

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

Form C-141

Revised June 10, 2003

RECEIVED

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

NOV 23 2009

HOBSOCD

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	Natalie Gladden
Address	P.O. Box 1849 Eunice, NM 88231	Telephone No.	575-390-4186
Facility Name	NMGSAU #368	Facility Type	Tank Battery

Surface Owner	State of NM	Mineral Owner	API No.	30-025-38459
---------------	-------------	---------------	---------	--------------

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from South Line	Feet from East Line	Longitude-W	Latitude-N	County
O	19	19S	37E	1060	2420	103.2892	32.6409	Lea

NATURE OF RELEASE

Type of Release	Volume of Release	Volume Recovered
Drilling Brine Water	Greater than 45 bbl	5 bbl

Source of Release	Date and Hour of Occurrence	Date and Hour of Discovery
Overflow of closed-loop containment vessel	12/22/07 9:00AM	12/22/07 9:00AM

Was Immediate Notice Given?	If YES, To Whom?
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> Not Required	Chris Williams - NMOCD

By Whom?	Date and Hour
Billy L. Stockton	12/22/07 12:45PM

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. \*  
Well bore flow back volume during new well logging was in excess of closed loop system capacity. Drilling brine was released onto location (well pad) and flowed southeast off location into pasture. Berm was constructed around well cellar to contain flow back while vacuum trucks recovered free fluid within bermed area. Well was cemented and flow back ceased.

Describe Area Affected and Cleanup Action Taken. \*  
Approximately 25-bbl of brine water was released onto the well pad area, and an additional ~20-bbl flowed SE onto pasture area. Areal extent of affected area was ~21,000-ft2. Well pad area was blended to mitigate chloride impact to <250-ppm. Pasture area SE of location was remediated to <250-ppm chloride concentration by Ocotillo Environmental, LLC - Hobbs, NM.

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:	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Natalie Gladden	ENV. ENGINEER:	
Title: Environmental Tech - Permian Basin	Approved by District Supervisor:	Approval Date: 05/14/10
E-Mail Address: Natalie.Gladden@usa.apachecorp.com	Expiration Date:	Conditions of Approval: IRP# _ 1701, 1746
Date: 6/24/2009 Phone: 575-390-4186	<input type="checkbox"/> Attached	



RECEIVED

NOV 23 2009

HOBBSOCD

# NMGSAU #368 REMEDIATION C141 CLOSURE REPORT

API 30-025-38459

UL-O (SW $\frac{1}{4}$  OF THE SE $\frac{1}{4}$ ) OF SECTION 19 T19S R37E

LATITUDE: N 32° 38.454'      LONGITUDE: W 103° 17.353'

~1.88 MILES NW (BEARING 308.5°) OF MONUMENT

LEA COUNTY, NEW MEXICO

NMOCD 1RP #1701; #1746

June 24, 2009

PREPARED FOR APACHE CORPORATION BY:

OCOTILLO ENVIRONMENTAL, LLC

JOHN GOOD, PROJECT MANAGER/CONSULTANT

2125 FRENCH DR. HOBBS, NM 88241

OFFICE: (575) 393-6371 J. GOOD: (575) 631-3277

## Table of Contents

1.0 Project Summary.....	3
2.0 Site Description .....	4
2.1 Geological Description .....	4
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
<b>ATTACHMENTS .....</b>	<b>7-29</b>
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: Site Detail Drawing .....	11
Plate 6: Sample Point Locations .....	12
Analytical Results Summary Table .....	13
Cardinal Laboratory Analytical Reports .....	14-21
Photographs .....	22-25
Initial NMOCD C-141 Form (12/28/07 IRP 1701) .....	26
Initial NMOCD C-141 Form (1/10/08 IRP 1746) .....	27
Site Metrics Information .....	28
Final NMOCD C-141 Form .....	29

## 1.0 Project Summary

Release Site Name: NMGSAU #368  
Operating Company: Apache Corporation  
Company Representative: Natalie Gladden, Environmental Tech Phone: 575-390-4186  
Address: PO Box 1849, Eunice, NM 88231 Email: Natalie.Gladden@usa.apachecorp.com  
Remediation Company: Environmental Plus, Inc. - Eunice Phone: 575-394-3481  
Remediation Company: Ocotillo Environmental - Hobbs Phone: 575-738-0138

### SITE SPECIFIC DATA:

Legal Description: Lea County, New Mexico UL-O Section 19 T19S R37E  
General Location: 1.9 miles NW (308.5°) of Monument, NM.  
Latitude: N32° 38.454' Longitude: W103° 17.353' Elevation: 3,665-ft amsl  
Land Ownership: State of NM  
Ground Water Elevation: 60-ft bgs (Monitor Well)  
Water Wells within 1000-ft: none Surface Water within 1000-ft: none

### RELEASE SPECIFIC DATA:

Date and Time of Release(s): 12/22/07 – 9:00 AM  
Material Released: Drilling Brine Water  
Volume Released: ~45-bbl Volume Recovered: 5-bbl  
Cause of Release: Closed-loop tank overflow during well logging  
Release Affected Area: ~21,000-ft<sup>2</sup>  
Depth of Contamination: 13-ft bgs  
**NMOCD Site Ranking:** 20 (ground water <50-ft below lowest contamination)  
**Remediation Action Levels:** TPH: 100-ppm; Benzene: 10-ppm; BTEX: 50-ppm; Cl – 250-ppm

### REMEDIATION SUMMARY:

Remediation of the release site consisted of the excavation and disposal of ~4,200-yd<sup>3</sup> of soil contaminated >1000-ppm chlorides. Disposal was at Sundance Services. Chloride contaminated soil (<1000-ppm Cl) that was not disposed of was blended with clean backfill caliche to achieve chloride concentrations of <250-ppm. The excavation was backfilled with the blended caliche and then with 3-ft of clean topsoil. A monitor well drilled within the release affected area indicated a water depth of 60-ft bgs and a water chloride concentration of 50-ppm. The project was completed on July 11, 2008.

## **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 inter-grade 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 inter-bed of caliche and generally overlain by sandy soil." The release site is located in the Laguna Valley physiographic subdivision, described by Nicholson & Clebsch as "covered almost entirely by dune sand which is stable or semi-stable over most of the area, but which locally drifts. The surface is very irregular and has no drainage features except at the edges of several playas. The sand is generally underlain by recent alluvium but in several places the sand forms topographic highs where it is underlain by a caliche surface. The thickness of the sand cover ranges from a few inches to a probable maximum of 20 feet."

### ***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***

The Chevron-Texaco water contour map (*Plate 4 of Attachments*) indicates that water in this area is 25' – 50' bgs. A monitor well drilled within the pasture release area measures 60-ft to water level.

### ***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 Contaminant of Concern (COC) was total chlorides resulting from the brine water release during the well logging operation. The areal extent of the excavated release was ~21,000-ft<sup>2</sup>.

## **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 20 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 = 20		WELLHEAD PROTECTION SCORE= 0		SURFACE WATER SCORE= 0	
<b>SITE RANK (1+2+3) = 20 + 0 + 0 = 20 POINTS</b>					
<b>TOTAL SITE RANKING SCORE AND ACCEPTABLE REMEDIAL GOAL CONCENTRATIONS</b>					
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

Prior to the commencement of excavation operations, two delineation boreholes were drilled at the site. A monitor well was drilled and installed on the shelf between the west and east excavations. This borehole was sampled at 5-ft intervals down to 40-ft bgs, where field analyses indicated chloride concentrations <100-ppm. The monitor well was extended beyond the 60-ft water depth and developed for sampling. The water sample obtained indicated ~50-ppm chlorides. Another borehole was drilled south of the affected release area and delineated at 5-ft intervals down to 25-ft

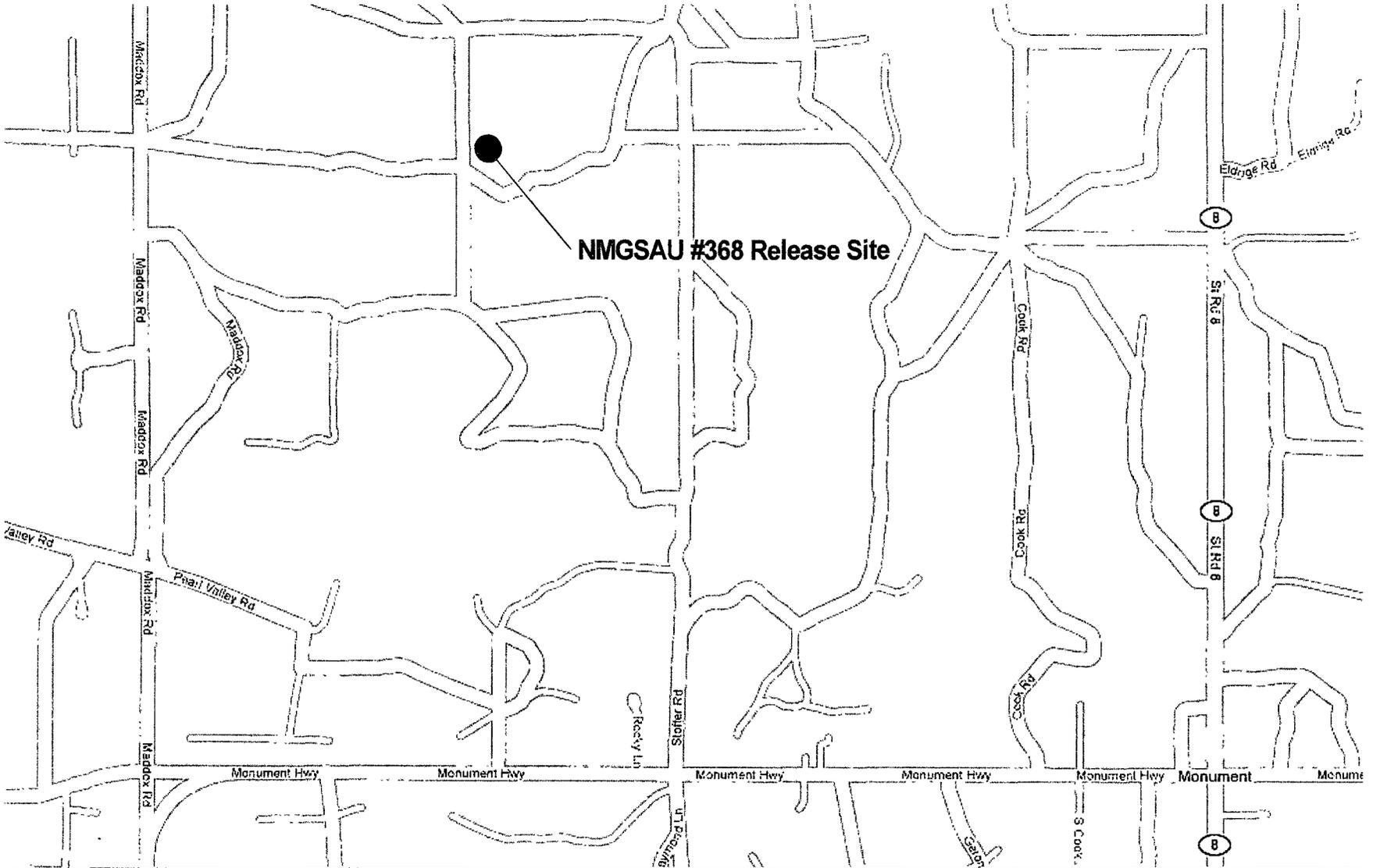
bgs. These background chloride concentrations ranged from 270-ppm at 5-ft down to 32-ppm at 25-ft bgs.

Remediation of the release site consisted of the excavation and disposal of ~4,200-yd<sup>3</sup> of soil contaminated with >1000-ppm chlorides. Disposal was at Sundance Services. Chloride contaminated soil (<1000-ppm Cl) that was not disposed of was blended with clean backfill caliche to achieve chloride concentrations of <250-ppm. Ten bottom samples and fourteen sidewall samples were obtained to confirm bottom and sidewall chloride concentrations of <250-ppm. The excavation of the east sidewall was limited due to the presence of a DCP Midstream natural gas pipeline. The excavation was extended to within 5-ft of the pipeline, and chloride concentrations <500-ppm were achieved on this east wall. Three sequential composite samples (15-ft, 10-ft and 5-ft) of the blended backfill were obtained during the backfill operation. All blended samples were <100-ppm chloride concentration. After the blended caliche backfill was completed, three additional feet of clean topsoil was placed and contoured. The project was completed on July 11, 2008.

Based on the contents and data contained herein, Apache Corporation requests that NMOCD require “no further action” as regards the soil contamination resulting from the 12/22/07 drilling brine release at the NMGSAU #368 well location.

## ATTACHMENTS

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: Site Detail Drawing .....	11
Plate 6: Sample Point Locations .....	12
Analytical Results Summary Table .....	13
Cardinal Laboratory Analytical Reports .....	14-21
Photographs .....	22-25
Initial NMOCD C-141 Form (12/28/07 IRP 1701) .....	26
Initial NMOCD C-141 Form (1/10/08 IRP 1746) .....	27
Site Metrics Information .....	28
Final NMOCD C-141 Form .....	29



<p>Plate 1 Release Site Location Apache Corporation NMGSAU #368</p>	<p>Lea County, New Mexico UL-O SECTION 19 T19S R37E N 32° 38.475', W 103° 17.365' Elevation: ~3664-ft amsl</p>	<p>Drawing by: John Good June - 2009</p>	<p>Rev: 1</p>	
		<p>SCALE: 0                      Feet                      2500</p>		

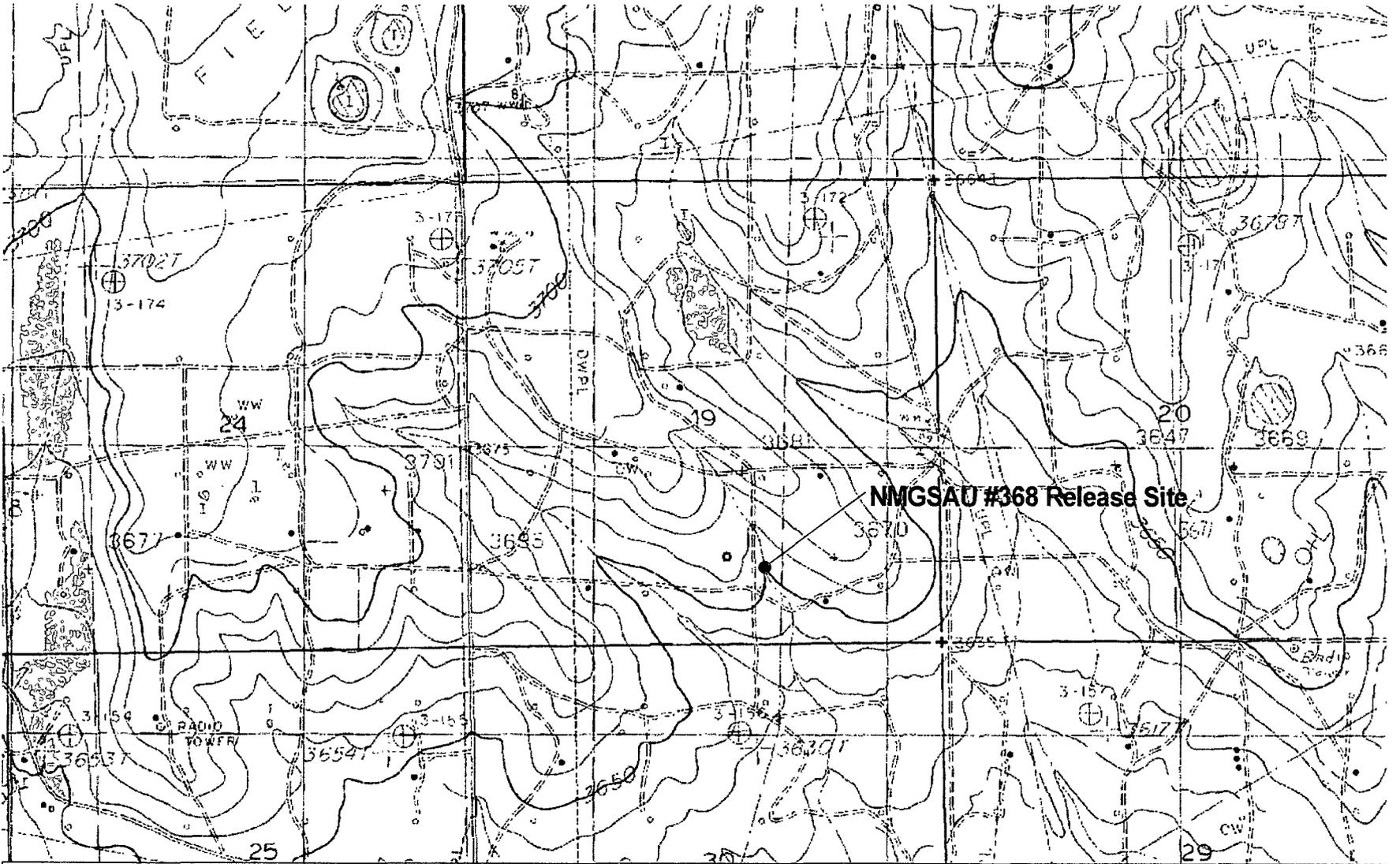


Plate 2  
 Release Site Topography (USGS)  
 Apache Corporation  
 NMGSAU #368

Lea County, New Mexico  
 ULO SECTION 19 T19S R37E  
 N 32° 38.475', W 103° 17.365'  
 Elevation: ~3664-ft amsl

Drawing by: John Good  
 June - 2009  
 SCALE:  
 0 Feet 3000

Rev. 1

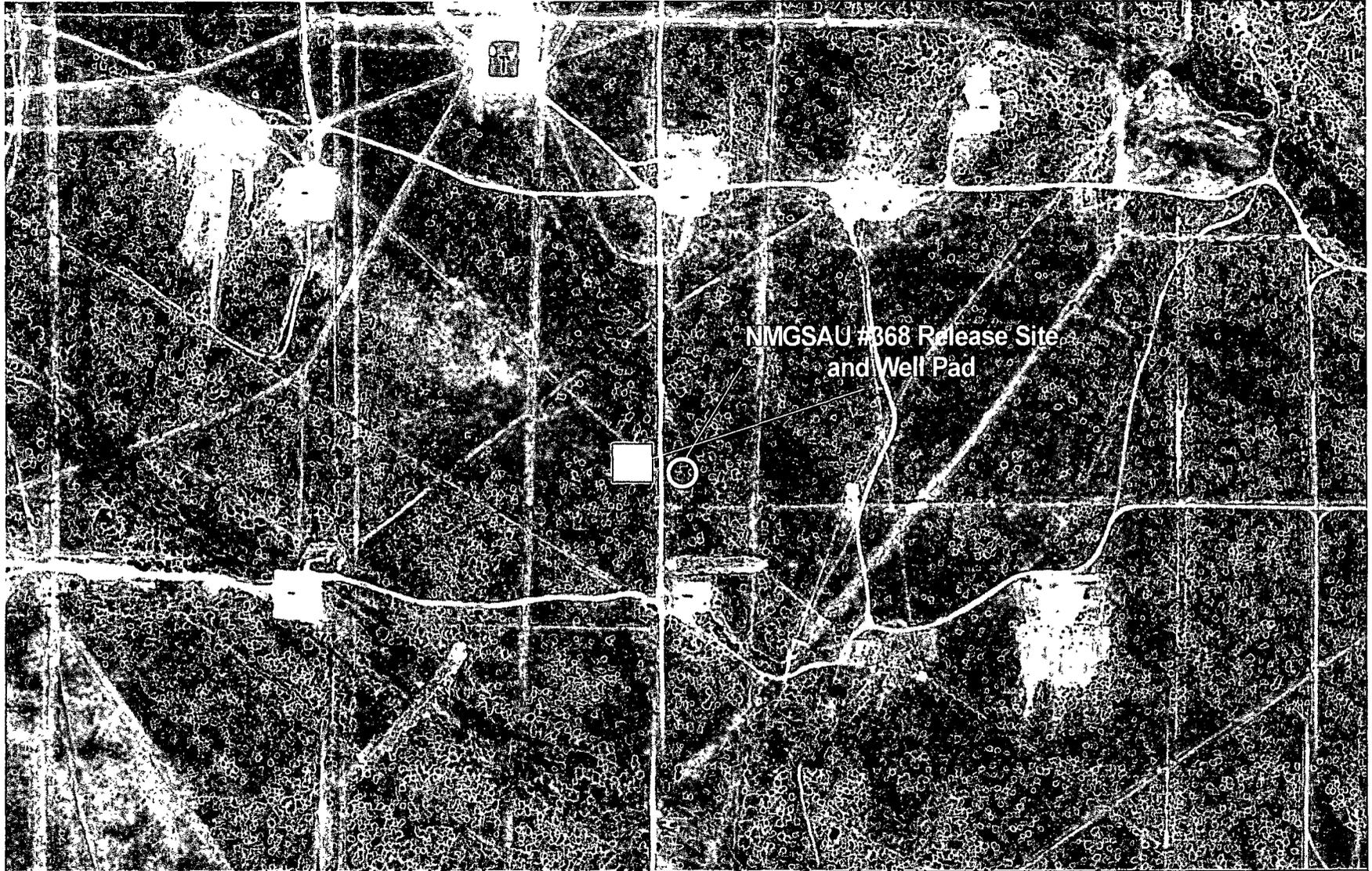


Plate 3  
Release Site Aerial Photograph  
Apache Corporation  
NMGSAU #368

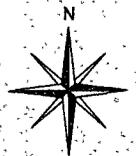
Lea County, New Mexico  
UL-O SECTION: 19 T19S R37E  
N 32° 38.475', W 103° 17.365'  
Elevation: ~3664-ft amsl

Drawing by: John Good  
June - 2009

Rev:  
1

SCALE:

0 Feet 900



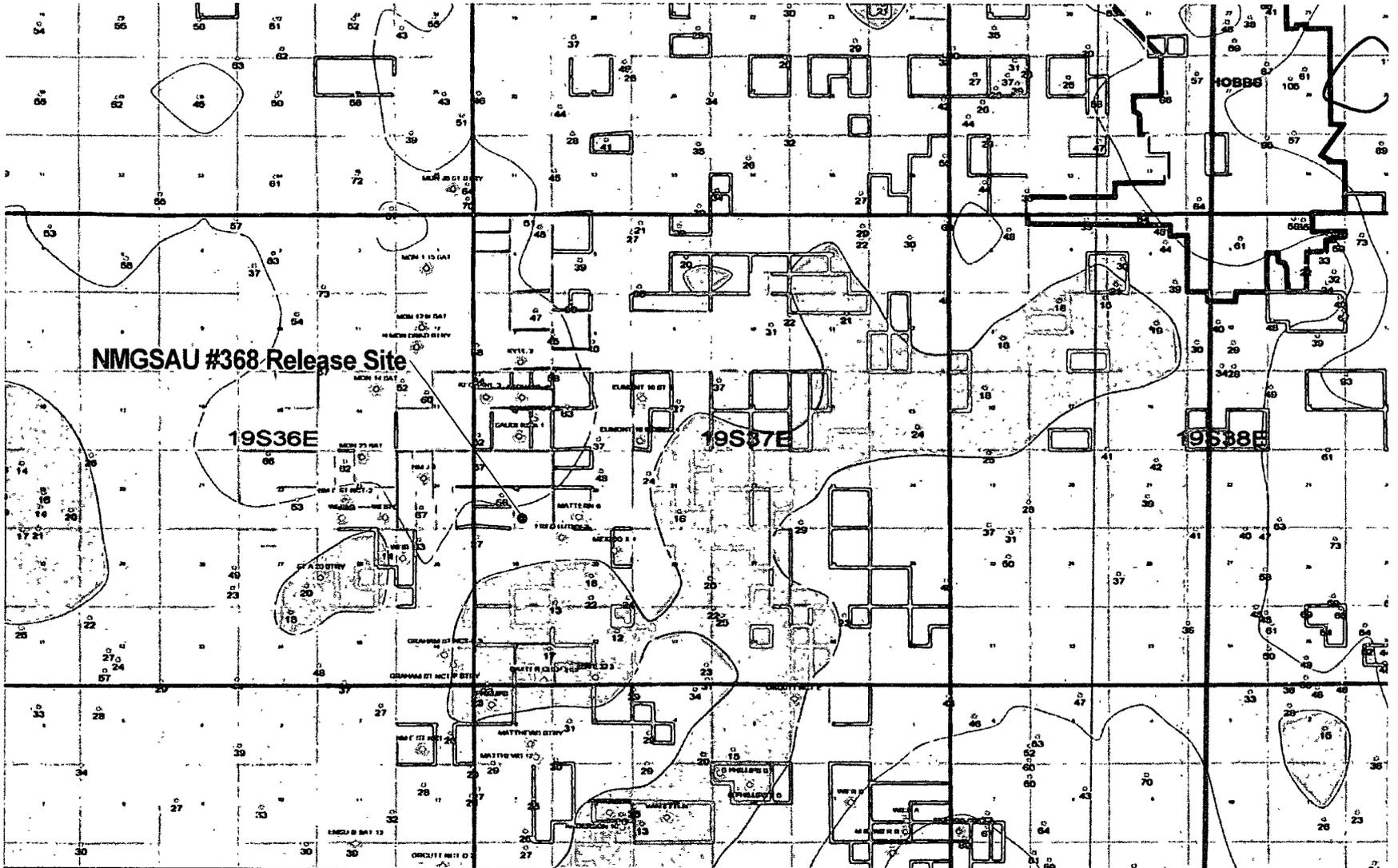


Plate 4  
 Release Site Water Depth Contour  
 Apache Corporation  
 NMGSAU #368

Lea County, New Mexico  
 UL-O SECTION 19 T19S R37E  
 N 32° 38.475', W 103° 17.365'  
 Elevation: ~3664-ft amsl

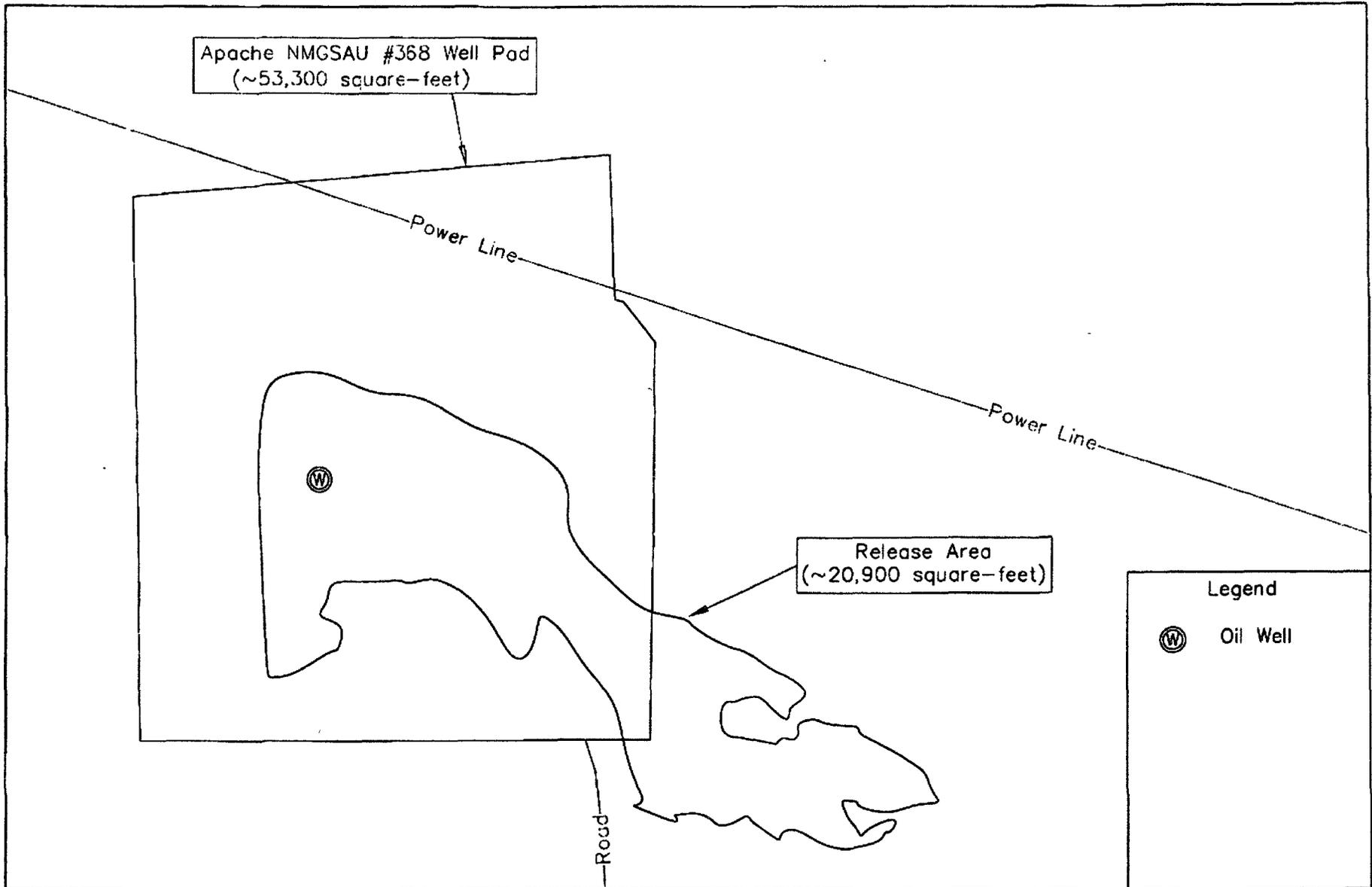
Drawing by: John Good  
 June - 2009  
 SCALE:  
 0 Miles 3

Rev: 1

APACHE CORPORATION

11

NMGSAU #368



Legend

⊙ Oil Well

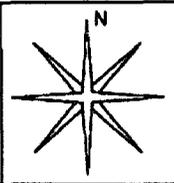
**Plate 5**  
**Release Site Detail Drawing (by EPI)**  
Apache Corporation  
North Monument Grayburg  
San Andres Unit #368

Lea County, New Mexico  
SW 1/4 of the SE 1/4, Sec. 19, T19S, R37E  
N 32° 38' 29.54" W 103° 17' 24.07"  
Elevation: 3,657 feet amsl

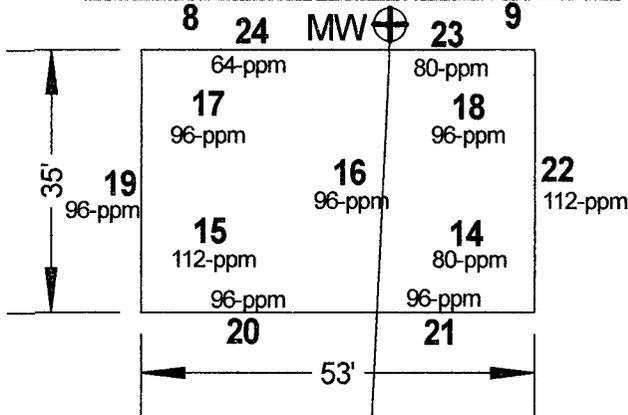
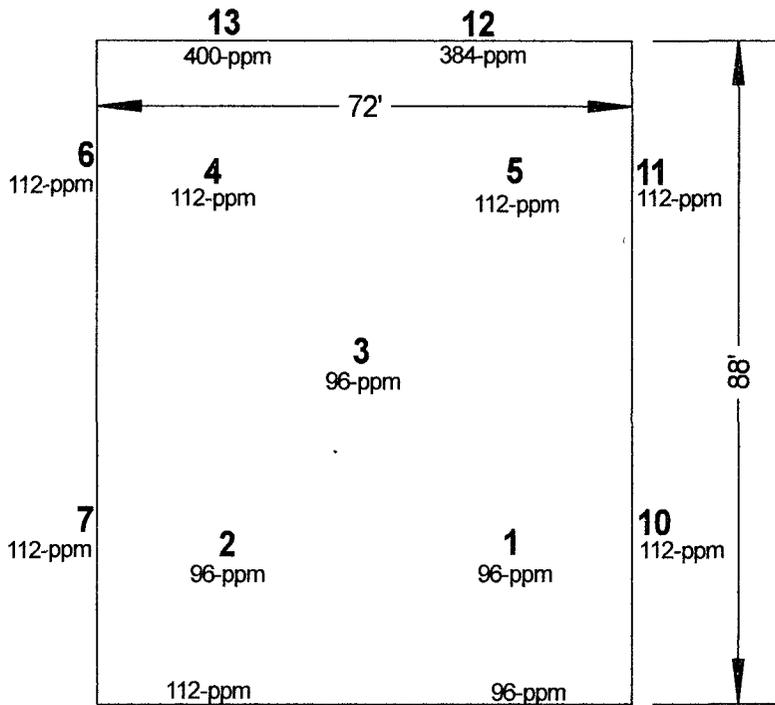
DWG By: Jason Stegemoller  
January 2008

0 60 120  
Feet

REVISED:  
SHEET  
1 of 1



DCP-Midstream Gas Pipeline



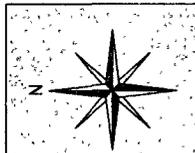
BH

Monitor Well Chloride Results

5-ft	—	16-ppm
10-ft	—	256-ppm
15-ft	—	288-ppm
20-ft	—	96-ppm
25-ft	—	32-ppm
30-ft	—	32-ppm
35-ft	—	<16-ppm
40-ft	—	16-ppm
Water @ 60-ft	—	52-ppm

Background Bore Chloride Results

5-ft	—	272-ppm
10-ft	—	176-ppm
15-ft	—	128-ppm
20-ft	—	64-ppm
25-ft	—	32-ppm



Rev. 1  
 Drawing by: John Good  
 June - 2009  
 SCALE: 0' 30'  
 Feet

Lea County, New Mexico  
 UL-O SECTION 19 T19S R37E  
 N 32° 38.475' W 103° 17.365'  
 Elevation: ~3664-ft amsl

Plate 6  
 Sample Point Locations / Results  
 Apache Corporation  
 NMGSAU #368

**APACHE CORP - NMGSAU 368: LABORATORY ANALYTICAL RESULTS SUMMARY TABLE**

Sample Number	Sample Depth	Sample Location	Chlorides mg/Kg	Sample Number	Sample Depth	Sample Location	Chlorides mg/Kg
*BH1-5	5-ft	Borehole	16	SP-9	10-ft	East SideWall	96
BH1-10	10-ft	Borehole	256	SP-10	10-ft	East SideWall	112
BH1-15	15-ft	Borehole	288	SP-11	10-ft	East SideWall	112
BH1-20	20-ft	Borehole	96	SP-12	10-ft	East SideWall	384
BH1-25	25-ft	Borehole	32	SP-13	10-ft	East SideWall	400
BH1-30	30-ft	Borehole	32	SP-14	12-ft	West Bottom	80
BH1-35	35-ft	Borehole	16	SP-15	12-ft	West Bottom	112
BH1-40	40-ft	Borehole	16	SP-16	12-ft	West Bottom	96
**BG-5	5-ft	Borehole	272	SP-17	12-ft	West Bottom	96
BG-10	10-ft	Borehole	176	SP-18	12-ft	West Bottom	96
BG-15	15-ft	Borehole	128	SP-19	7-ft	West SideWall	96
BG-20	20-ft	Borehole	64	SP-20	7-ft	West SideWall	96
BG-25	25-ft	Borehole	32	SP-21	7-ft	West SideWall	96
SP-1	15-ft	East Bottom	96	SP-22	7-ft	West SideWall	112
SP-2	15-ft	East Bottom	96	SP-23	7-ft	West SideWall	80
SP-3	15-ft	East Bottom	96	SP-24	7-ft	West SideWall	64
SP-4	15-ft	East Bottom	112	BLEND 1	15-ft	Comp	80
SP-5	15-ft	East Bottom	112	BLEND 2	10-ft	Comp	80
SP-6	10-ft	East SideWall	112	BLEND 3	5-ft	Comp	64
SP-7	10-ft	East SideWall	112	CALICHE	NA	Comp	16
SP-8	10-ft	East SideWall	112	Monitor Well	60-ft	Water	52

\*Monitor well drilled into contaminated zone; \*\*Background borehole south of excavation





**ARDINAL  
LABORATORIES**

**CHAIN OF CUSTODY AND ANALYSIS REQUEST**

PHONE (325) 873-7001 • 2111 BEECHWOOD • ABILENE, TX 79603  
PHONE (505) 393-2326 • 101 E MARLAND • HOBBS, NM 88240

Sheet 1 of 1

Company Name: <b>ELKE ENVIRONMENTAL, INC.</b>		Project Manager: <b>JOHN GOOD</b>		Address: <b>3508 WEST COUNTY RD</b>		City: <b>HOBBS</b> State: <b>NM</b> Zip: <b>88241</b>		Phone #: <b>575-738-0138</b> Fax #: <b>575-738-0140</b>		Project #: _____		Project Name: <b>NMGSAU #368</b>		Project Location: <b>UL-O S19 T19S R37E</b>		Sampler Name: <b>JOHN GOOD</b>		P.O. #: _____		Company: <b>Apache Corp</b>		Attn: <b>Natalie Gladden</b>		Address: <b>PO Box 1849</b>		City: <b>Eunice</b>		State: <b>NM</b> Zip: <b>88231</b>		Phone #: <b>390-4186</b>		Fax #: _____		<b>ANALYSIS REQUEST</b>											
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP #	CONTAINERS	MATRIX					PRESERV			SAMPLING		TPH <sup>8015</sup>	BTEX	Chlorides																													
				GROUND WATER	WASTEWATER	SOIL	SLUDGE	OTHER	ACID/BASE	ICE/COOL	OTHER:	DATE	TIME																																
H14734	-1	G	1			X							1-May	8:30			X																												
	-2	G	1			X							1-May				X																												
	-3	G	1			X							1-May				X																												
	-4	G	1			X							1-May				X																												
	-5	G	1			X							1-May				X																												
	-6	G	1			X							1-May				X																												
	-7	G	1			X							1-May				X																												
	-8	G	1			X							1-May				X																												
	-9	G	1			X							1-May				X																												
	-10	G	1			X							1-May				X																												
	-11	G	1			X							1-May				X																												
	-12	G	1			X							1-May				X																												
	-13	G	1			X							1-May	11:00			X																												

PLEASE NOTE: Liability and Damages: Cardinal's liability and client's exclusive remedy for any claim arising whether based on 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 Cardinal within 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.

Relinquished by: <i>John Good</i>	Date: <b>5/1/08</b>	Received By: <i>Upto LeBut</i>	Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Add'l Phone#: <b>631-3277 (J. Good)</b>
	Time: <b>2:40</b>		Fax Result: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Add'l Fax #:
Relinquished by:	Date:	Received By:	Remarks:
Time:			
Delivered By: (Circle One) <input checked="" type="radio"/> Sampler <input type="radio"/> UPS <input type="radio"/> Bus <input type="radio"/> Other	Sample Condition Cool <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	CHECKED BY: (Initials) <i>UCBB</i>	Note: Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476.



**ANALYTICAL RESULTS FOR  
OCOTILLO ENVIRONMENTAL, LLC  
ATTN: JOHN GOOD  
P.O. BOX 1816  
HOBBS, NM 88241**

Receiving Date: 07/11/08  
Reporting Date: 07/14/08  
Project Owner: APACHE CORP.  
Project Name: NMGSAU #368  
Project Location: UL-O S19 T19S R37E

Analysis Date: 07/14/08  
Sampling Date: 07/08/08  
Sample Type: SOIL  
Sample Condition: COOL & INTACT  
Sample Received By: KS  
Analyzed By: KS

LAB NO.	SAMPLE ID	Cl <sup>-</sup> (mg/kg)
H15145-1	E-BHSW-15	96
H15145-2	E-BHNW-15	96
H15145-3	E-BHC-15	96
H15145-4	E-BHNE-15	112
H15145-5	E-BHSE-15	112
H15145-6	E-NSW-E	112
H15145-7	E-NSW-W	112
H15145-8	E-WSW-N	112
H15145-9	E-WSW-S	96
H15145-10	E-SSW-W	112
H15145-11	E-SSW-E	112
H15145-12	E-ESW-S	384
H15145-13	E-ESW-N	400
H15145-14	W-BHSW-12	80
Quality Control		500
True Value QC		500
% Recovery		100
Relative Percent Difference		< 0.1

METHOD: Standard Methods 4500-ClB

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

*Christ Duprats*  
Chemist

07/15/08  
Date

H15145 OCO

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.



**ANALYTICAL RESULTS FOR  
OCOTILLO ENVIRONMENTAL, LLC  
ATTN: JOHN GOOD  
P.O. BOX 1816  
HOBBS, NM 88241**

Receiving Date: 07/11/08  
Reporting Date: 07/14/08  
Project Owner: APACHE CORP.  
Project Name: NMGSAU #368  
Project Location: UL-O S19 T19S R37E

Analysis Date: 07/14/08  
Sampling Date: 07/08/08 & 07/10/08  
Sample Type: SOIL  
Sample Condition: COOL & INTACT  
Sample Received By: KS  
Analyzed By: KS

LAB NO.	SAMPLE ID	Cl <sup>-</sup> (mg/kg)
H15145-15	W-BHNW-12	112
H15145-16	W-BHC-12	96
H15145-17	W-BHNE-12	96
H15145-18	W-BHSE-12	96
H15145-19	W-NSW	96
H15145-20	W-WSW-N	96
H15145-21	W-WSW-S	96
H15145-22	W-SSW	112
H15145-23	W-ESW-S	80
H15145-24	W-ESW-N	64
H15145-25	BLEND-1	80
H15145-26	BLEND-2	80
H15145-27	BLEND-3	64
H15145-28	CALICHE	16
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.

*Kristin Superior*  
Chemist

07/15/08  
Date

H15145 OCO

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.









**ARDINAL  
LABORATORIES**

**CHAIN OF CUSTODY AND ANALYSIS REQUEST**

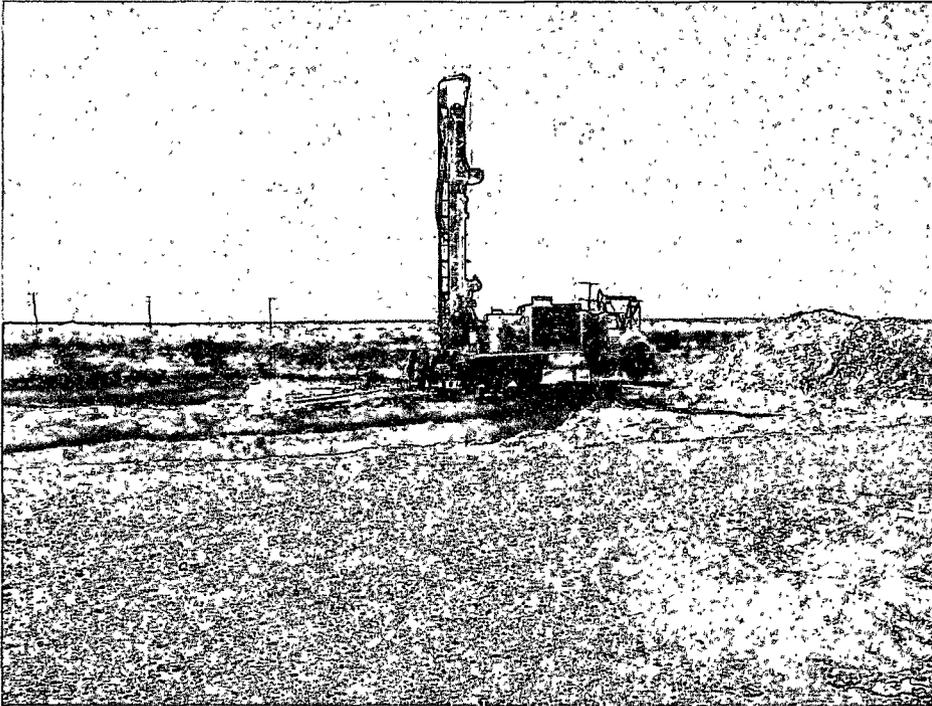
PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79803  
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

Sheet 1 of 1

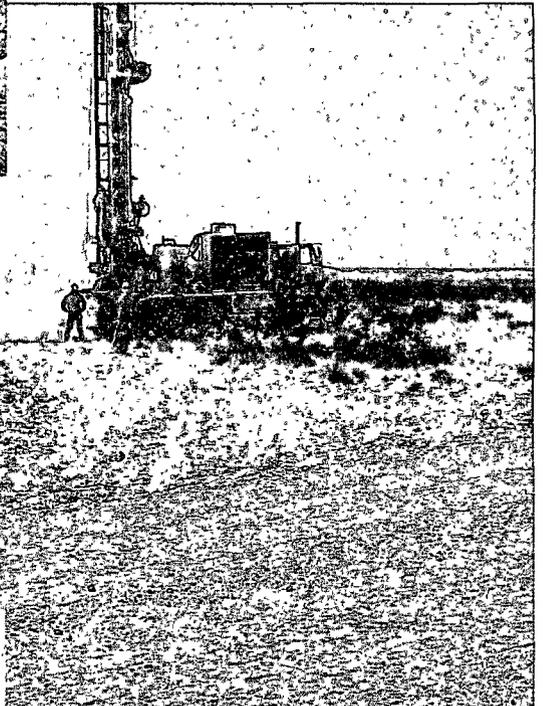
Company Name: <b>OCOTILLO ENVIRONMENTAL</b>		BILL TO		ANALYSIS REQUEST									
Project Manager: <b>JOHN GOOD</b>		P.O. #:											
Address: <b>2125 N. FRENCH DR.</b>		Company: <b>Apache Corp</b>											
City: <b>HOBBS</b>	State: <b>NM</b>	Zip: <b>88241</b>	Attn: <b>Natalie Gladden</b>										
Phone #: <b>575-631-3277</b>	Fax #:		Address: <b>PO Box 1849</b>										
Project #: _____	Project Owner: <b>APACHE CORP</b>		City: <b>Eunice</b>										
Project Name: <b>NMGSAU #368</b>	State: <b>NM</b>		Zip: <b>88231</b>										
Project Location: <b>UL-O 519 T19S R37E</b>	Phone #: <b>575-390-4188</b>												
Sampler Name: <b>JOHN GOOD</b>	Fax #:												
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP # CONTAINERS	MATRIX						PRESERV		SAMPLING		Chlorides
			GROUND WATER	WASTEWATER	SOIL	SLUDGE	OTHER	ACID/BASE	ICE/COOL	OTHER	DATE	TIME	
H15194-1	MONITOR WELL	G 1	X								16-Jul	11:30	X

PLEASE NOTE Liability and Damages Cardinal's liability and client's exclusive remedy for any claim arising whether based on 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 Cardinal within 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.

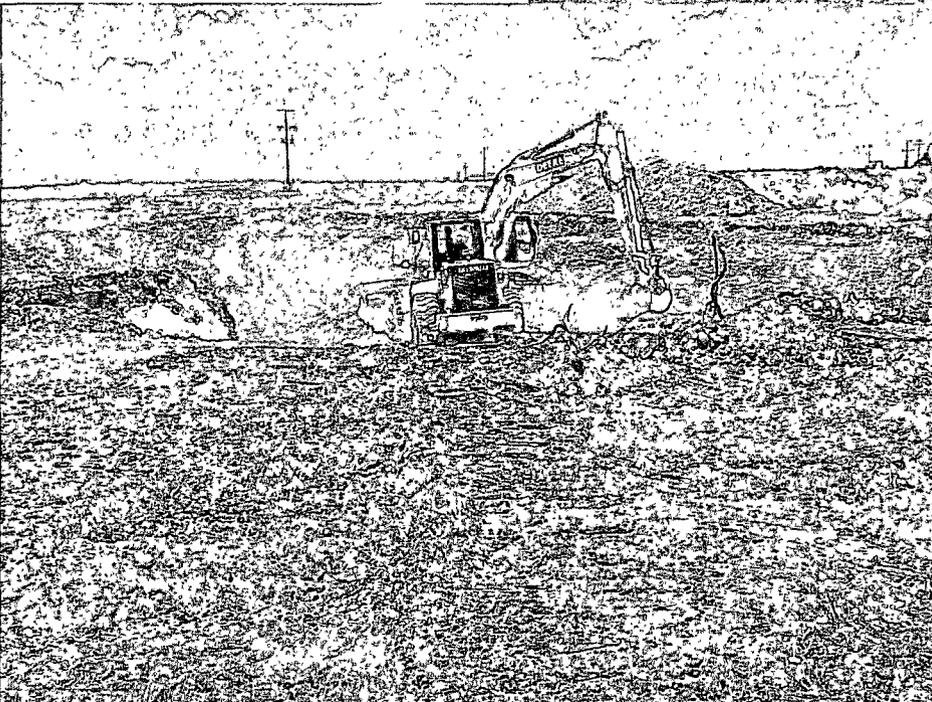
Relinquished by: <i>John Good</i>	Date: <b>7/18/08</b>	Received By: <i>Krista Depote</i>	Phone Result: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Add'l Phone#: <b>631-3277 (J. Good)</b>
	Time: <b>1:19</b>		Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Add'l Fax #:
Relinquished by:	Date:	Received By:	Remarks: J. Good or Natalie Gladden will pickup results when completed -- please do not mail.
	Time:		
Delivered By: (Circle One) <input checked="" type="radio"/> Sampler <input type="radio"/> UPS <input type="radio"/> Bus <input type="radio"/> Other	Sample Condition Cool <input type="checkbox"/> Yes <input type="checkbox"/> No Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	CHECKED BY: (Initials) <b>KES</b>	Note: Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476.



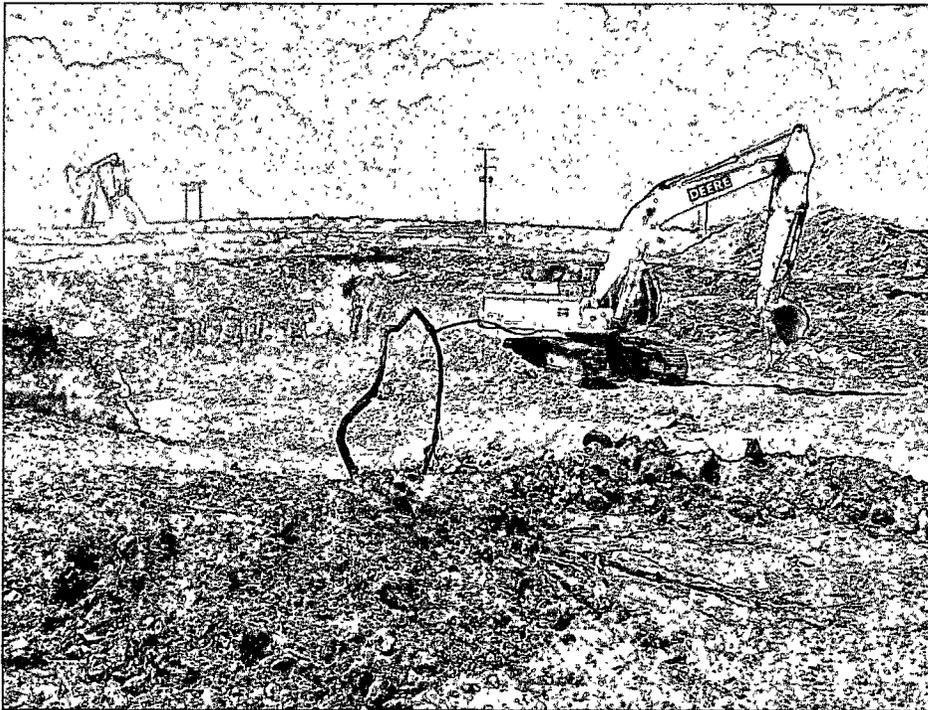
< 5/1/08 – Installing monitor well on central shelf of excavation.



5/1/08 – Drilling background borehole on south side of release area. >

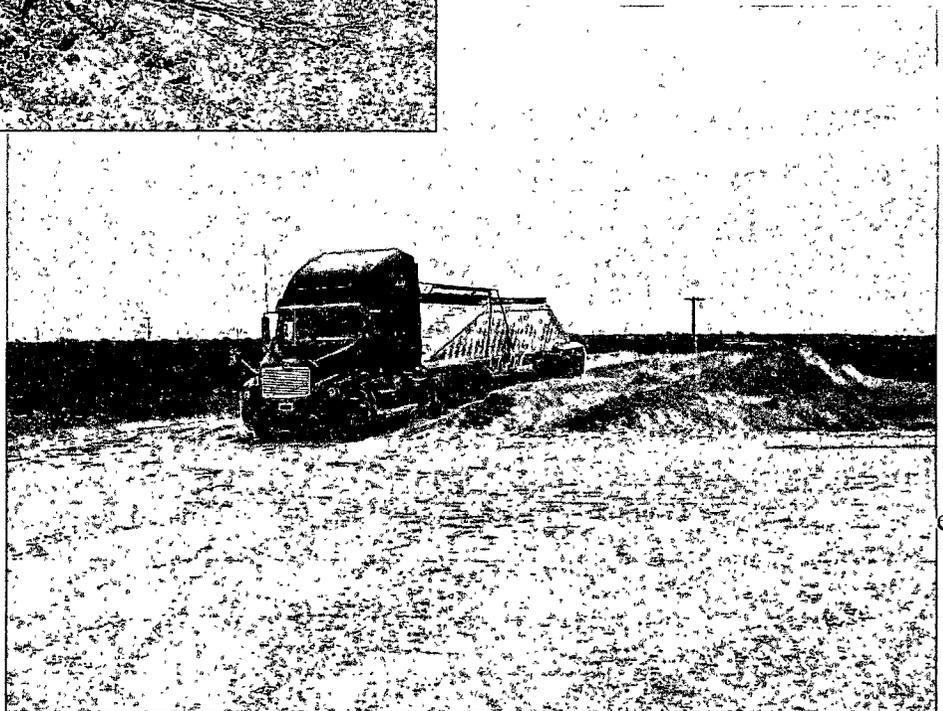


< 7/2/08 – Commencing excavation of bottom contamination.

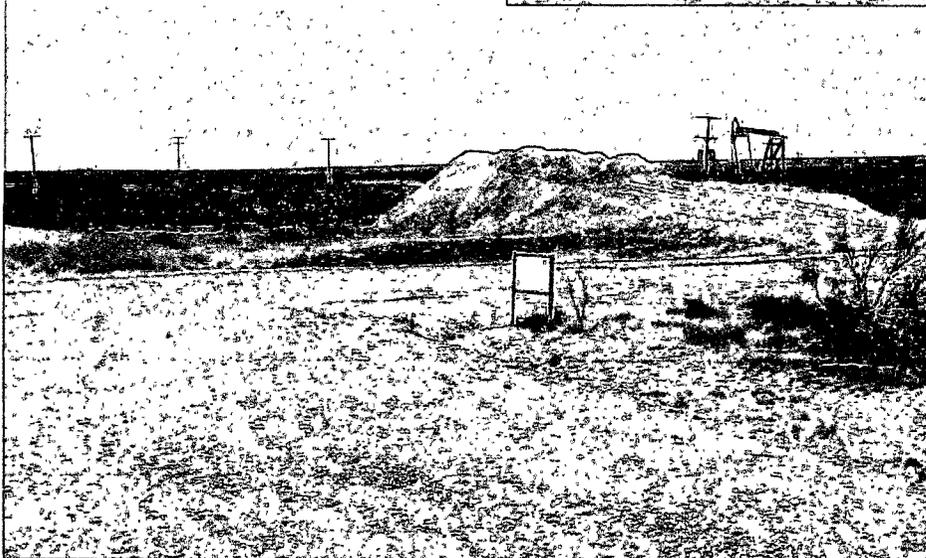


< 7/10/08 – Continuing excavation of bottom contamination.

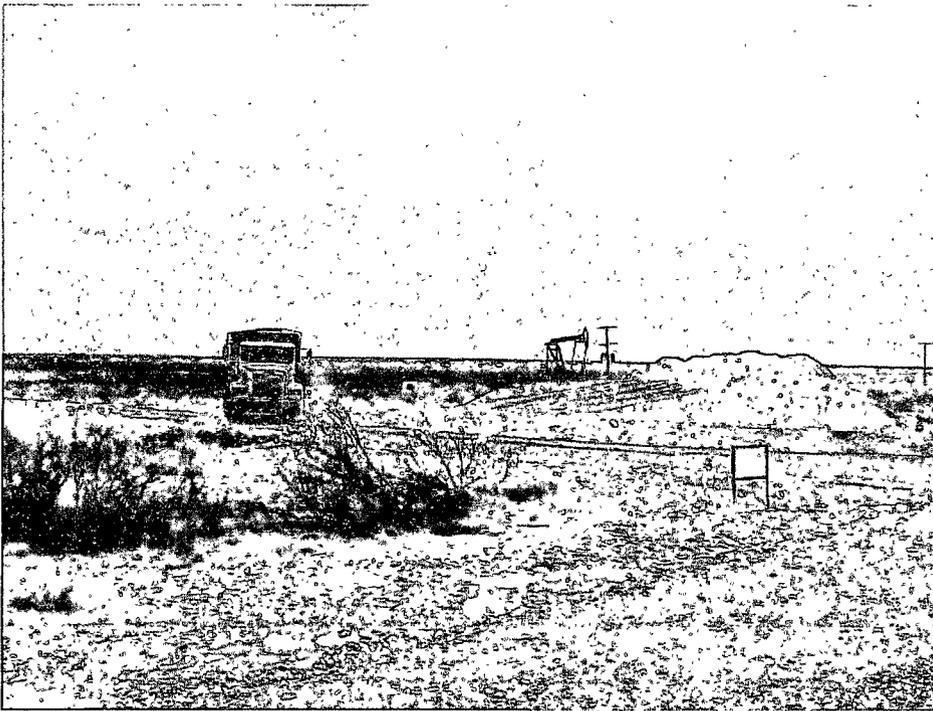
7/10/08 – Hauling in clean backfill material. >



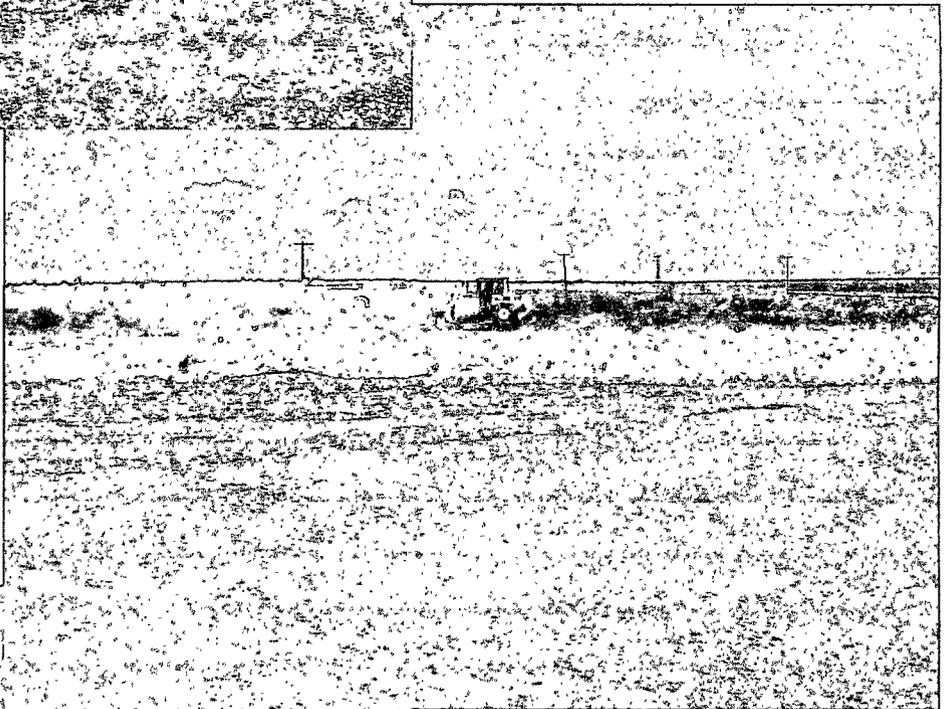
ed



< 7/10/08 – Clean caliche placed on top of contaminated stockpile.



< 7/10/08 – Clean caliche stockpiled on north side of excavation.



7/11/08 – Applying final topsoil layer. >



< 7/11/08 – Applying final topsoil layer.



< 7/11/08 – Contouring final topsoil layer.

7/11/08 – Project completed. >



< 7/11/08 – Project completed.

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 87508

State of New Mexico  
Energy Minerals and Natural Resources  
Oil Conservation Division  
1120 South St. Francis Dr.  
Santa Fe, NM 97505

**RECEIVED**  
NOV 23 2009  
**HOBBSDCD**

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	<b>Apache Corporation</b>	Contact	<b>Billy L Stockton</b>
Address	<b>3223 S. Loop 289 #260 Lub, Tx</b>	Telephone No.	<b>806-893-9575</b>
Facility Name	<b>NMGSAU #368</b>	Facility Type	<b>New well drilling location</b>

Surface Owner	<b>Jimmy Cooper</b>	Mineral Owner		API #	<b>30-025-38459</b>
---------------	---------------------	---------------	--	-------	---------------------

**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
	<b>19</b>	<b>19S</b>	<b>37E</b>	<b>1060'</b>	<b>South</b>	<b>2420'</b>	<b>East</b>	<b>Lea</b>

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

**NATURE OF RELEASE**

Type of Release	<b>Drilling Brine</b>	Volume of Release	<b>45</b>	Volume Recovered	<b>25</b>
Source of Release	<b>New well bore</b>	Date/Hour of Occurrence	<b>12:30 PM</b>	Date /Hour of Discovery	<b>9:00 AM</b>

Was Immediate Notice Given?  Yes  No  Not Required. If Yes, To Whom? **OCD office - left message 12/22 @ 12:45 pm; Chris called back 12/23 @ 2:42 pm**

By Whom? **Billy L. Stockton** Date and Hour **12-22-07 12:45 pm**

Was a Watercourse Reached?  Yes  No. If YES, Volume Impacting the Watercourse.

If a Watercourse was Impacted, describe Fully\*  
Describe Cause of Problem and Remedial Action Taken.\*

**During new well logging, well bore flowed back excess volume and closed loop system could not handle it. Brine spilled onto location and ran Southeast off location into pasture. Backhoe built dike around cellar and vacuum trucks kept fluid recovered as it ran out.**

Describe Area Affected and Cleanup Action Taken.\*  
**Backhoe blended effected area on location. Pasture area was left until contact with land owner. Apache Drilling Dept. has taken over the clean-up project at this time. Contact info for Drilling Dept. is Harold Swain @ 505-390-4368.**

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: <b>Billy L Stockton</b>	<b>Oil Conservation Division</b>	
Printed Name: <b>Billy L Stockton</b>	Approved by the District <b>Environmental Engineer</b>	
Title: <b>Environmental Tech</b>	Approval Date <b>1.2.08</b>	Expiration Date: <b>3.3.08</b>
Email Address: <b>billy.stockton@apachecorp.com</b>	Conditions of Approval:	Attached
Date: <b>12/28/2007</b> Phone: <b>806-893-9575</b>	<b>SUBMIT FINAL C 141</b>	

\*Attach Additional Sheets if Necessary

**W/ DOCUMENTATION 54**

**RP # 1701**

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

**Informational - Release Notification and Corrective Action**

**OPERATOR**

Initial Report  Final Report

<b>Name of Company:</b> Apache Corporation	<b>Contact:</b> Harold Swain
<b>Address:</b> P.O. Box 848, Wink, TX 79789	<b>Telephone No.:</b> (915) 527-3311
<b>Facility Name:</b> North Monument Grayburg San Andres Unit (NMGSAU) #368	<b>Facility Type:</b> Well Pad (New Well) API #30-025-38459

<b>Surface Owner:</b> State of New Mexico	<b>Mineral Owner:</b>	<b>Lease No.:</b>
-------------------------------------------	-----------------------	-------------------

**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
O	19	19S	37E	1,060	South	2,420	East	Lea

**Latitude:** N 32° 38' 29.54" **Longitude:** W 103° 17' 24.07"

**NATURE OF RELEASE**

<b>Type of Release:</b> Drilling brine	<b>Volume of Release:</b> ~45 bbls	<b>Volume Recovered:</b> >5 bbls
<b>Source of Release:</b> Overflow of closed loop containment	<b>Date and Hour of Occurrence:</b> December 22, 2007 @ 09:00 hrs	<b>Date and Hour of Discovery:</b> December 22, 2007 @ 09:00 hrs
<b>Was Immediate Notice Given?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	<b>If YES, To Whom?</b> Chris Williams, NMOCD - Hobbs	
<b>By Whom?</b> Billy L. Stockton	<b>Date and Hour:</b> December 22, 2007 @ 12:45 hrs	
<b>Was a Watercourse Reached?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>If YES, Volume Impacting the Watercourse:</b> Not Applicable	

If a Watercourse was Impacted, Describe Fully.\* Not Applicable

**Describe Cause of Problem and Remedial Action Taken.\*** Well bore flow back volume during new well logging was in excess of closed loop system capacity. Drilling brine was released onto location (well pad) and flowed southeast off location into pasture. A berm was built around well cellar to contain flow back while vacuum trucks recovered free fluid within bermed area. Well was cemented and flow back ceased. Approximately 45 barrels (~25 bbls on location and ~20 bbls off location) of drilling fluid were released from containment system during drilling operations.

**Describe Area Affected and Cleanup Action Taken.\*** Approximately 20,900 ft<sup>2</sup> of area (~14,100 ft<sup>2</sup> of well pad and ~6,800 ft<sup>2</sup> of pasture) were impacted by the release. A backhoe was utilized to blend impacted well pad materials. No actions were performed upon pasture area.

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.

<b>Signature:</b> <i>Harold Swain</i>	<b>OIL CONSERVATION DIVISION</b> <i>Pat Richards</i> <b>COMPLIANCE OFFICER</b>	
<b>Printed Name:</b> Harold Swain	<b>Approved by:</b> <i>Pat Richards</i> in absence of <i>Kerry Johnson</i>	
<b>Title:</b> Drilling Foreman, Permian Basin	<b>Approval Date:</b> 1/17/08	<b>Expiration Date:</b> 3/3/08
<b>E-mail Address:</b> Harold.swain@usa.apachecorp.com	<b>Conditions of Approval:</b> <i>Delimitation of work</i>	<b>Attached</b> <input type="checkbox"/>
<b>Date:</b> 1-10-08 <b>Phone:</b> 915-527-3311		

\* Attach Additional Sheets If Necessary

*due by:*

*RP# 1746*



Incident Date: 12/22/07 NMOCD Notified: 12/22/07

SITE: NMGSAU #368		API No. 30-025-38459	
Company: Apache Corporation			
Street Address: North Eunice Loop, Hwy 207			
Mailing Address: P.O. Box 1849			
City, State, Zip: Eunice, NM 88231			
Representative: Natalie Gladden			
Representative Telephone: 575-390-4186			
Telephone:			
Fluid Volume Released (bbl): ~ 45		Volume Recovered (bbl): 5	
		Net Release: ~ 40	
<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: NMGSAU #368			
Source of Contamination: Overflow of closed-loop containment vessel			
Land Owner, i.e. BLM, ST, Fee, Other: State of NM			
LSP Dimensions: 328' X 153' (maximum dimensions)			
LSP Area ~ 21000 -ft <sup>2</sup>			
Location of Reference Point (RP):			
Location distance and direction from RP:			
Latitude: North 32 38.454			
Longitude: West 103 17.353			
Elevation above mean sea level (amsl): 3657 feet 1115 meters			
Distance from South Section Line (feet): 1060			
Distance from East Section Line (feet): 2420			
Location - Unit Letter and 1/4 1/4: UL- O SW 1/4 of SE 1/4			
Location - Section 19			
Location - Township 19S			
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): 60			
Depth (feet) of lowest contamination (DC): 13			
Depth (feet) to Ground Water (DG - DC = DtGW): ~ 47			
<b>1. Ground Water</b>		<b>2. Wellhead Protection Area</b>	
If Depth to GW <50-feet: 20 points		If <1000' from water source, or, <200' from private domestic water source: 20 points	
If Depth to GW 50 to 100-feet: 10 points		If >1000' from water source, or, >200' from private domestic water source: 0 points	
If Depth to GW >100-feet: 0 points			
Ground Water Score: 20		Wellhead Protection Score: 0	
Site Ranking (1 + 2 + 3): 20		Surface Water Score: 0	
<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  
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

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	Natalie Gladden
Address	P.O. Box 1849 Eunice, NM 88231	Telephone No.	575-390-4186
Facility Name	NMGSAU #368	Facility Type	Tank Battery

Surface Owner	State of NM	Mineral Owner	API No.	30-025-38459
---------------	-------------	---------------	---------	--------------

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from South Line	Feet from East Line	Longitude-W	Latitude-N	County
O	19	19S	37E	1060	2420	103.2892	32.6409	Lea

NATURE OF RELEASE

Type of Release	Volume of Release	Volume Recovered
Drilling Brine Water	Greater than 45 bbl	5 bbl
Source of Release	Date and Hour of Occurrence	Date and Hour of Discovery
Overflow of closed-loop containment vessel	12/22/07 9:00AM	12/22/07 9:00AM
Was Immediate Notice Given?	If YES, To Whom?	
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> Not Required	Chris Williams - NMOCD	
By Whom?	Date and Hour	
Billy L. Stockton	12/22/07 12:45PM	
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. \*  
Well bore flow back volume during new well logging was in excess of closed loop system capacity. Drilling brine was released onto location (well pad) and flowed southeast off location into pasture. Berm was constructed around well cellar to contain flow back while vacuum trucks recovered free fluid within bermed area. Well was cemented and flow back ceased.

Describe Area Affected and Cleanup Action Taken. \*  
Approximately 25-bbl of brine water was released onto the well pad area, and an additional ~20-bbl flowed SE onto pasture area. Areal extent of affected area was ~21,000-ft<sup>2</sup>. Well pad area was blended to mitigate chloride impact to <250-ppm. Pasture area SE of location was remediated to <250-ppm chloride concentration by Ocotillo Environmental, LLC - Hobbs, NM.

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:	<b>OIL CONSERVATION DIVISION</b>		
Printed Name:	Natalie Gladden	Approved by District Supervisor:	
Title:	Environmental Tech - Permian Basin	Approval Date:	Expiration Date:
E-Mail Address:	Natalie.Gladden@usa.apachecorp.com	Conditions of Approval:	IRP# _ 1701, 1746
Date:	6/24/2009	Phone:	575-390-4186
			<input type="checkbox"/> Attached