTACT****Sample Received By: BC****Analyzed By: AB**

LAB NUMBER	SAMPLE ID	Cl <sup>-</sup> (mg/L)
H12442-10	F 2'	432
H12442-11	F 3 1/2'	736
H12442-12	G 2'	896
H12442-13	G 4 1/2'	2050
H12442-14	H 20"	1650
H12442-15	I 2'	3810
Quality Control		520
True Value QC		500
% Recovery		104
Relative Percent Difference		5.9

**METHOD: Standard Methods****4500-ClB****Note: Analyses performed on 1:4 w:v aqueous extracts.**

Chemist

Date

4/10/07

H12442A

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**ARDINAL LABORATORIES**

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603  
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325) 673-7020

<b>BILL TO</b>				<b>ANALYSIS REQUEST</b>															
Company Name: OXY PERMIAN				P.O. #: 1988															
Project Manager: Rick Kerby				Company: OXY Permitted															
Address: Box 1988				Attn: Rick Kerby															
City: Carlsbad				Address: 102 S Main															
Phone #: 505-887-8337				State/Zip: NM 88220															
Fax #: 505-887-8337				City: Carlsbad															
Project #:				Phone #: 887-8337															
Project Name: FID AB Battery				Fax #: 887-8350															
Project Location: Lea City																			
Sampler Name: Rick Kerby																			
FOR LAB USE ONLY																			
Lab I.D.				Sample I.D.															
<div style="position: absolute; top: 0; right: 0; transform: rotate(90deg); font-weight: bold;">1988 / 80134 / C</div>				<div style="position: absolute; top: 0; right: 0; transform: rotate(90deg); font-weight: bold;">1988 / 80134 / C</div>															

**PLEASE NOTE:** Liability and Damages: Certificate liability and third party exclusive remedy for any claim arising whether based in contract or tort shall be limited to the amount paid by the client for the analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Caprock within 30 days after completion of the applicable service. In no event shall Caprock be liable for consequential damages, including without limitation, business interruption, 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 or Caprock's negligence of whatever such claim is based upon any of the above stated reasons or otherwise.

Relinquished By:		Received By:	
Date:	Time:	Date:	Time:
Rick Kerby	4/9/07	Rick Kerby	4/9/07

Delivered By: (Circle One) ☒ Bus ☐ UPS - Other:

Sampler - UPS - Bus - Other:

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

**ARDINAL LABORATORIES**

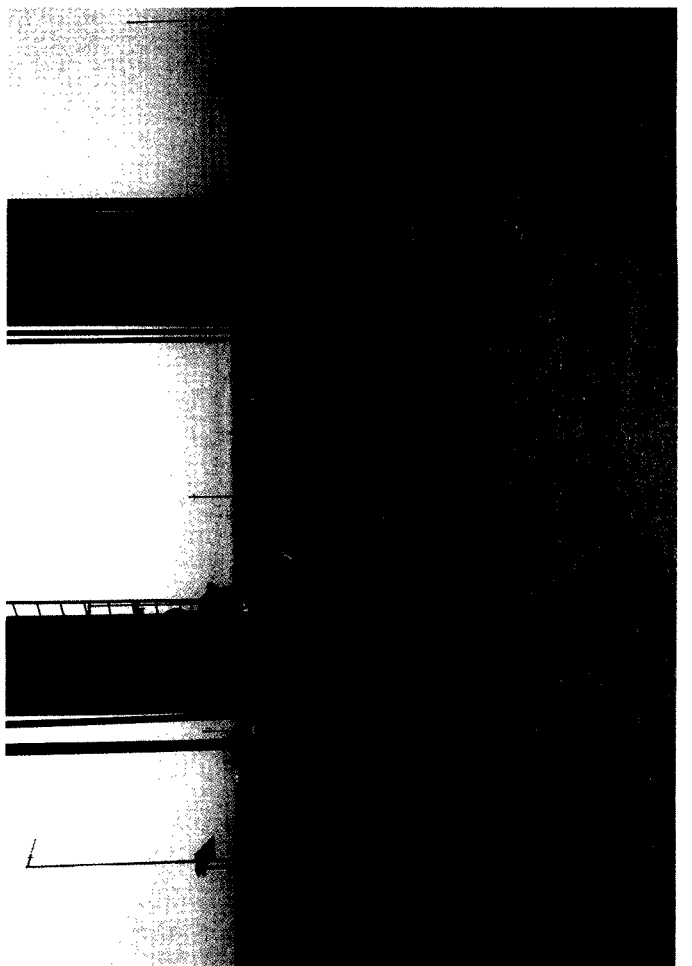
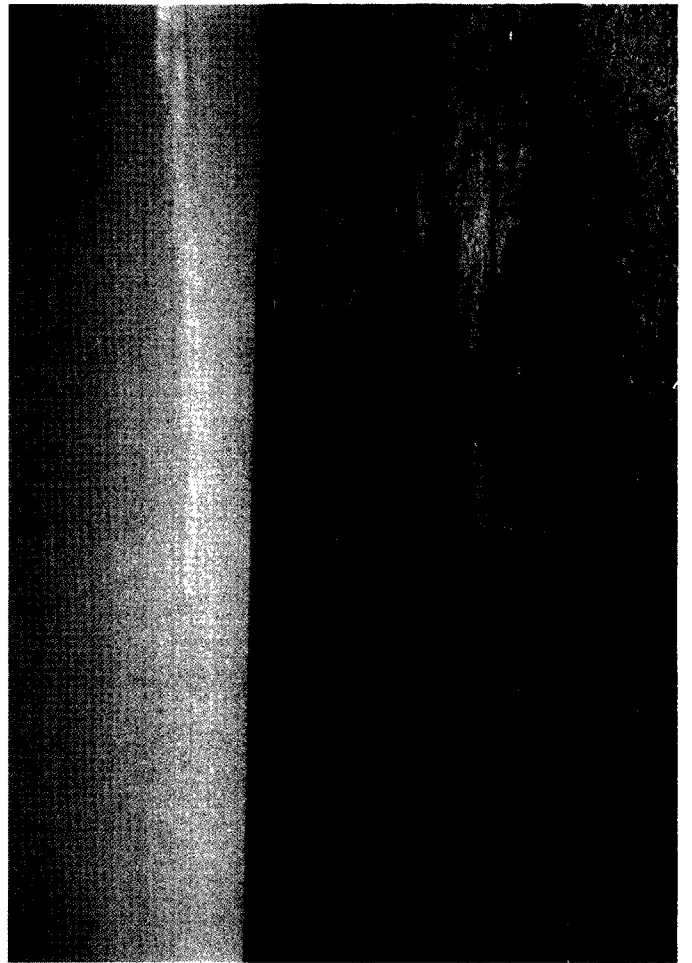
101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603  
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325) 673-7020

[illegible]

Cardinal cannot accept verbal changes. Please fax written changes to 605-393-2476

**APPENDIX B**

**Photographs**





**OXY PERMIAN  
Federal AB Battery**



**1. View to southwest of spill (5/30/07).**



**2. View to southwest of heater treater and spill (5/30/07).**

**OXY PERMIAN  
Federal AB Battery**



**3. View to northeast of heater treater and separators (5/30/07).**



**4. View to northeast of spill and equipment (5/30/07).**

**C141 DOCUMENTATION**

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: OXY USA WTP, LP	Contact: Rick Kerby
Address: 102 S. Main St., P.O. Box 1988, Carlsbad, NM 88220	Telephone No.: 505-887-8337
Facility Name: Federal AB Lease Battery #1	Facility Type: Lease Battery
Surface Owner: BLM	Mineral Owner: <del>Lease</del> No. 30 025 28989

LOCATION OF RELEASE

Unit Ltr	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	11	18 South	33 East					Lea

Latitude \_\_\_\_\_ Longitude \_\_\_\_\_

NATURE OF RELEASE

Type of Release: Produced Fluids	Volume of Release: 17 bbls	Volume Recovered: 10 bbls
Source of Release: Water Leg on Heater Treater	Date and Hour of Occurrence: 03/27/2007 11:00 AM	Date and Hour of Discovery: 03/27/2007 12:00 PM
Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.\*

RP# 1345

Describe Cause of Problem and Remedial Action Taken.\*

Ninty degree "L" on water leg came loose. Fluid was picked up and hauled to disposal.

Describe Area Affected and Cleanup Action Taken.\*

Fluid spilled on location and ran into pasture. Fluid was picked up and hauled to disposal. Area allowed to dry. Contaminated dirt will be temporarily amassed onto plastic liner on location. Remedial plan will be submitted to NMOCD and BLM. HES Specialist will notify BLM and NMOCD when remediation plan has been developed.

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: <i>Rick Kerby</i>	OIL CONSERVATION DIVISION	
Printed Name: Rick Kerby	Approved by District Supervisor: <i>[Signature]</i>	
Title: HES Specialist	Approval Date: 6.7.07	Expiration Date: 8.7.07
E-mail Address: rick_kerby@oxy.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: 04-06-2007 Phone: 505/887-8337	① SUBMIT CHLORIDE CONTENT	

\* Attach Additional Sheets If Necessary

- OF WATER SPILLED
- FULL HORIZ & VERTICAL DELINEATION TO CLEAN-T1 REQUIRED
  - FINAL C-141 w/ FULL DOCUMENTATION, TESTING, & BILLS OF LADEN FOR CLOSURE BY