

# APACHE CORPORATION

EW WALDEN BATTERY

API 30-025-10273

## C141 CLOSURE SUMMARY

NMOCD RP # 1331

UL-L (NW¼ OF THE SW¼) OF SECTION 15 T22S R37E

LATITUDE: N32° 23.330'      LONGITUDE: W103° 09.351'

~3.2 MILES SOUTH (BEARING 176°) OF EUNICE

LEA COUNTY, NEW MEXICO

August 16, 2007

PREPARED FOR APACHE CORPORATION BY:

### ***HUNGRY HORSE, LLC***

**ENVIRONMENTAL SERVICES**

P.O. Box 1058; 3709 S. Eunice Hwy  
Hobbs, NM 88241

Phone: 505-393-3386

Cell: 505-631-3277

Fax: 505-391-4585

E-mail: jgood4614@aol.com



**JOHN GOOD**  
ENVIRONMENTAL MANAGER



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## 1.0 Project Summary

Release Site Name: E.W. Walden Tank Battery (API: 30-025-10273)  
Operating Company: Apache Corporation  
Company Representative: Guinn Burks, Permian Env Coordinator Phone: 432-556-9143  
Address: PO Box 728, Crane, TX 79731 Email: guinn.burks@usa.apachecorp.com  
Remediation Company: Hungry Horse, LLC Phone: 505-393-3386

### SITE SPECIFIC DATA:

Legal Description: Lea County, New Mexico UL-L Section 15 T22S R37E  
General Location: 3.2 miles S (176°) of Eunice, NM.  
Latitude: N32° 23.330' Longitude: W103° 09.351' Elevation: 3,400-ft amsl  
Land Ownership: Private – Irvin Boyd  
Ground Water Elevation: 75' bgs (based on Chevron/Texaco contour map)  
Water Wells within 1000-ft: none Surface Water within 1000-ft: none

### RELEASE SPECIFIC DATA:

Date and Time of Release(s): before 7:00 AM - - 3/5/07  
Material Released: Crude Oil with minor Produced Water component  
Volume Released: ~134-bbl Volume Recovered: 7-bbl  
Cause of Release: Hole at bottom-line of oil storage tank  
Release Affected Area: ~4000-ft<sup>2</sup> including 200-ft<sup>2</sup> flow path off SE corner of battery  
Depth of Contamination: < 2-ft bgs  
**NMOCD Site Ranking:** 10 (ground water >50'; <100' below lowest contamination)

### REMEDIATION:

576-yd<sup>3</sup> of contaminated soil was excavated from within the battery containment area and from the flow path emanating from the SE corner of the battery. The flow path was excavated to remove visibly contaminated caliche – depth ranging 6” to 12”. The bottom of the flow path was tested for total chlorides (Hach strips) at several locations, with results yielding no values >250-ppm. Contaminated areas within the battery that were accessible to a backhoe were excavated to ~3-ft bgs. Inaccessible areas were manually excavated to 6” to 12” bgs. The contaminated berms were also removed. All excavated contaminated soil was disposed of at the NMOCD approved Sundance Disposal facility.

The excavated area within the battery was lined with a 20-mil polyvinyl liner. The liner was installed with a 5-ft lateral overlap such that it would extend through the caliche berm(s) when they were installed. Backfill with clean caliche brought the battery interior up to the previous surface level. A slight SE slope was incorporated to facilitate vacuum fluid removal in the event of a future release. The containment berms were reinstalled in their original locations and a layer of pea-gravel was placed over the battery interior and berms. The project was completed by Hungry Horse, LLC on May 1, 2007.

## **2.0 Detailed 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 in the Eunice Plain physiographic subdivision, described by Nicholson & Clebsch as "covered almost entirely by reddish-brown dune sand. In some places the underlying surface consists of alluvial sediments – most commonly calcareous silt in buried valleys or Quaternary lake basins. It has a general southeast slope toward Monument Draw." The sand cover is generally 2 to 5-ft thick, but can be 20 – 30-ft thick in localized drift areas.

### ***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 (*Quercus 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 the area. A survey of Listed, Threatened, or Endangered species was not conducted.

### ***2.3 Area Ground Water***

Based on the most current available evidence (*Chevron-Texaco contour map, Plate 4 of Attachments*), depth to ground water is projected to be 75-ft 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 (COCs) are petroleum hydrocarbons and a fraction of total chlorides. The contaminated area is mainly contained within the battery containment area (66' X 110') and a narrow (2' X 100') flow path extending east from the SE corner of the battery facility.

## **4.0 NMOCD Site Ranking**

Contaminant delineation and site evaluation work done at this site indicate that the chemical parameters of the soil and the physical parameters of the ground water were 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<sup>8015m</sup>, Benzene, and the mass sum of Benzene, Toluene, Ethyl Benzene, and total Xylenes (BTEX<sup>8260</sup>), 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 10 points with the soil remedial goals highlighted in the Site Ranking Table.

**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				SURFACE WATER SCORE = 0	
WELLHEAD PROTECTION 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 Remediation Process

576-yd<sup>3</sup> of contaminated soil was excavated from within the battery containment area and from the flow path emanating from the SE corner of the battery. The flow path was excavated to remove visibly contaminated caliche – depth ranging 6” to 12”. The bottom of the flow path was tested for total chlorides (Hach strips) at several locations, with results yielding no values >250-ppm. Contaminated areas within the battery that were accessible to a backhoe were excavated to ~3-ft bgs. Inaccessible areas were manually excavated to 6” to 12” bgs. The contaminated berms

were also removed. All excavated contaminated soil was disposed of at the NMOCD approved Sundance Disposal facility.

The excavated area within the battery was lined with a 20-mil polyvinyl liner (Plate 5 – Attachments). The liner was installed with a 5-ft lateral overlap such that it would extend through the caliche berm(s) when they were installed. Backfill with clean caliche brought the battery interior up to the previous surface level. A slight SE slope was incorporated to facilitate vacuum fluid removal in the event of a future release. The containment berms were reinstalled in their original locations and a layer of pea-gravel was placed over the battery interior and berms. The project was completed by Hungry Horse, LLC on May 1, 2007.

#### ATTACHMENTS

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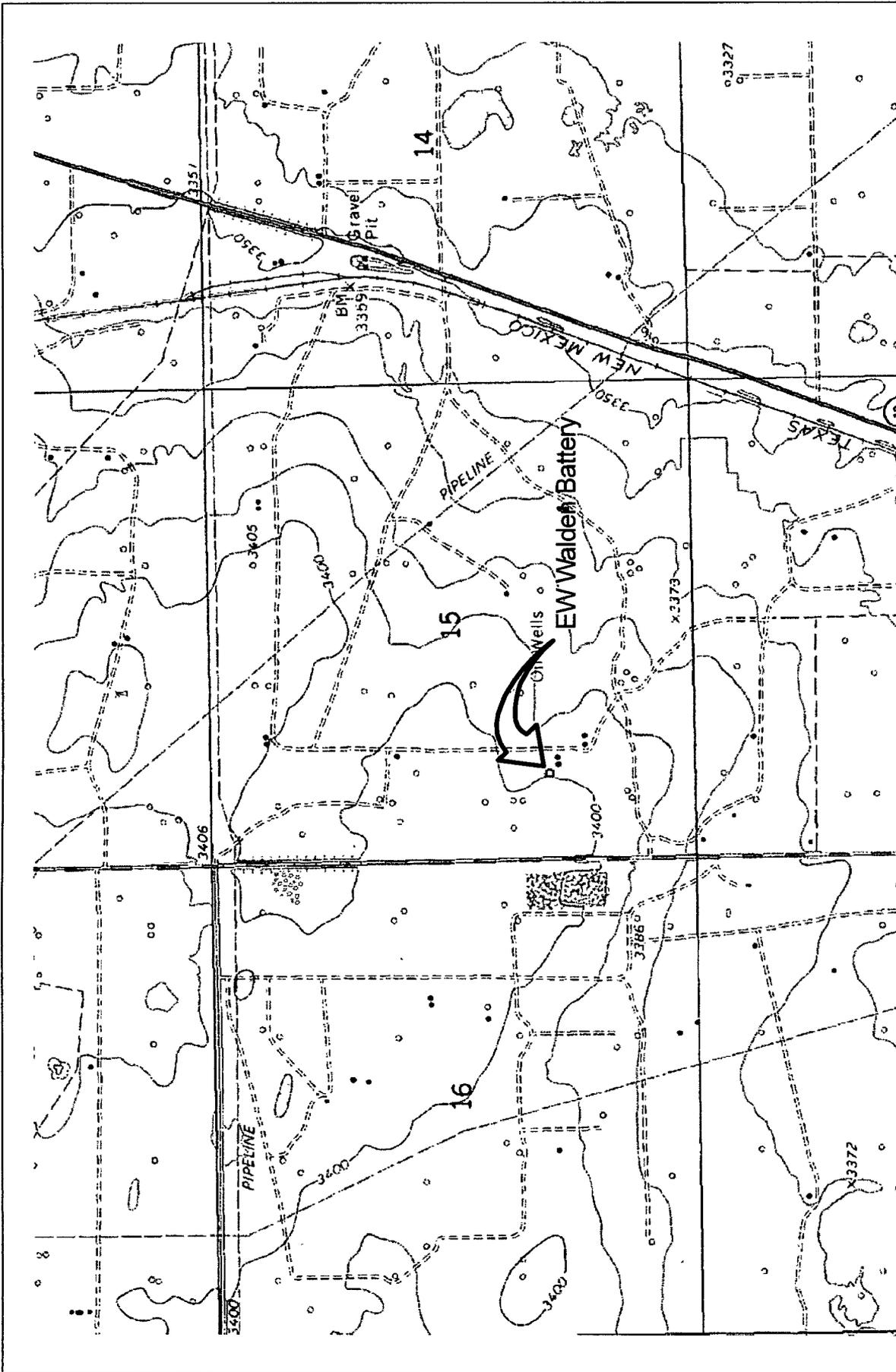


Plate 2 Release Site Topography Apache Corporation E.W. Walden Battery Release	Rendering by: John Good August - 2007		Rev: 1
	Lea County, New Mexico UL-L SECTION 15 T22S R37E 32° 23.330' N, 103° 09.351' W Elevation: ~3400-ft amsl		



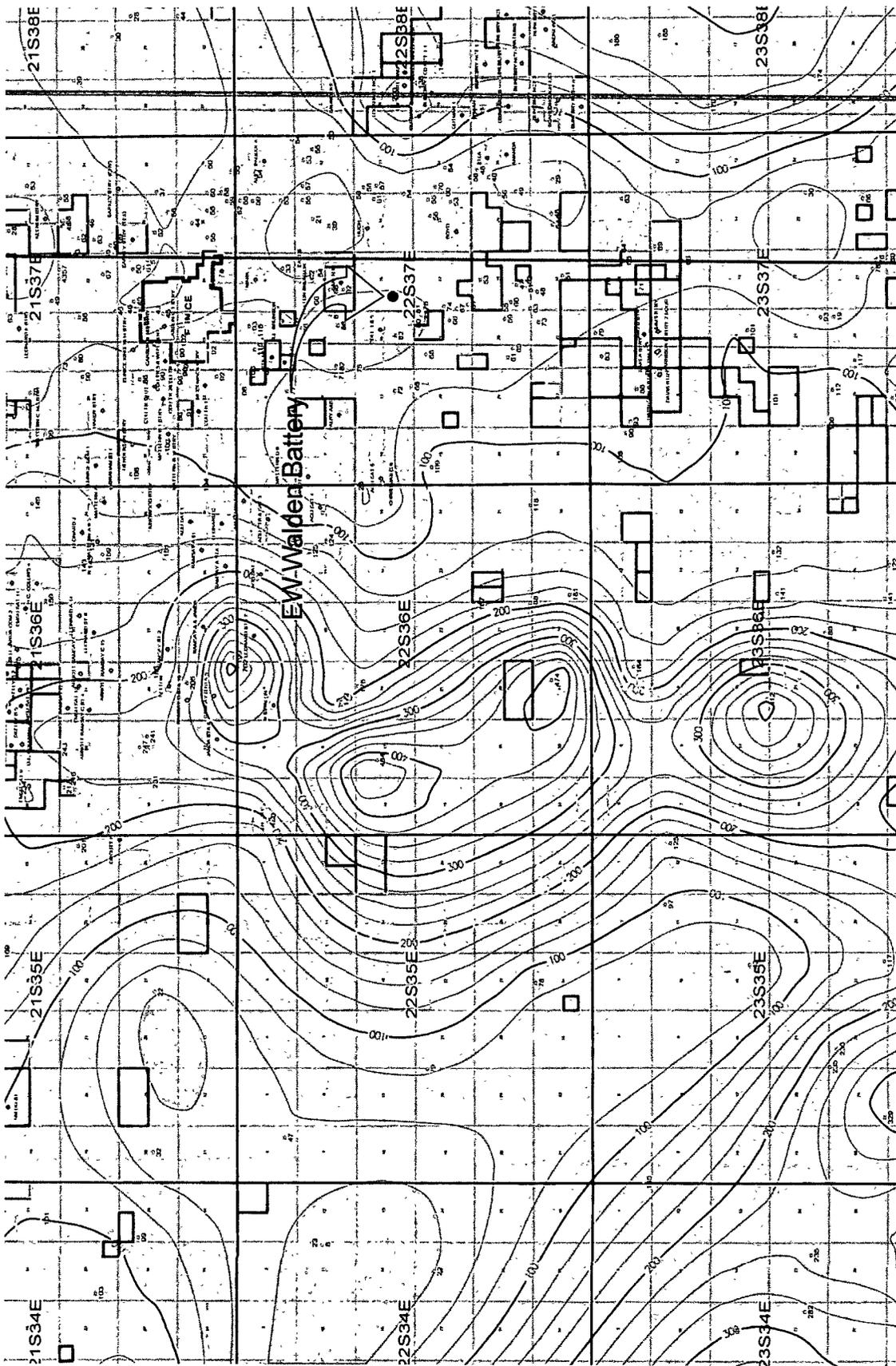
Plate 3  
Aerial Photograph of Area  
Apache Corporation  
E.W. Walden Battery Release

Lea County, New Mexico  
UL-L SECTION 15 T22S R37E  
32° 23.330' N, 103° 09.351' W  
Elevation: ~3400-ft amsl

Rendering by: John Good  
August - 2007

Rev:  
1



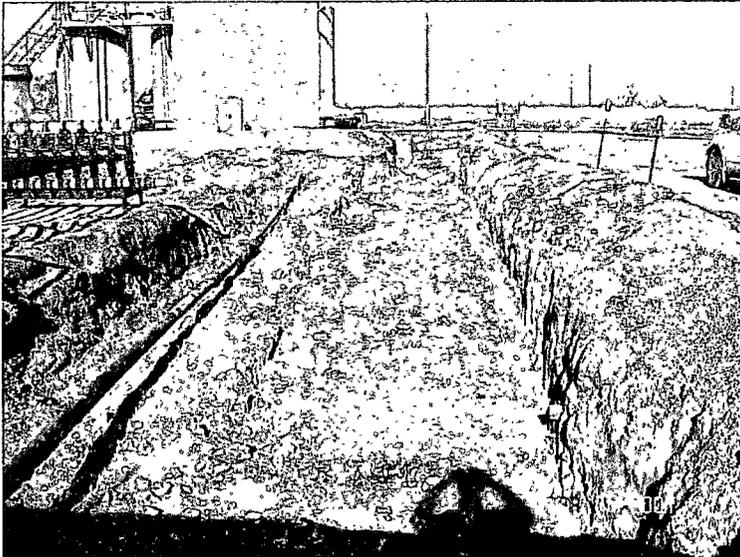


Rendering by: John Good    Rev: 1  
 August - 2007  
 SCALE: 0 5 Miles

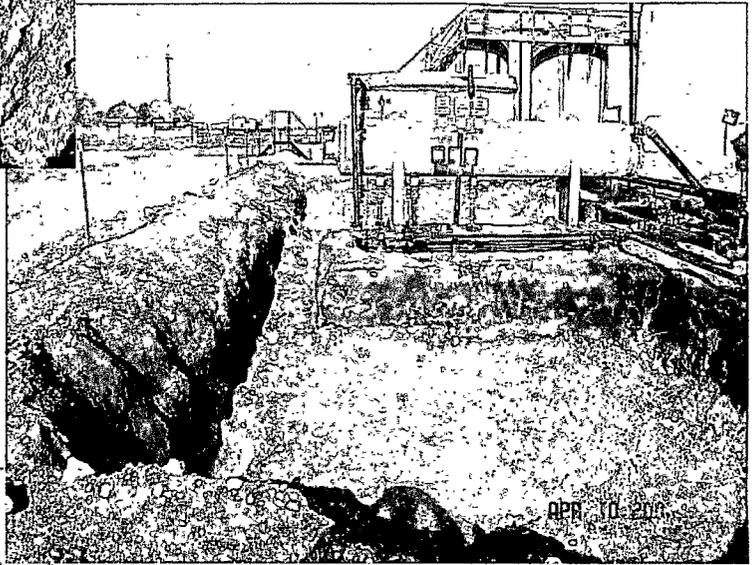
Lea County, New Mexico  
 U-L SECTION 15 T22S R37E  
 32° 23.330' N, 103° 09.351' W  
 Elevation: ~3400-ft amsl

Plate 4  
 Area Water Contour Map  
 Apache Corporation  
 E.W. Walden Battery Release

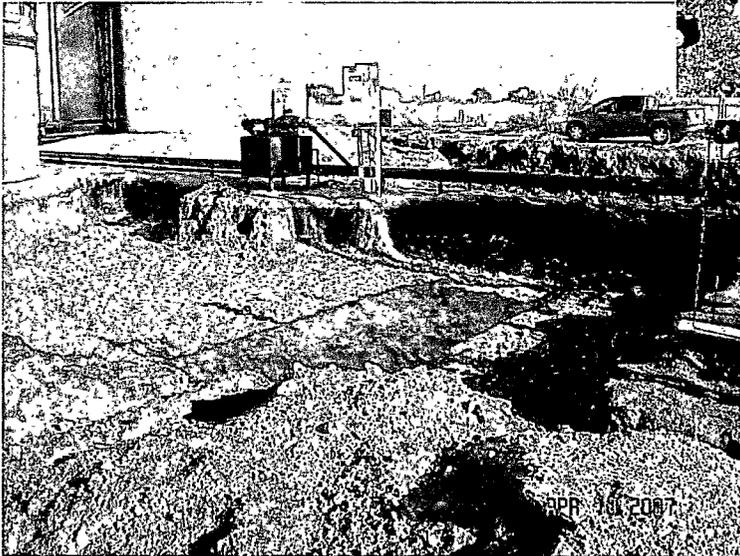




Excavated battery area – north side



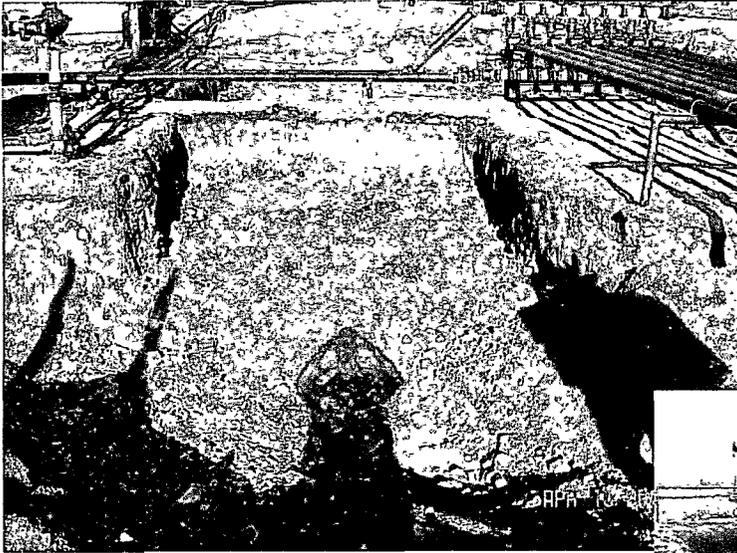
Excavated battery area – south side



Excavated battery area – central



Excavated battery area – SE corner



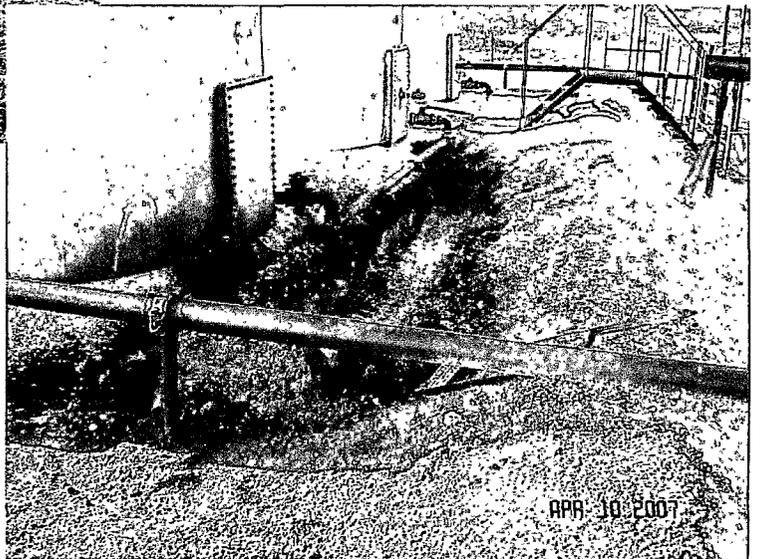
Excavated battery area – east side

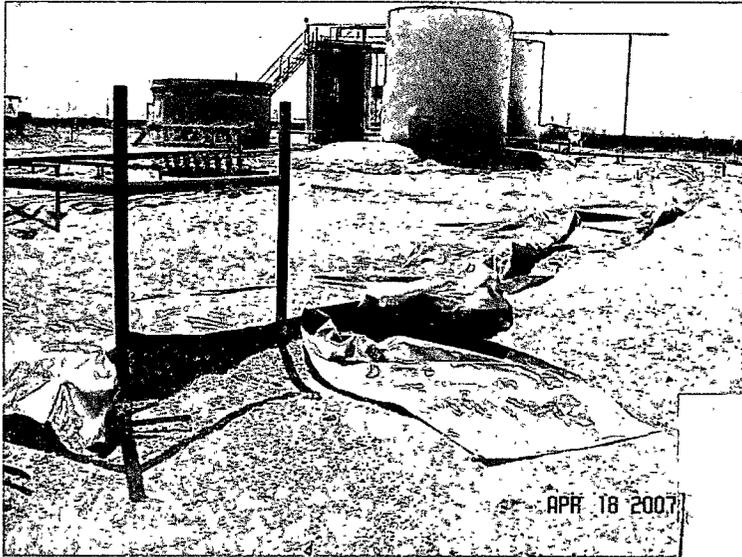
Excavated battery area – north side looking from NW corner



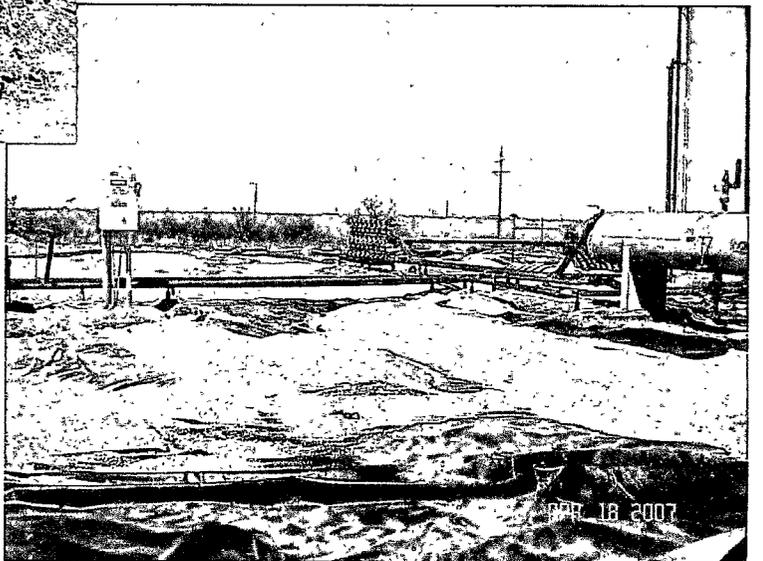
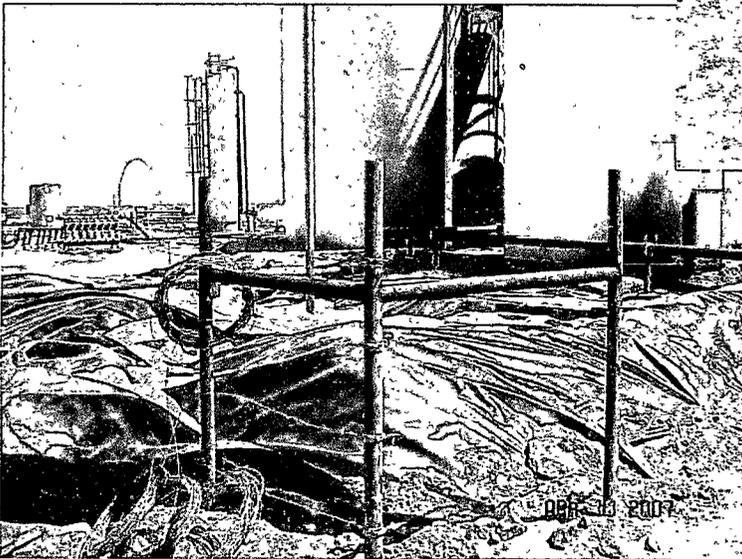
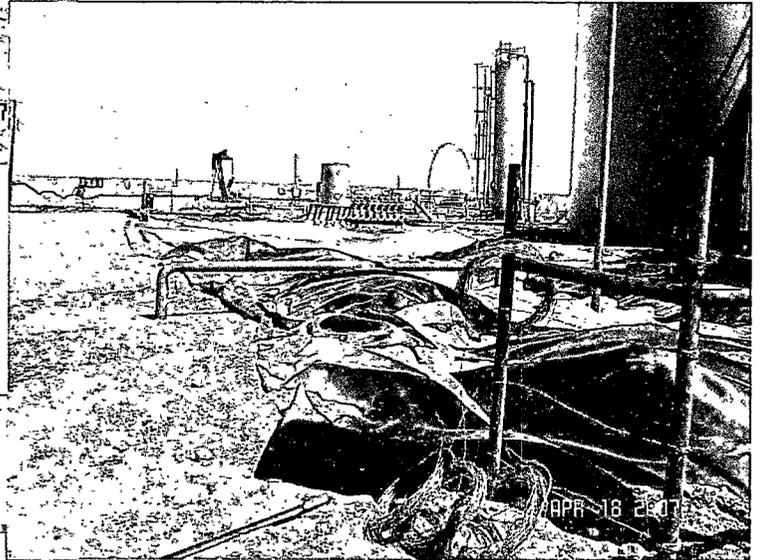
Narrow excavated battery area at NW corner

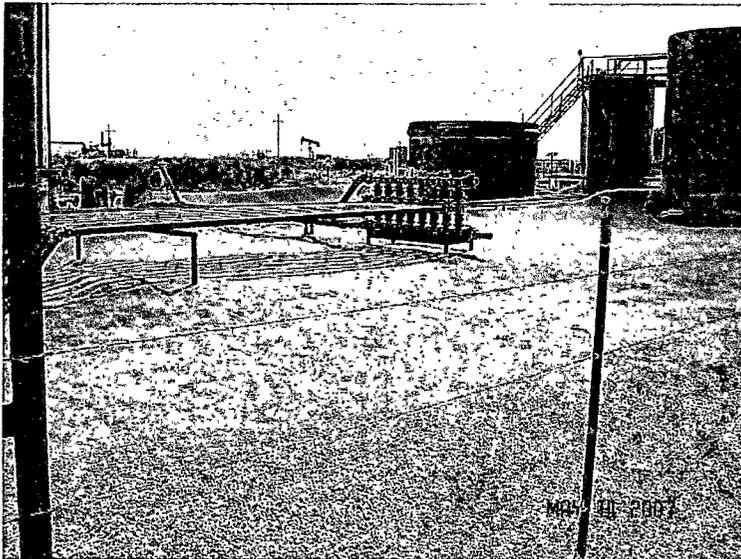
Narrow excavation at west side of battery





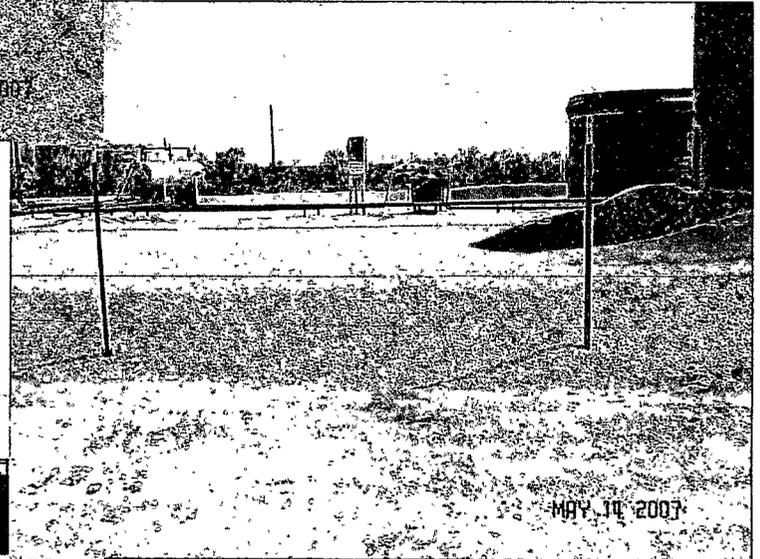
Liner installation



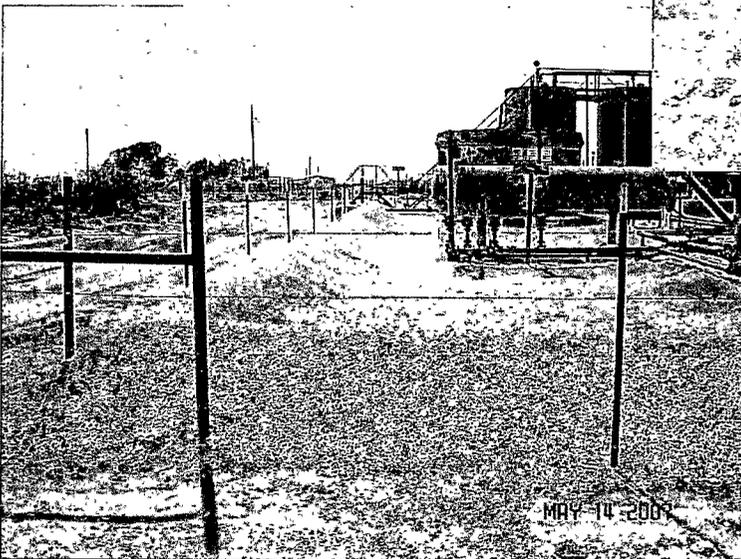


Battery backfilled, berms replaced and layer of new pea-gravel installed

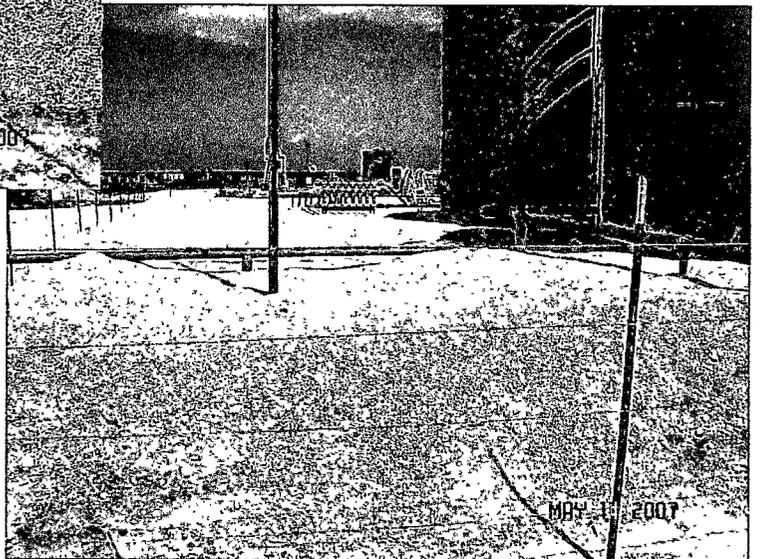
MAY 11 2007



MAY 14 2007



MAY 14 2007



MAY 15 2007

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 87501

State of New Mexico  
Energy Minerals and Natural Resources

Form C-141

Revised October 10, 2003

Submit 2 Copies to appropriate  
District Office in accordance  
with Rule 116 on back  
side of form

Oil Conservation Division  
1120 South St. Francis Dr.  
Santa Fe, NM 97505

Release Notification and Corrective Action

OPERATOR



Initial Report



Final Report

Name of Company	Apache Corporation	Contact	Guinn Burks
Address	P. O. Box 728, Crane, TX 79731	Telephone No.	432-556-9143
Facility Name	E W Walden Btty	Facility Type	Tank Battery

Surface Owner	Mineral Owner	API #	30-625-10270
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LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
L	45	22S	27E					Lea

Latitude 32°39.013 Longitude 102°45.293

NATURE OF RELEASE

Type of Release	Oil	Volume of Release	134 bbls	Volume Recovered	7 bbls
Source of Release	Tank	Date/Hour of Occurrence	3/5/2007	Date /Hour of Discovery	7:00 3-5-07
Was Immediate Notice Given?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If Yes, To Whom?	Gary Wink		
By Whom?	Rey Ramos	Date and Hour	8:37 3-5-07		
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*					
NA					
Describe Cause of Problem and Remedial Action Taken.*					
210 lbs tank got a hole in the bottom.					
Describe Area Affected and Cleanup Action Taken.*					
This spill was inside the berm with approximately 10' soaking through the berm and running down the lease road. The remaining fine fluid was picked up by a vacuum truck. Hungry Horse has been called in to remove as much contaminated soil as possible without compromising the equipment. (tanks and vessels)					

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>Guinn Burks</i>	Oil Conservation Division	
Printed Name:	Guinn Burks	Approved by the District Supervisor:	<i>[Signature]</i>
Title:	Environmental Coordinator	Approval Date:	5-11-07
Email Address:	guinn.burks@apachecorp.com	Expiration Date:	7-11-07
Date:	7/6/2007	Conditions of Approval:	Attached
Phone:	1-214-566-9143	SUBMITTER OF FINAL C-141	

\*Attach Additional Sheets if Necessary

2/ SAMPLE DOCUMENTATION

Incident - nPAC0713533649  
application - pPAC07

RP#1331

<b>Apache Corporation</b>		Incident Date: 3/5/07		NMOCD Notified: 3/5/07	
SITE: E.W. Walden Battery			API No. 30-025-10273		
Company: Apache Corporation					
Street Address:					
Mailing Address: P.O. Box 728					
City, State, Zip: Crane, TX 79731					
Representative: Guinn Burks					
Representative Telephone: 432-556-9143					
Telephone:					
Fluid Volume Released (bbl): < 134		Volume Recovered (bbl): 7		Net Release: < 127	
<i>&gt;25 bbl: Notify NMOCD verbally within 24 hours and submit C-141 within 15 days.  5-25 bbl: Submit Form C-141 within 15 days. (Also applies to unauthorized release of &gt;50 mcf Natural Gas).</i>					
Leak, Spill, or Pit (LSP) Name: E.W. Walden Battery					
Source of Contamination: Storage Tank					
Land Owner, i.e. BLM, ST, Fee, Other:					
LSP Dimensions: ~ 66' X 110' Battery Area + 110' X 2' Flowpath					
LSP Area ~ 4000 -ft <sup>2</sup>					
Location of Reference Point (RP):					
Location distance and direction from RP:					
Latitude: North		32		23.33	
Longitude: West		103		9.351	
Elevation above mean sea level (amsl):		3400 feet		1036 meters	
Distance from South Section Line (feet):		1600			
Distance from West Section Line (feet):		950			
Location - Unit Letter and 1/4 1/4:		UL- L		NW - 1/4 of SW - 1/4	
Location - Section		15			
Location - Township		22S			
Location - Range		37E			
Location - County		Lea			
Surface water body within 1000' radius of site:		0			
Surface water body within 1000' radius of site:		0			
Domestic water wells within 1000' radius of site:		0			
Domestic water wells within 1000' radius of site:		0			
Agricultural water wells within 1000' radius of site:		0			
Agricultural water wells within 1000' radius of site:		0			
Public water supply wells within 1000' radius of site:		0			
Public water supply wells within 1000' radius of site:		0			
Depth (feet) from land surface to Ground Water (DG): ~		75			
Depth (feet) of lowest contamination (DC):		5			
Depth (feet) to Ground Water (DG - DC = DtGW):		> 70			
<b>1. Ground Water</b>		<b>2. Wellhead Protection Area</b>		<b>3. Distance to Surface Water</b>	
If Depth to GW <50-feet: 20 points		If <1000' from water source, or, <200' from private domestic water source: 20 points If >1000' from water source, or, >200' from private domestic water source: 0 points		<200 horizontal feet: 20 points	
If Depth to GW 50 to 100-feet: 10 points				200-1000 horizontal feet: 10 points	
If Depth to GW >100-feet: 0 points				>1000 horizontal feet: 0 points	
Ground Water Score: 10		Wellhead Protection Score: 0		Surface Water Score: 0	
Site Ranking (1 + 2 + 3):		10			
<b>Total Site Ranking Score and Acceptable Concentrations</b>					
Parameter	20 or >	10		0	
Benzene <sup>1</sup>	10-ppm	10-ppm		10-ppm	
BTEX <sup>1</sup>	50-ppm	50-ppm		50-ppm	
TPH	100-ppm	1000-ppm		5000-ppm	

District I  
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District IV  
1220 S St. Francis Dr , Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources

Form C-141  
Revised June 10, 2003

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

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	Apache Corporation	Contact	Guinn Burks
Address	P.O. Box 728 Crane, TX 79731	Telephone No.	432-556-9143
Facility Name	E.W. Walden Battery	Facility Type	Tank Battery

Surface Owner	0	Mineral Owner	BLM	API No.	30-025-10273
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LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from South Line	Feet from West Line	Longitude-W	Latitude-N	County
L	15	22S	37E	1600	950	103.1559	32.3888	Lea

NATURE OF RELEASE

Type of Release	Crude Oil	Volume of Release	Approx 134 bbl	Volume Recovered	7 bbl
Source of Release	Storage Tank	Date and Hour of Occurrence	03/05/07	Date and Hour of Discovery	3/5/07 7:00 AM
Was Immediate Notice Given?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> Not Required	If YES, To Whom?	NMOCD - Hobbs - Gary Wink		
By Whom?	Ray Ramos	Date and Hour	3/5/07 8:27 AM		
Was a Watercourse Reached?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	If YES, Volume Impacting the Watercourse	NA		

If a Watercourse was Impacted, Describe Fully\*

Describe Cause of Problem and Remedial Action Taken. \*  
Bottom leak in 210-bbl oil storage tank within battery containment area. Tank repairs were facilitated and free fluids (~7-bbl) were removed with a vacuum truck. Hungry Horse LLC contracted for site remediation.

Describe Area Affected and Cleanup Action Taken. \*  
Approximately 3800-ft<sup>2</sup> within the battery was affected. A 100-ft X 2-ft flowpath extended from the SE corner of the battery where the berm was breached. The battery area was excavated, lined with a plastic liner and backfilled with clean caliche and pea gravel. The flowpath was excavated and replaced with clean caliche.

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>Guinn Burks</i>	<b>OIL CONSERVATION DIVISION</b>	
Printed Name:	Guinn Burks	Approved by District Supervisor:	<i>[Signature]</i>
Title:	Environmental Coordinator - Permian Basin	Approval Date:	9.7.07
E-Mail Address:	Guinn.Burks@apachecorp.com	Expiration Date:	-
Date:	8/16/2007	Phone:	432-556-9143
		Conditions of Approval:	<input type="checkbox"/> Attached