

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

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JOHN GOOD
ENVIRONMENTAL MANAGER



Table of Contents

1.0 Project Summary	3
2.0 Site Description	4
2.1 Geological Description	3
2.2 Ecological Description	4
2.3 Area Ground Water	4
2.4 Area Water Wells	4
2.5 Area Surface Water Features	4
3.0 Contaminant and Size of Area	4
4.0 NMOCD Site Ranking	4
5.0 Remediation Process	5

ATTACHMENTS 7-18

Plate 1: Site Location Map	7
Plate 2: Site Topography Map	8
Plate 3: Site Aerial Photograph	9
Plate 4: Ground Water Elevation Contour Map	10
Plate 5: Battery Detail Drawing	11
Photographs	12-15
Initial NMOCD C-141 (03-06-07)	16
Site Metrics Information	17
Final NMOCD C141 Form	18

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-ft² including 200-ft² 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-yd³ 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^{8015m}, Benzene, and the mass sum of Benzene, Toluene, Ethyl Benzene, and total Xylenes (BTEX⁸²⁶⁰), 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		WELLHEAD PROTECTION SCORE= 0		SURFACE WATER 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-yd³ 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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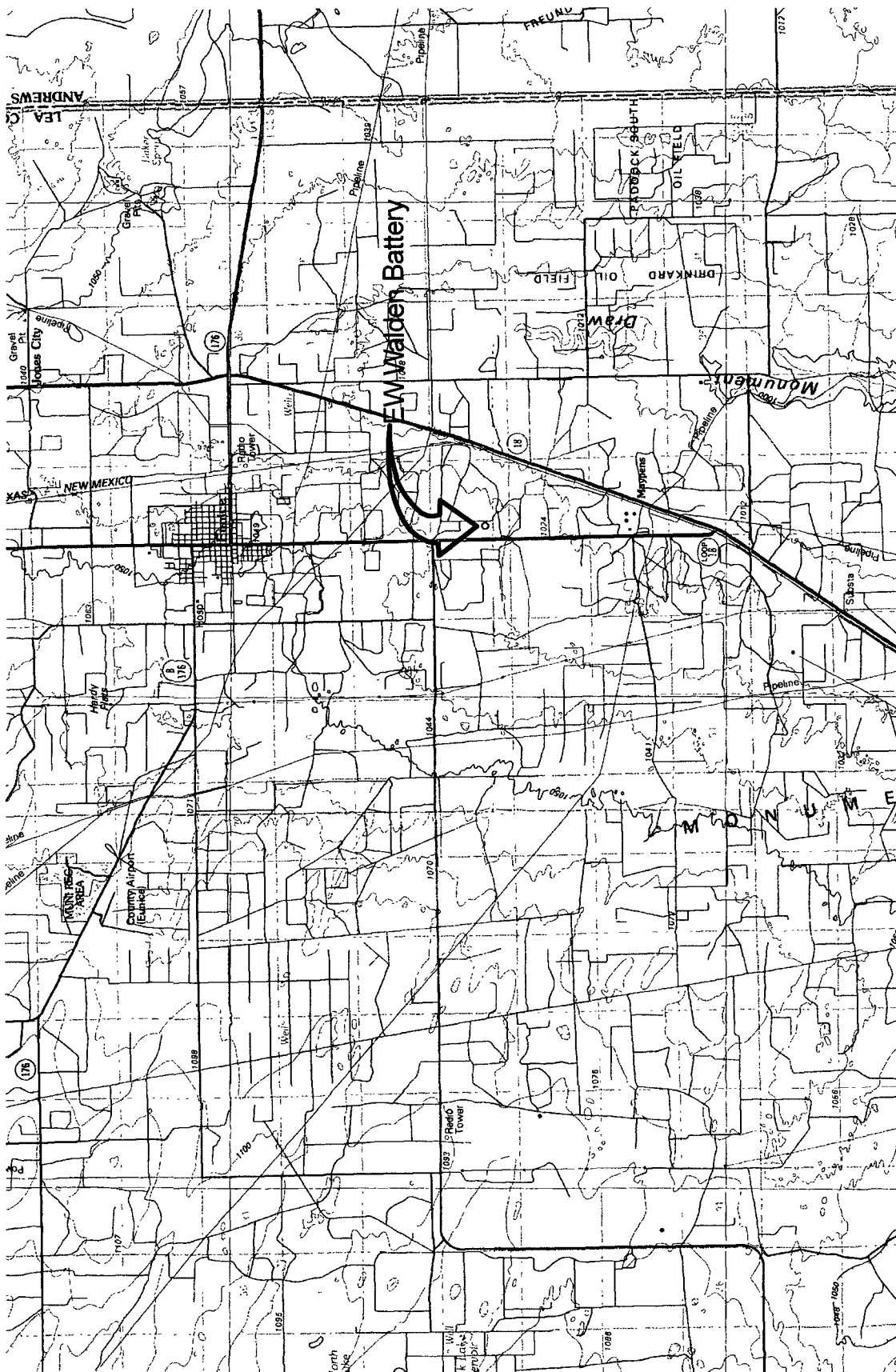
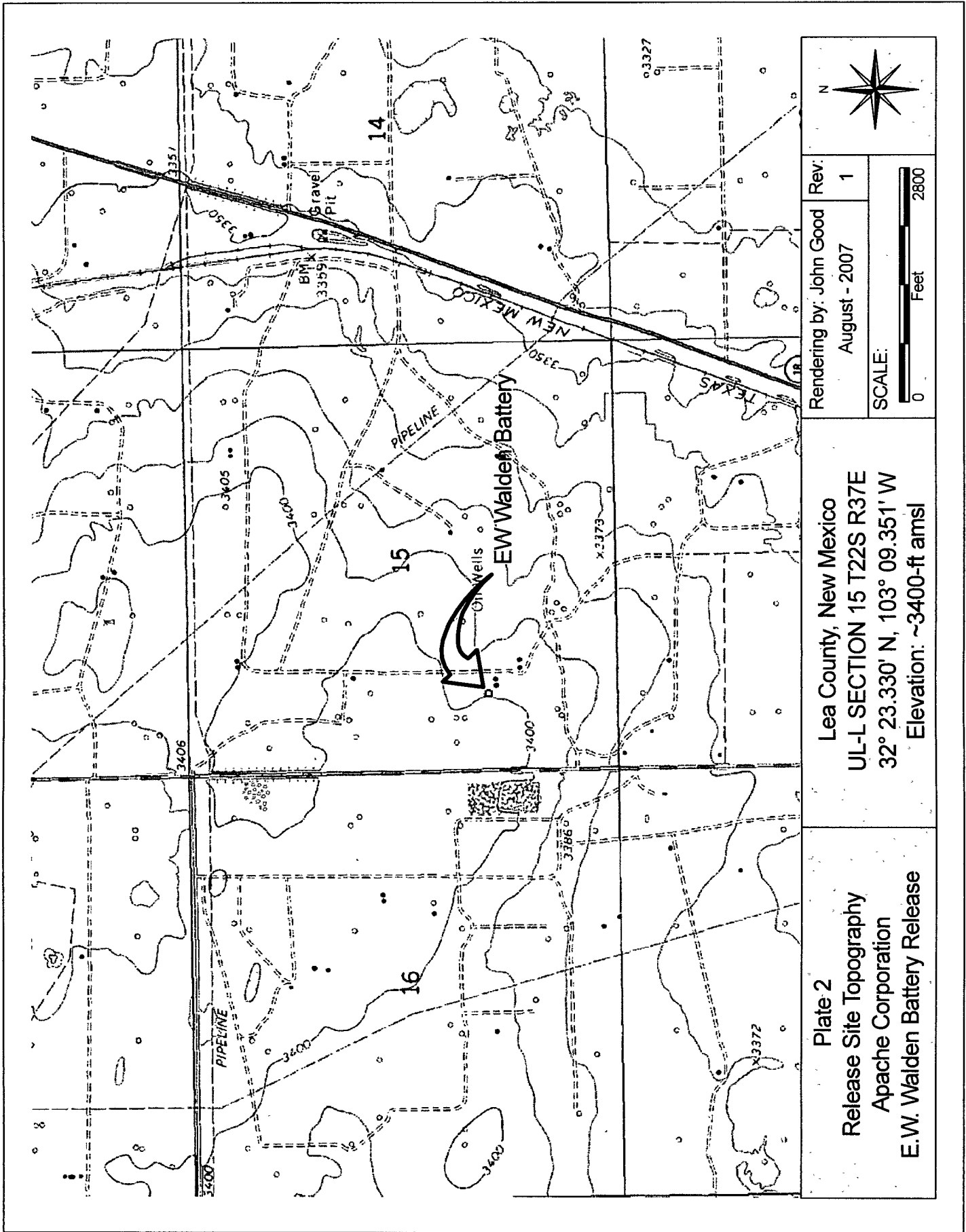


Plate 1
Site Location
Apache Corporation
E.W. Walden Battery Release

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

SCALE:
 0 4
 Miles



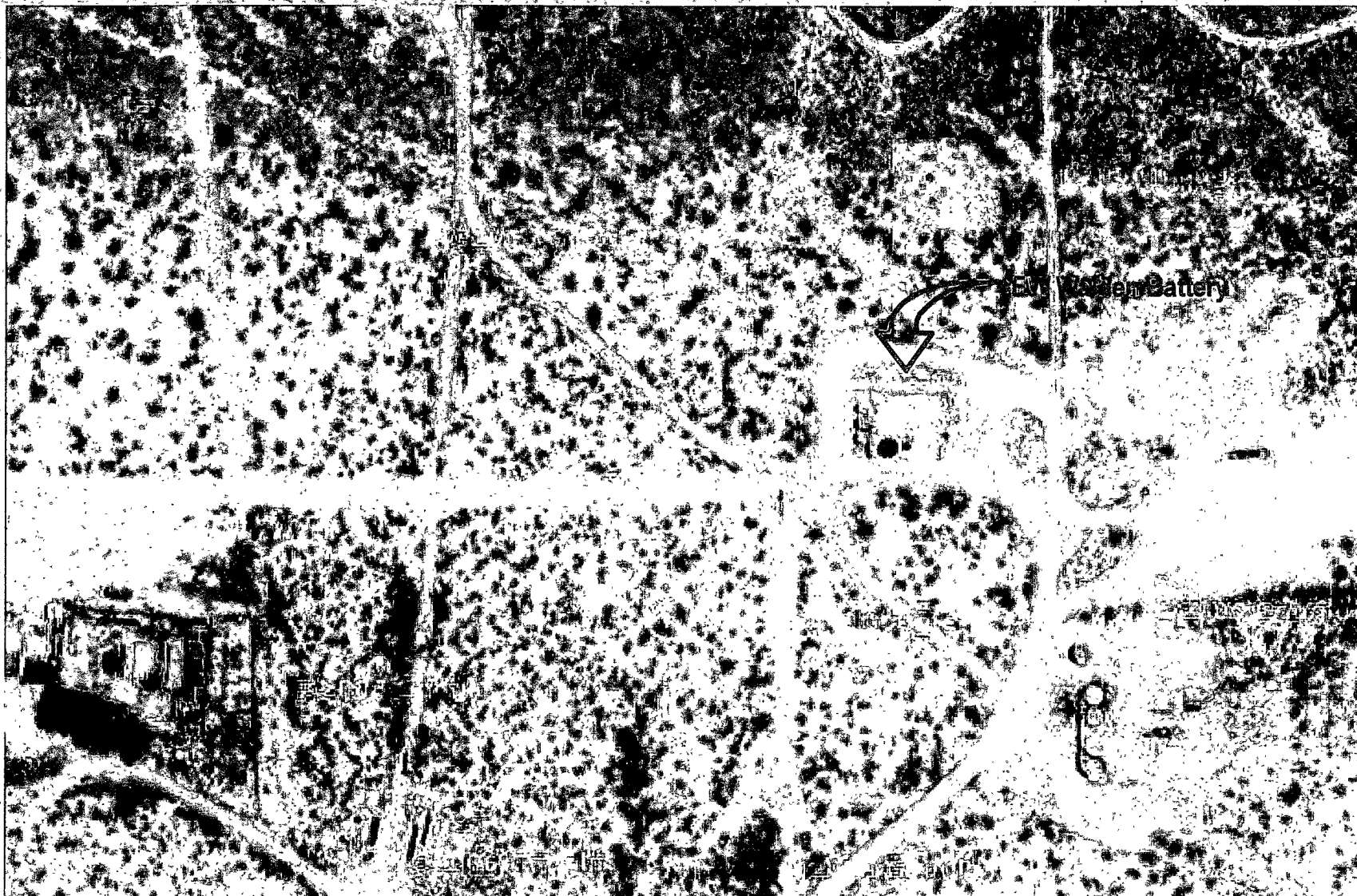


Plate 3
Aerial Photograph of Area
Apache Corporation
E.W. Walden Battery Release

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

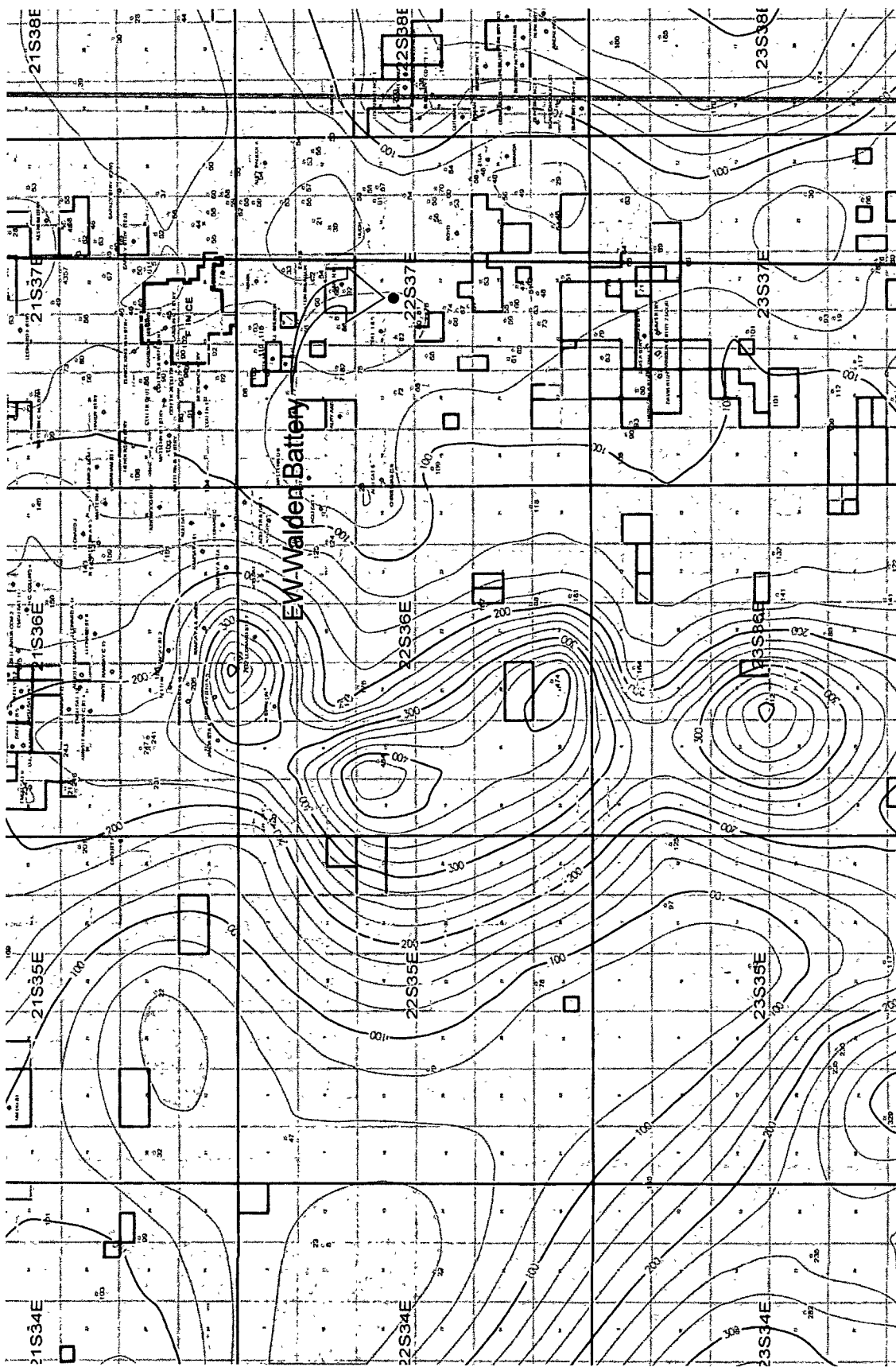
Rendering by: John Good
August - 2007

Rev:
1

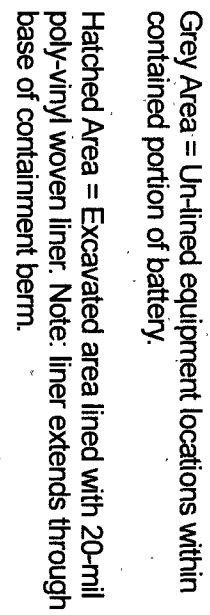
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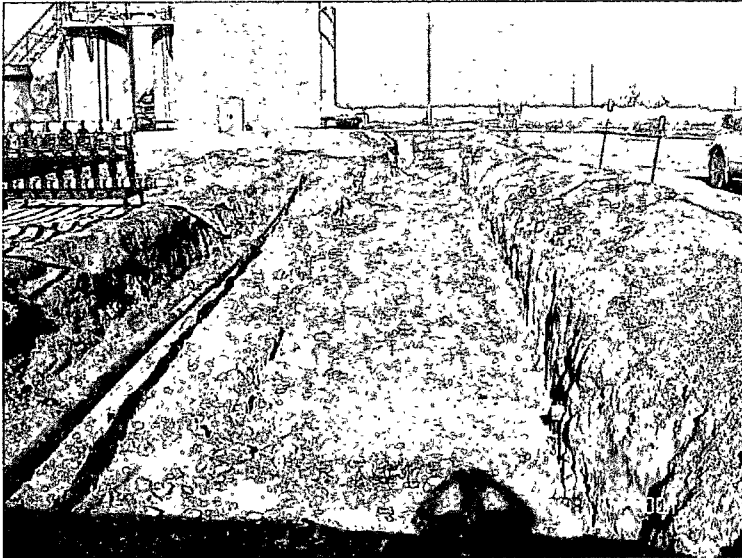
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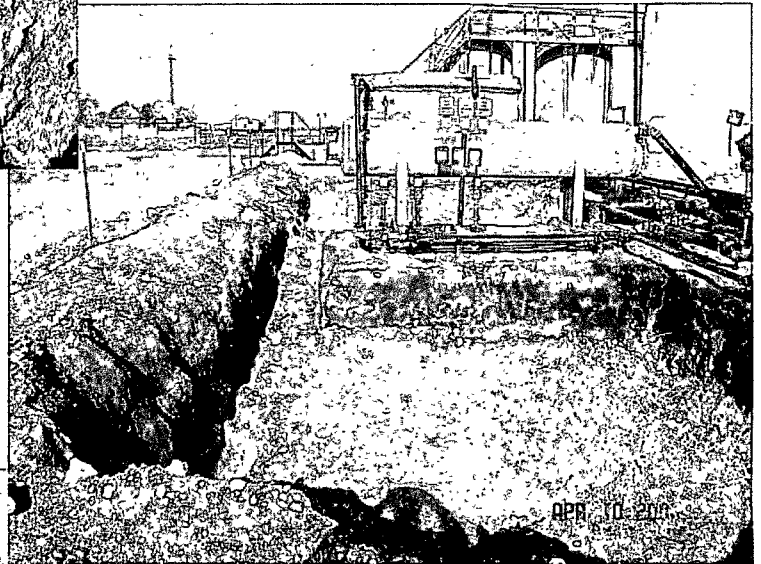


<p>Plate 4</p> <p>Area Water Contour Map</p> <p>Apache Corporation</p> <p>E.W. Walden Battery Release</p>	<p>Lea County, New Mexico</p> <p>UL-L SECTION 15 T22S R37E</p> <p>32° 23.330' N, 103° 09.351' W</p> <p>Elevation: ~3400-ft amsl</p>	<p>Rendering by: John Good</p> <p>August - 2007</p> <p>Rev: 1</p>	<p>SCALE:</p> <p>0 5 Miles</p>
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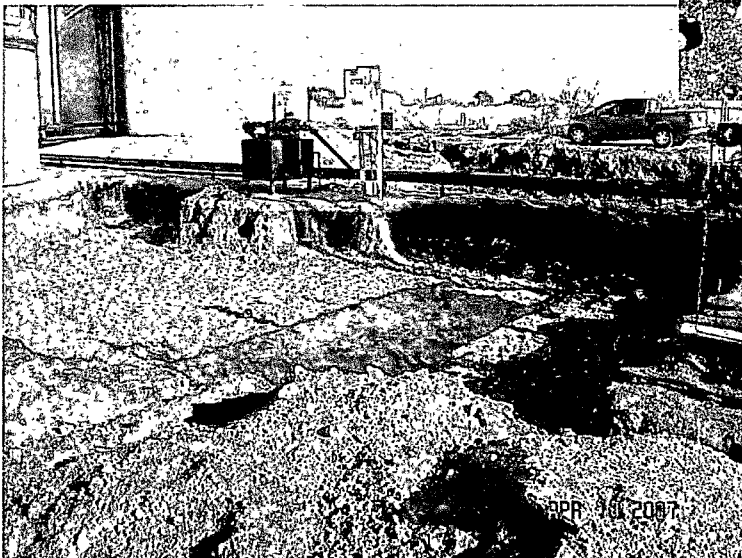




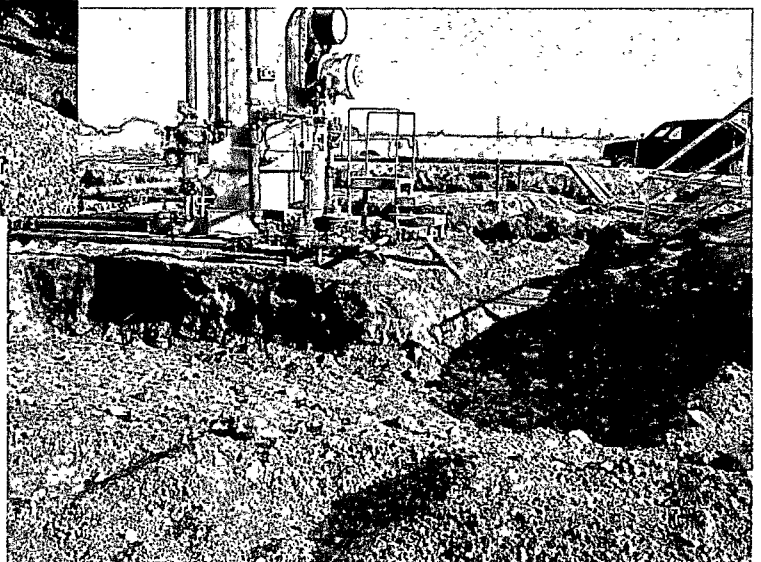
Excavated battery area –
north side



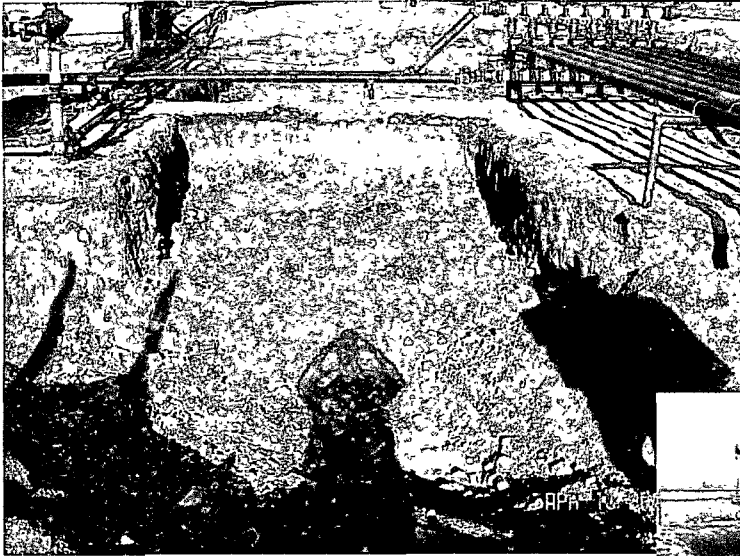
Excavated battery area –
south side



Excavated battery area –
central



Excavated battery area –
SE corner



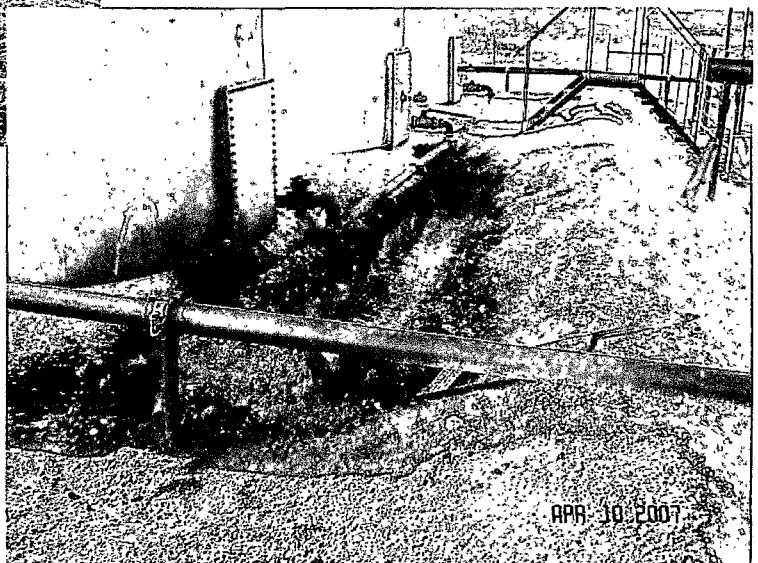
Excavated battery area –
east side



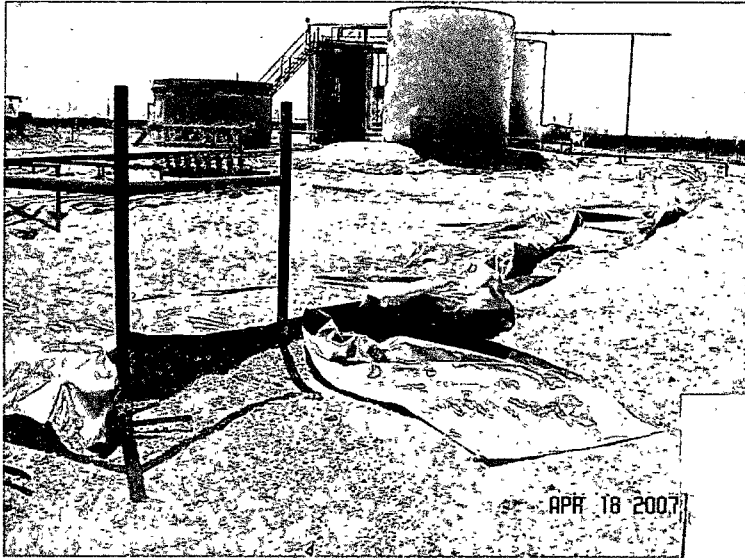
Excavated battery area –
north side looking from
NW corner



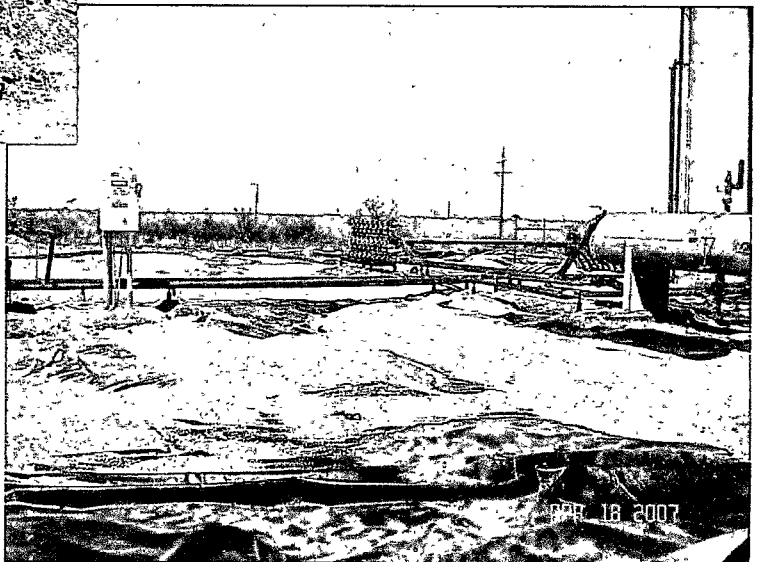
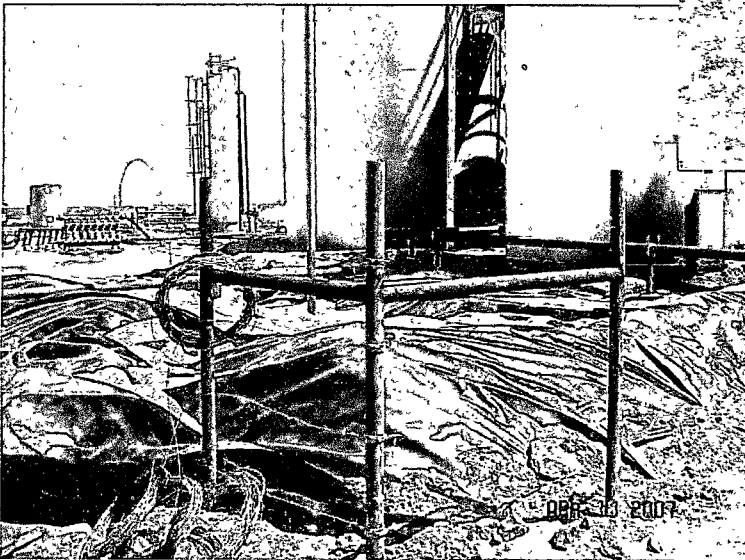
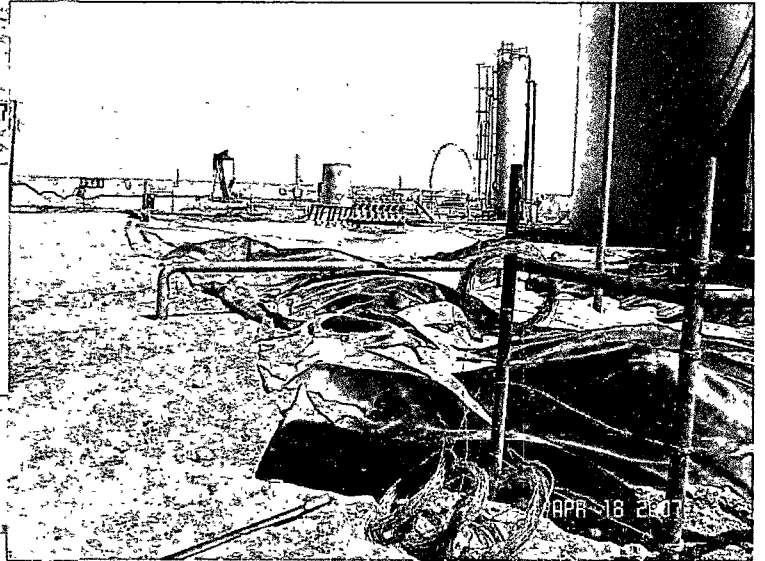
Narrow excavated battery
area at NW corner

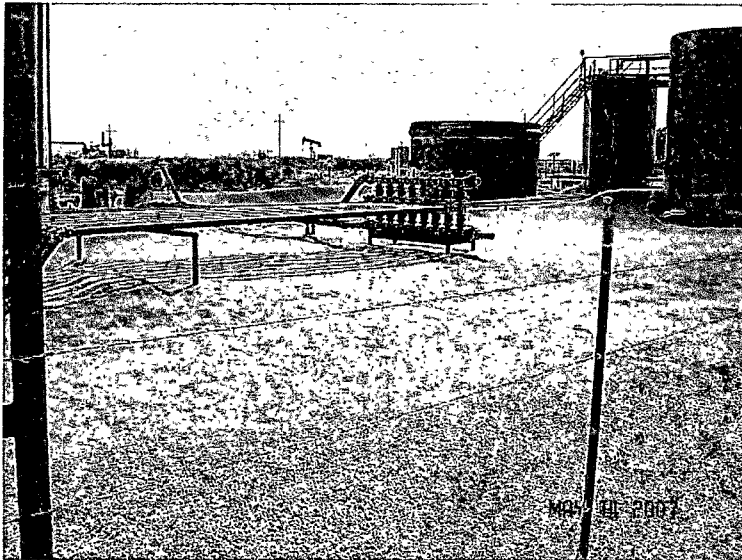


Narrow excavation at west
side of battery

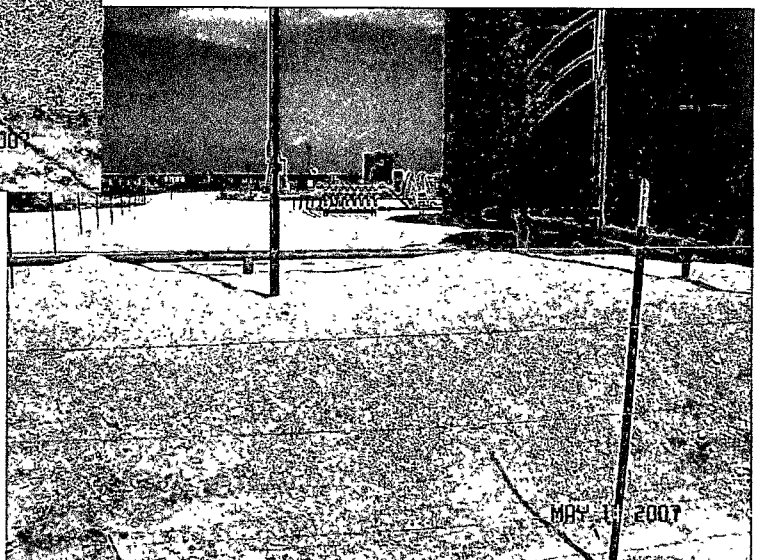
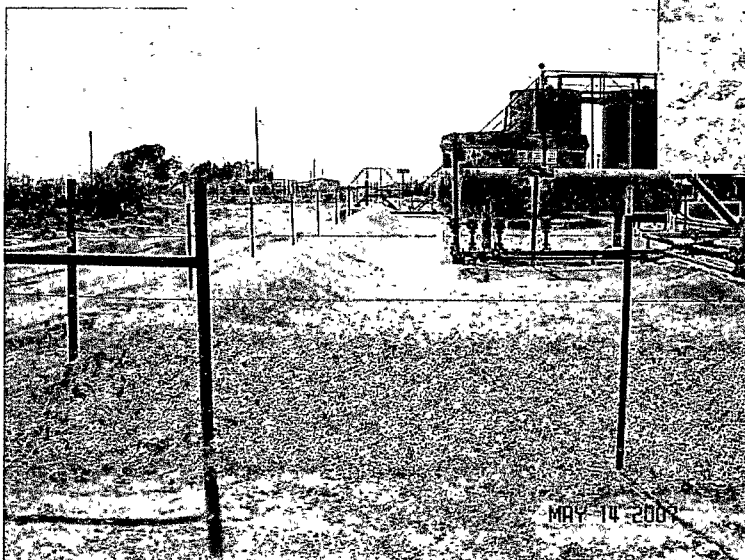
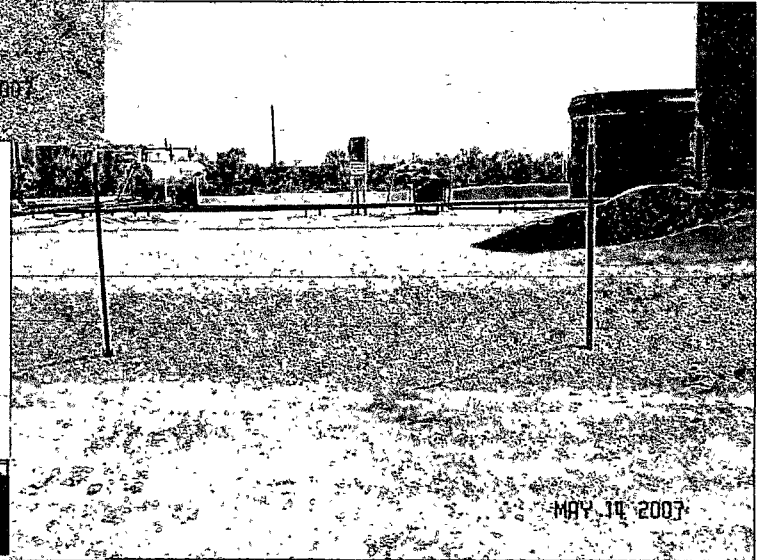


Liner installation





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



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

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 #	30-025-10273
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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	15	22S	27E					Lea

Latitude 32°39.012 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?	If Yes, To Whom?				
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	Gary Wink				
By Whom?	Rey Ramos	Date and Hour	8:37 3-5-07		
Was a Watercourse Reached?	If YES, Volume Impacting the Watercourse.				
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
If a Watercourse was Impacted, describe Fully*					
NA					
Describe Cause of Problem and Remedial Action Taken.*					
210 bbls 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	Expiration Date: 7-11-07
Email Address: guinn.burks@apachecorp.com	Conditions of Approval:	Attached
Date: 7/6/2007 Phone: 432-556-9143	SUBMITTER OF FINAL C-141	

*Attach Additional Sheets if Necessary

B/SAMPLE DOCUMENTATION

Incident - NPAC0713533649
application - pPAC07

RP#1331

Apache Corporation		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
<p>>25 bbl: Notify NMOCD verbally within 24 hours and submit C-141 within 15 days.</p> <p>5-25 bbl: Submit Form C-141 within 15 days. (Also applies to unauthorized release of >50 mcf Natural Gas).</p>					
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 ²			
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			
1. Ground Water		2. Wellhead Protection Area		3. Distance to Surface Water	
If Depth to GW <50-feet: 20 points		If <1000' from water source, or, <200' from private domestic water source:		<200 horizontal feet: 20 points	
If Depth to GW 50 to 100-feet: 10 points		20 points		200-1000 horizontal feet: 10 points	
If 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: 10		Wellhead Protection Score: 0		Surface Water Score: 0	
Site Ranking (1 + 2 + 3):		10			
Total Site Ranking Score and Acceptable Concentrations					
Parameter	20 or >	10		0	
Benzene ¹	10-ppm	10-ppm		10-ppm	
BTEX ¹	50-ppm	50-ppm		50-ppm	
TPH	100-ppm	1000-ppm		5000-ppm	

District I

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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

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	Volume of Release	Volume Recovered
Crude Oil	Approx 134 bbl	7 bbl
Source of Release	Date and Hour of Occurrence	Date and Hour of Discovery
Storage Tank	03/05/07	3/5/07 7:00 AM
Was Immediate Notice Given?	If YES, To Whom?	
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> Not Required	NMOCD - Hobbs - Gary Wink	
By Whom?	Date and Hour	
Ray Ramos	3/5/07 8:27 AM	
Was a Watercourse Reached?	If YES, Volume Impacting the Watercourse	
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	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-ft² 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:	OIL CONSERVATION DIVISION	
Printed Name:	Guinn Burks	
Title:	Environmental Coordinator - Permian Basin	
E-Mail Address:	Guinn.Burks@apachecorp.com	
Date:	8/16/2007	
Phone:	432-556-9143	
Approved by District Supervisor:		ENVID ENGR
Approval Date:		9.7.07
Expiration Date:		-
Conditions of Approval:		-
		<input type="checkbox"/> Attached

HUNGRY HORSE, LLC

18

Apache E.W. Walden Battery

RP 1331