

## 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 87505NOV 23 2009  
HOBBSOC

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



**RECEIVED**

NOV 23 2009

HOBBSOCD

# **NMGSAU #368 REMEDIATION C141 CLOSURE REPORT**

**API 30-025-38459**

**UL-O (SW¼ OF THE SE¼) 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**

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## 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	
SITE RANK (1+2+3) = 20 + 0 + 0 = 20 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

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

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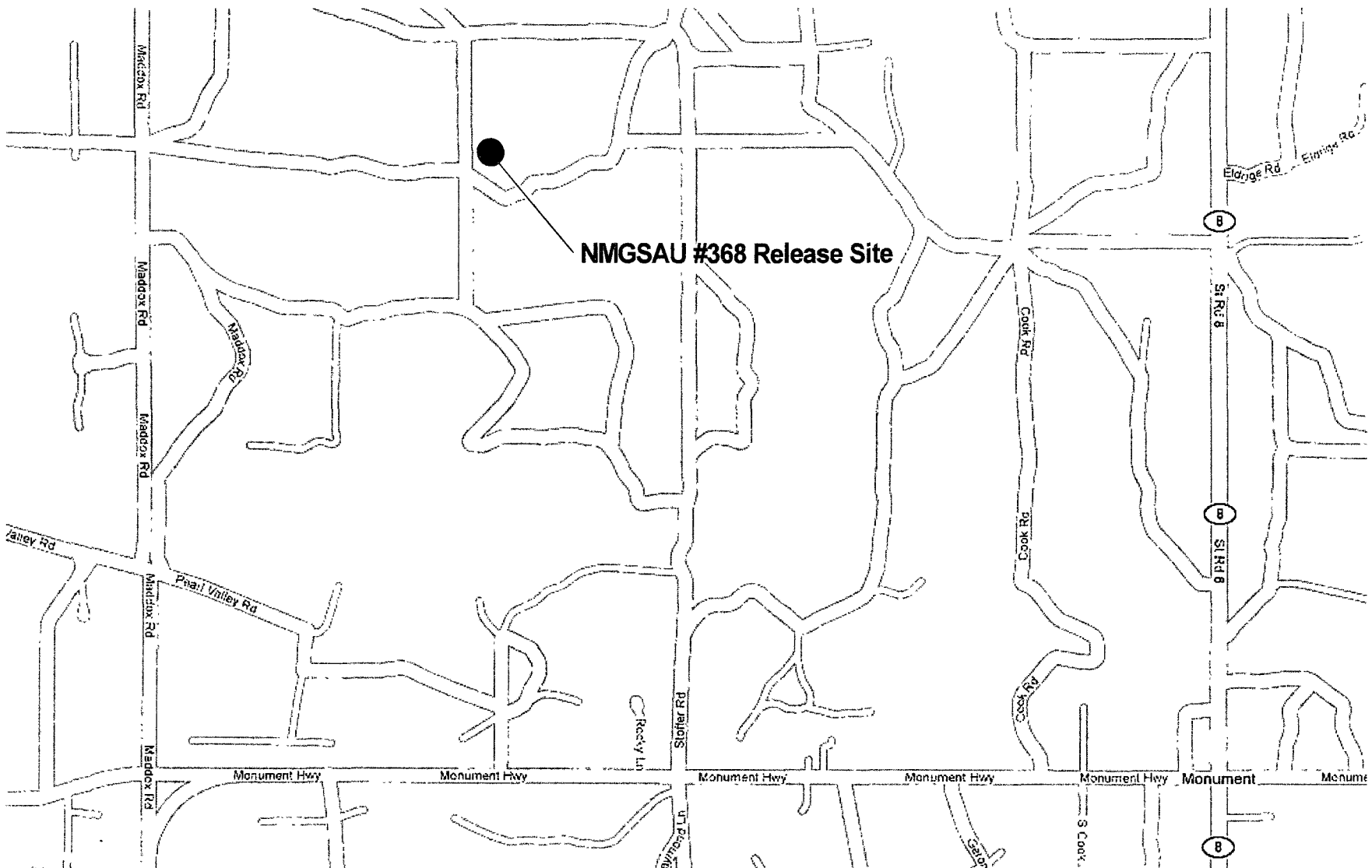


Plate 1  
Release Site Location  
Apache Corporation  
NMGSAU #368

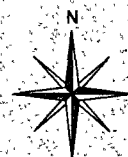
Lea County, New Mexico  
UL-O SECTION 19 T19S R37E  
N 32° 38.475', W 103° 17.365'  
Elevation: ~3664-ft amsl

Drawing by: John Good  
June - 2009

Rev:  
1

SCALE:

0 Feet 2500





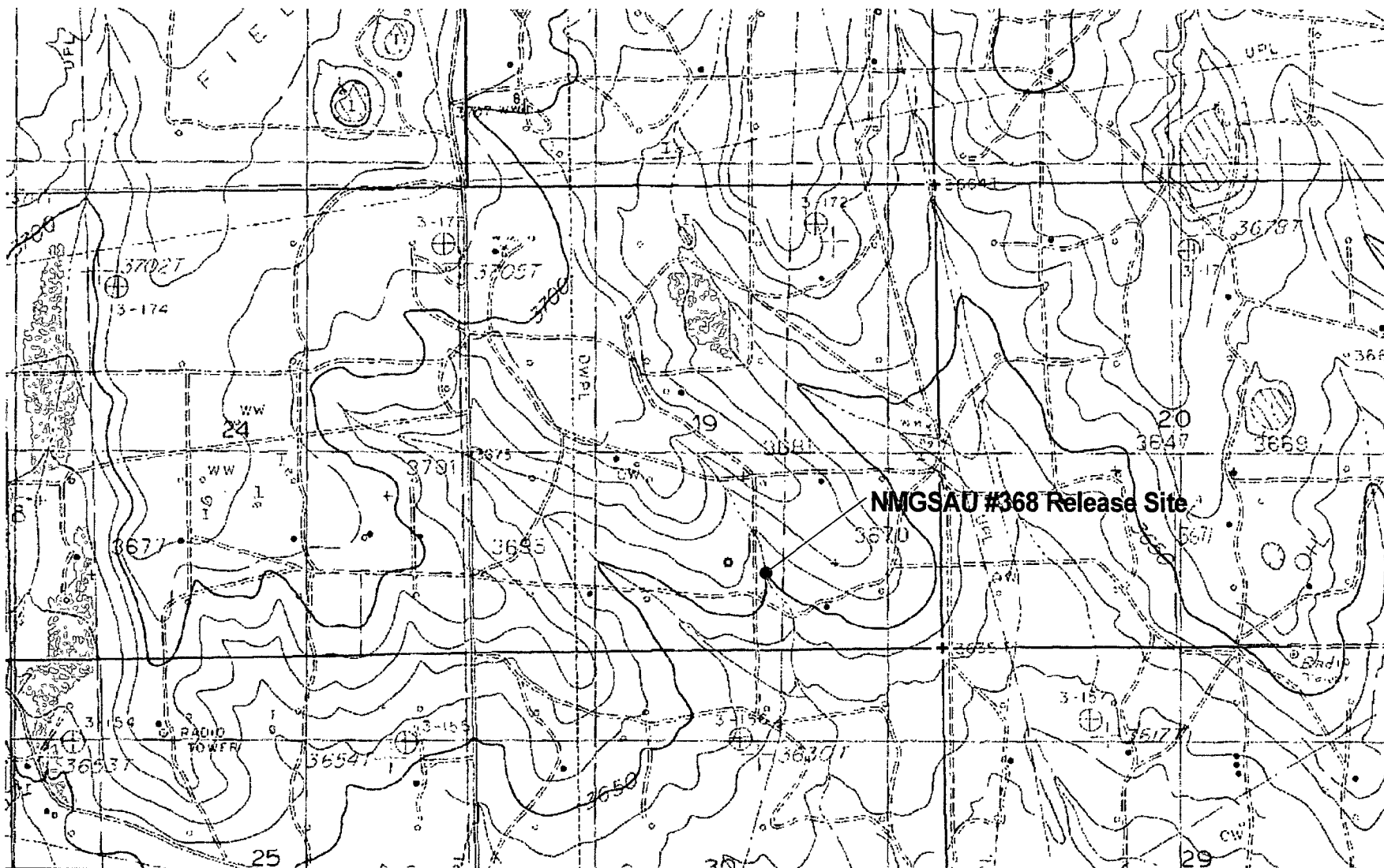


Plate 2  
Release Site Topography (USGS)  
Apache Corporation  
NMGSAU #368

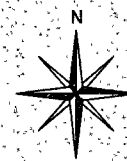
Lea County, New Mexico  
ULO SECTION 19 T19S R37E  
N 32° 38.475', W 103° 17.365'  
Elevation: ~3664-ft amsl

Drawing by: John Good  
June - 2009

Rev.  
1

SCALE:

0 Feet 3000



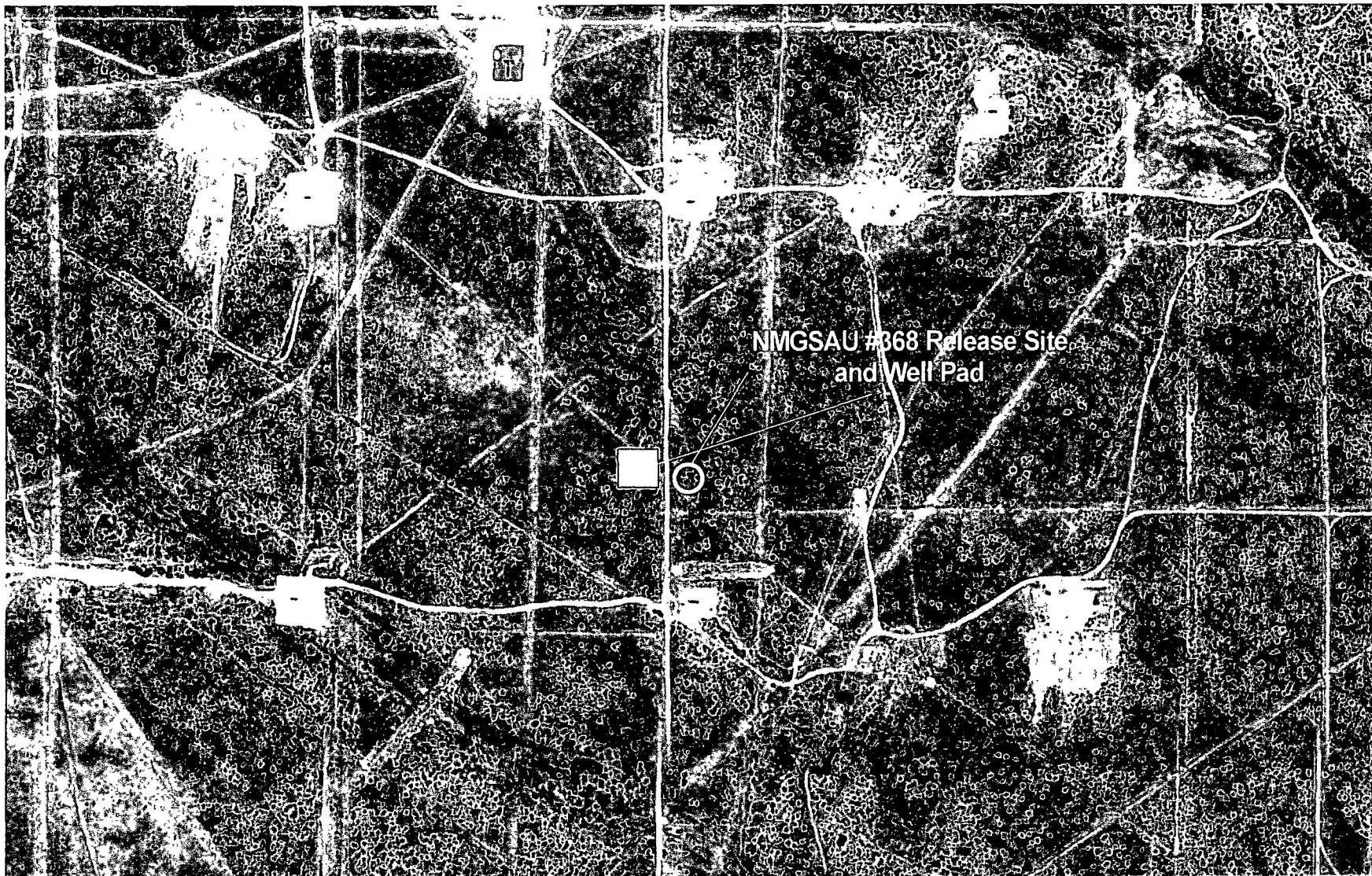


Plate 3  
Release Site Aerial Photograph  
Apache Corporation  
NMGSAU #368

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



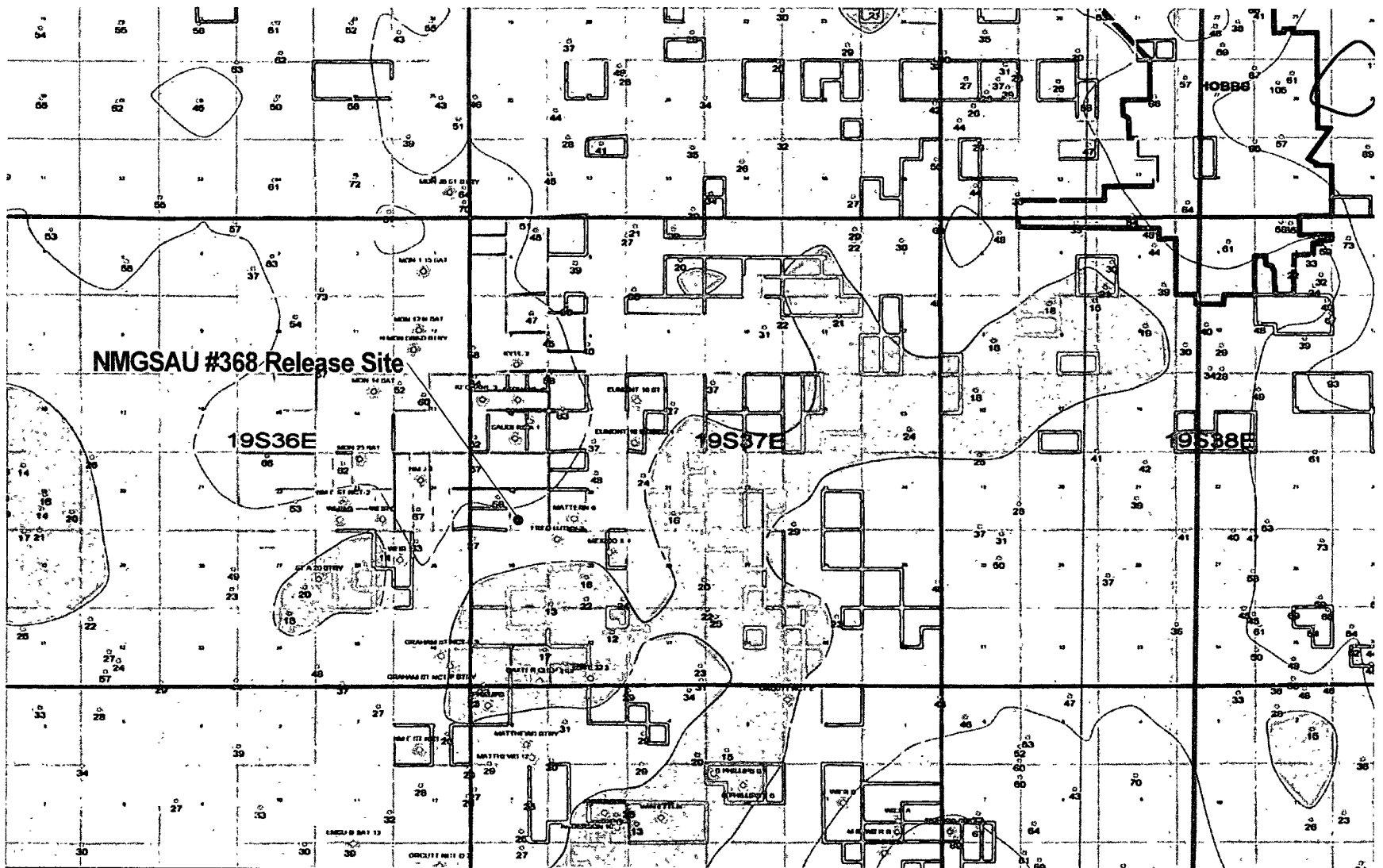


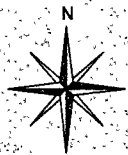
Plate 4  
Release Site Water Depth Contour  
Apache Corporation  
NMGSAU #368

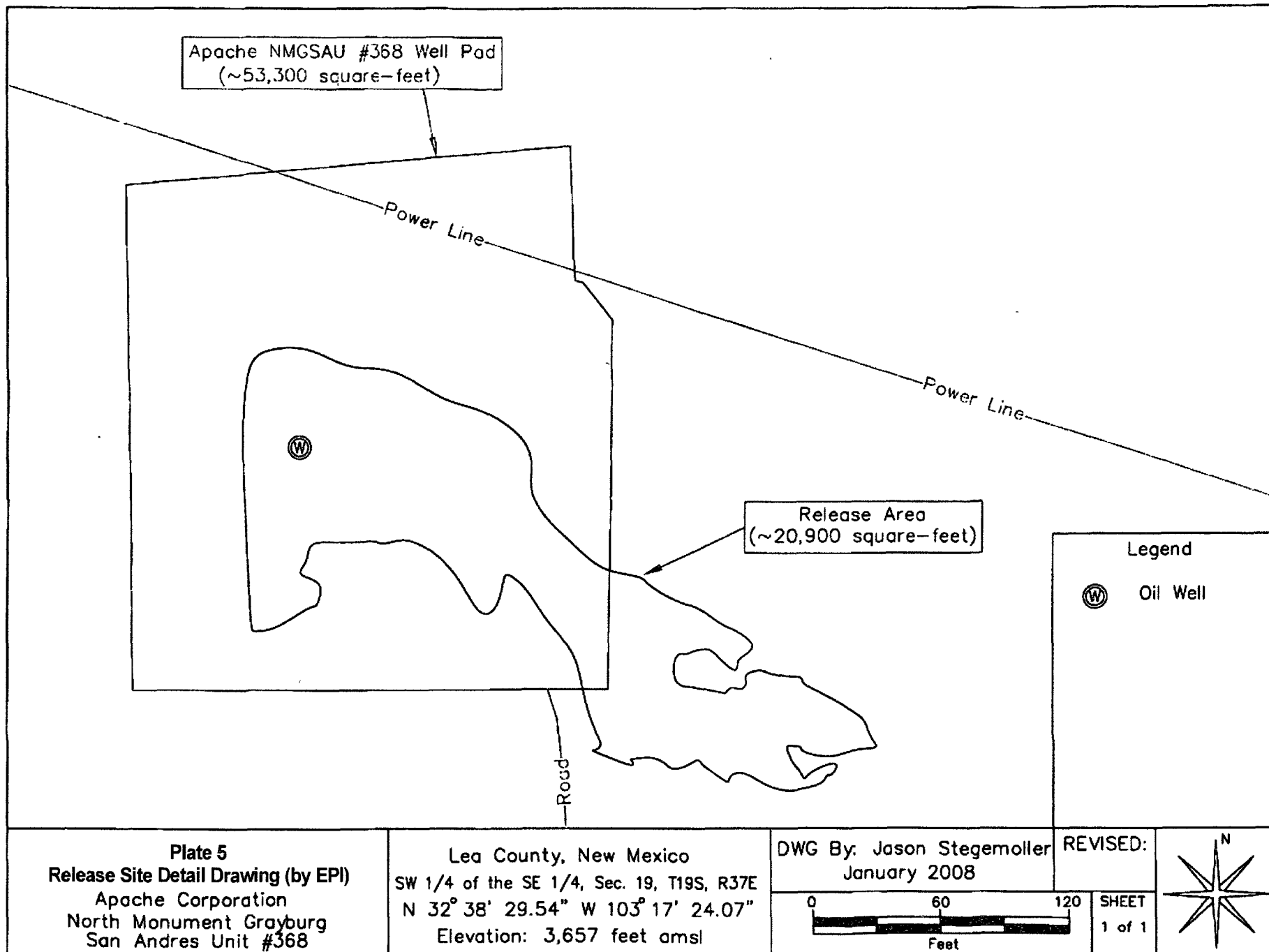
Lea County, New Mexico  
UL-O SECTION 19 T19S R37E  
N 32° 38.475', W 103° 17.365'  
Elevation: ~3664-ft amsl

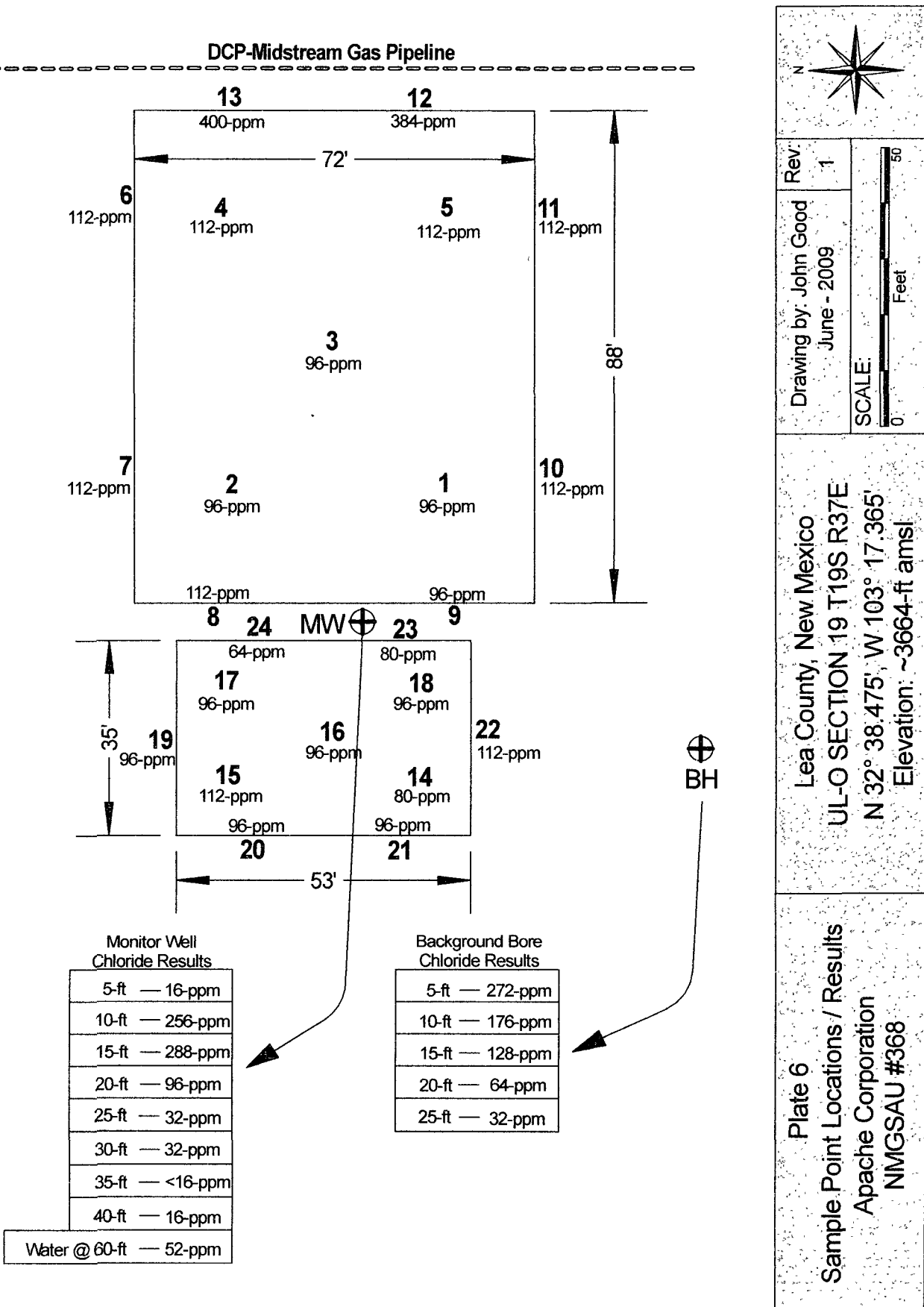
Drawing by: John Good  
June - 2009

Rev:  
1

SCALE:







**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



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

ANALYTICAL RESULTS FOR  
ELKE ENVIRONMENTAL, INC.  
ATTN: JOHN GOOD  
P.O. BOX 1830  
HOBBS, NM 88241  
FAX TO: (575) 738-0140

Receiving Date: 05/01/08  
Reporting Date: 05/02/08  
Project Owner: APACHE CORP.  
Project Name: NMGSAU #368  
Project Location: UL-O S19 T19S R37E

Analysis Date: 05/01/08  
Sampling Date: 05/01/08  
Sample Type: SOIL  
Sample Condition: COOL & INTACT  
Sample Received By: ML  
Analyzed By: KS

LAB NUMBER	SAMPLE ID	Cl <sup>-</sup> (mg/kg)
H14734-1	BH1-5	16
H14734-2	BH1-10	256
H14734-3	BH1-15	288
H14734-4	BH1-20	96
H14734-5	BH1-25	32
H14734-6	BH1-30	32
H14734-7	BH1-35	< 16
H14734-8	BH1-40	16
H14734-9	BG-5	272
H14734-10	BG-10	176
H14734-11	BG-15	128
H14734-12	BG-20	64
H14734-13	BG-25	32
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.

Chemist

05/02/08  
Date

H14734 ELKE



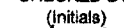
PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived 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.



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## Sheet 1 of 1

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Relinquished by:		Date:	Received By:	Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Add'l Phone#:		831-3277 (J. Good)
		5/1/08		Fax Result: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Add'l Fax #:		
		Time:		Remarks:		
Relinquished by:		Date:	Received By:			
		Time:				
Delivered By: (Circle One)		Sample Condition		CHECKED BY:		
<input checked="" type="radio"/> Sampler <input type="radio"/> UPS <input type="radio"/> Bus <input type="radio"/> Other		Cool <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		(Initials) 		
Note: Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476.						





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-CfB

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

Birish Supriko  
Chemist

07/15/08  
Date

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

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

**4500-CVB**

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

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.



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## CHAIN OF CUSTODY AND ANALYSIS REQUEST

Sheet 1 of 1

Company Name: Project Manager: Address: City: Phone #:			OCOTILLO ENVIRONMENTAL JOHN GOOD 2125 N. FRENCH DR. HOBBS State: NM Zip: 88241 575-631-3277 Fax #:			BILL TO P.O. # Company: Apache Corp Attn: Natalie Gladden Address: PO Box 1849 City: Eunice State: NM Zip: 88231 Phone #: 575-390-4188 Fax #:			ANALYSIS REQUEST																										
Project #:			Project Owner:						APACHE CORP			City: Eunice						Chlorides																	
Project Name:			NMGSAU #368									State: NM Zip: 88231																							
Project Location:			UL-O S19 T19S R37E									Phone #:			575-390-4188																				
Sampler Name:			JOHN GOOD																																
Lab I.D.		Sample I.D.		(GRAB OR C)COMP	# CONTAINERS	GROUND WATER	MATRIX				PRESERV		SAMPLING		DATE	TIME																			
							WASTEWATER	SOIL	SLUDGE	OTHER	ACID/BASE	ICE/COL	OTHER																						
HI5145 -1		E-BHSW-15		G	1		X					X			8-Jul	7:30																			
-2		E-BHNW-15		G	1		X					X			8-Jul																				
-3		E-BHC-15		G	1		X					X			8-Jul																				
-4		E-BHNE-15		G	1		X					X			8-Jul																				
-5		E-BHSE-15		G	1		X					X			8-Jul																				
-6		E-NSW-E		G	1		X					X			8-Jul																				
-7		E-NSW-W		G	1		X					X			8-Jul																				
-8		E-WSW-N		G	1		X					X			8-Jul																				
-9		E-WSW-S		G	1		X					X			8-Jul																				
-10		E-SSW-W		G	1		X					X			8-Jul																				
-11		E-SSW-E		G	1		X					X			8-Jul																				
-12		E-ESW-S		G	1		X					X			8-Jul																				
-13		E-ESW-N		G	1		X					X			8-Jul																				
-14		W-BHSW-12		G	1		X					X			8-Jul	8:00																			
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 otherwise.																																			
Relinquished By:				Date:		Received By:				Phone Result:		Yes		No		Add'l Phone#:		631-3277 (J. Good)																	
Time:				7/11/08		Kristin Supido				Fax Result:		Yes		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)  Sampler - UPS - Bus - Other						Sample Condition Cool Intact Yes No Yes No						CHECKED BY: (Initials)  KS						Note: Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476.																	





Analysis Date: 07/18/08  
Sampling Date: 07/16/08  
Sample Type: GROUNDWATER  
Sample Condition: INTACT  
Sample Received By: KS  
Analyzed By: KS

[illegible]

**METHOD:** Standard Methods 4500-CIB

Kristin Infante  
Chemist

Date 07/21/08

H15194 OCO

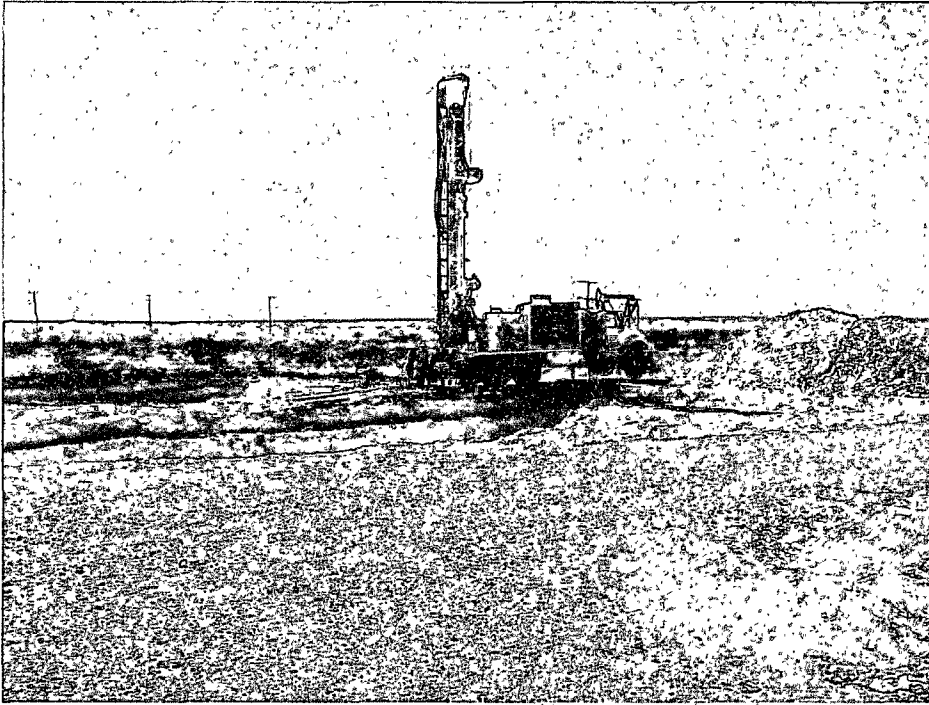
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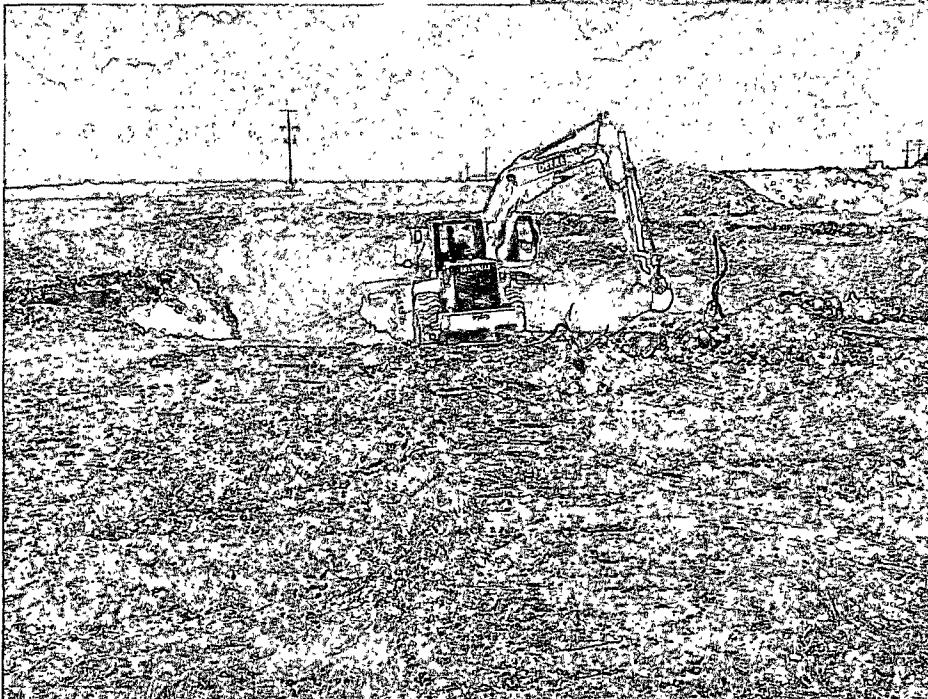
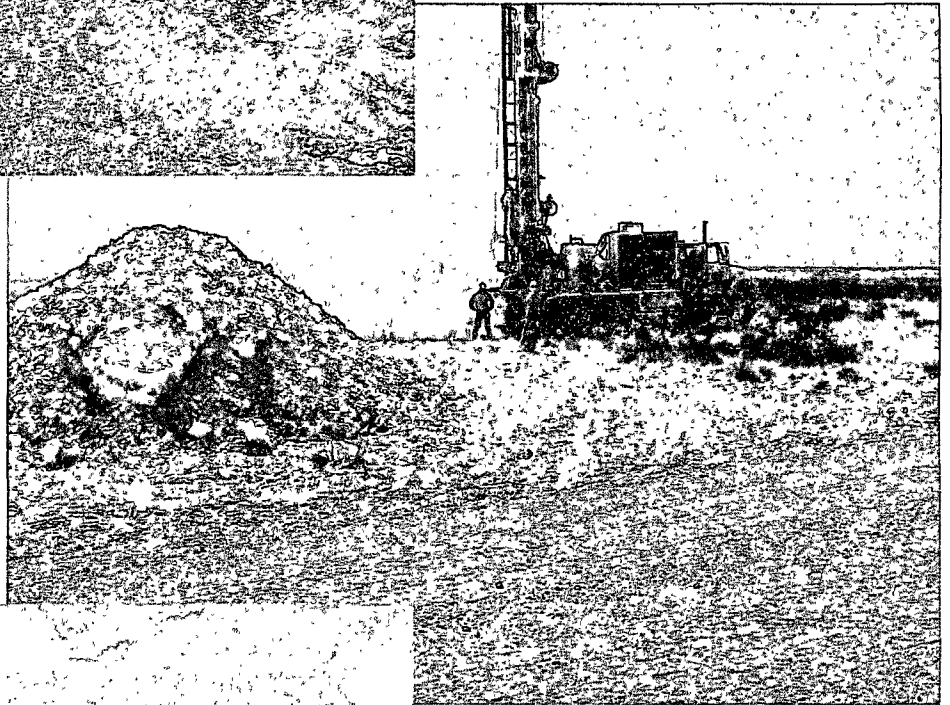
## Sheet 1 of 1

[illegible]

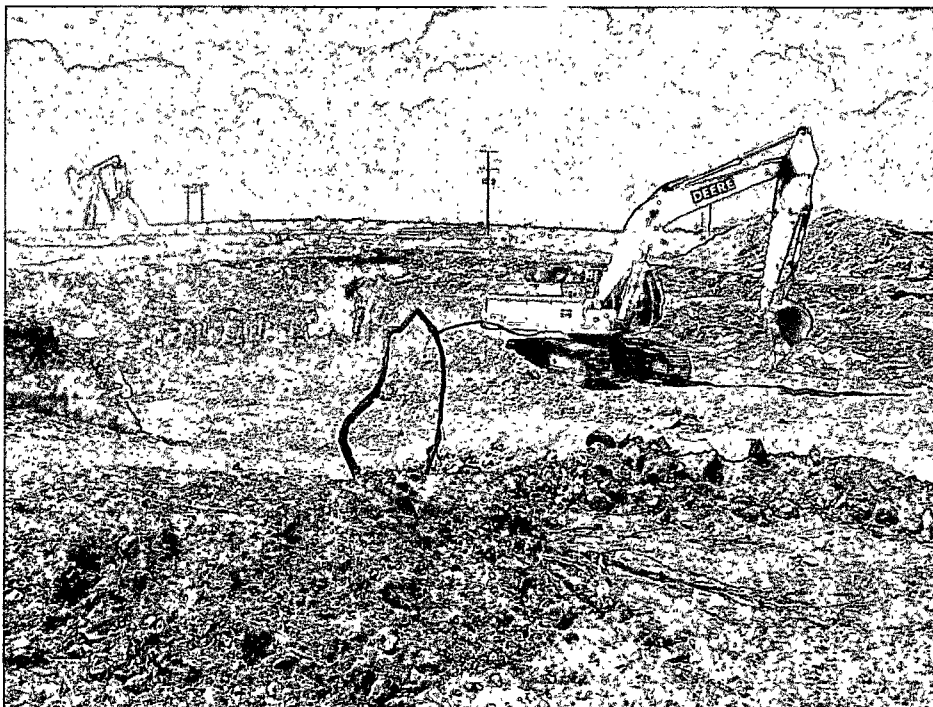


< 5/1/08 – Installing monitor well on central shelf of excavation.

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

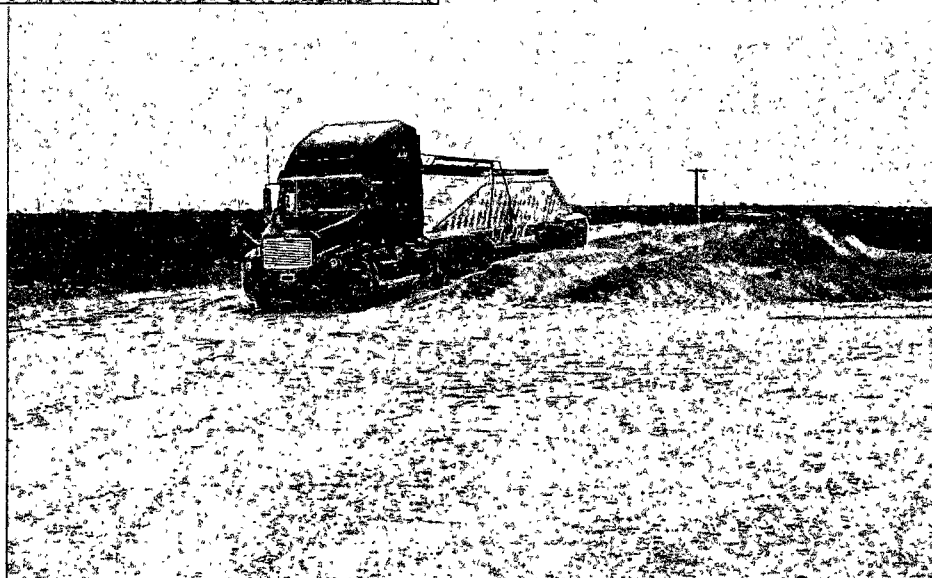


< 7/2/08 – Commencing excavation of bottom contamination.

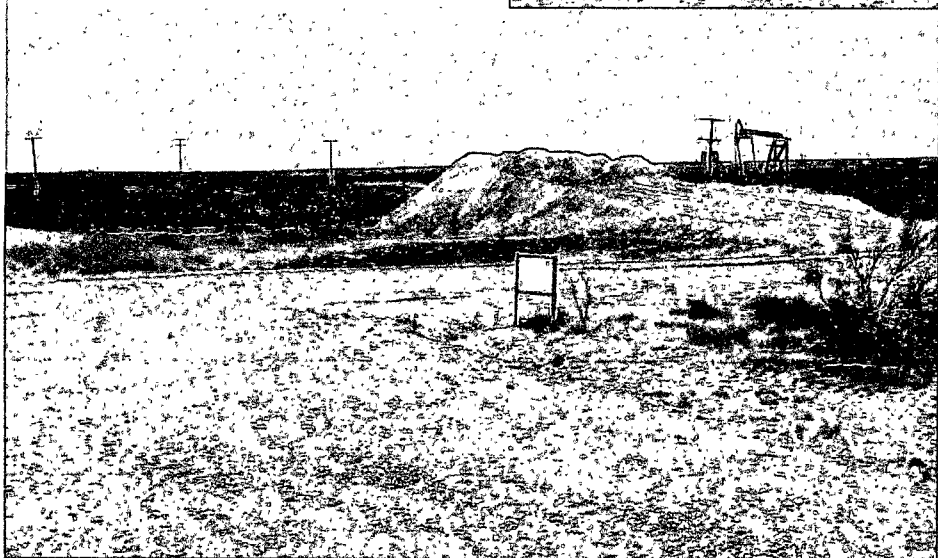


< 7/10/08 – Continuing excavation of bottom contamination.

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

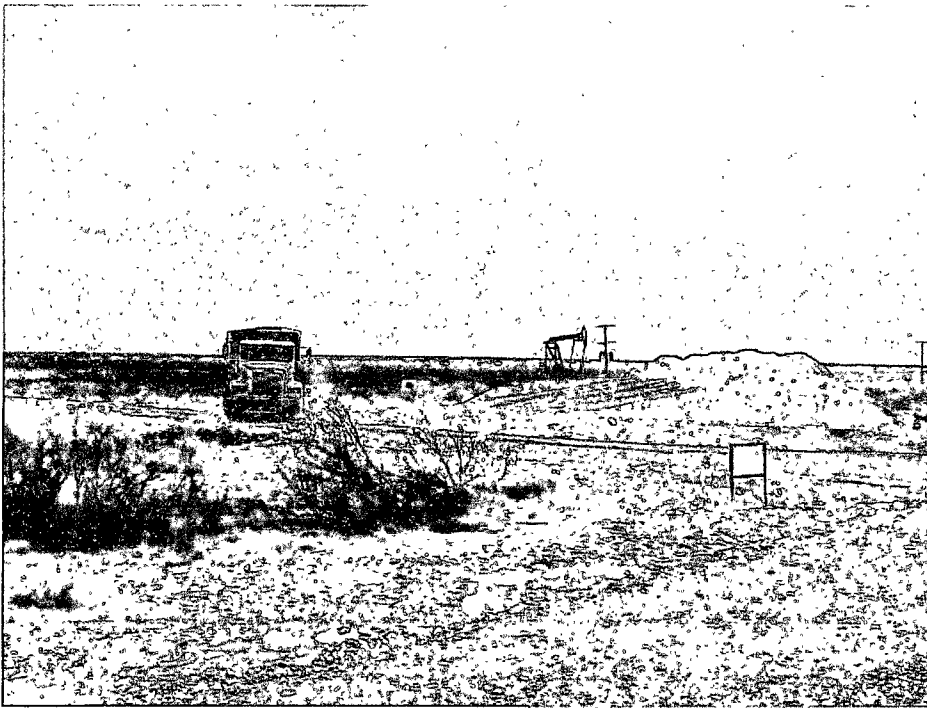


ed

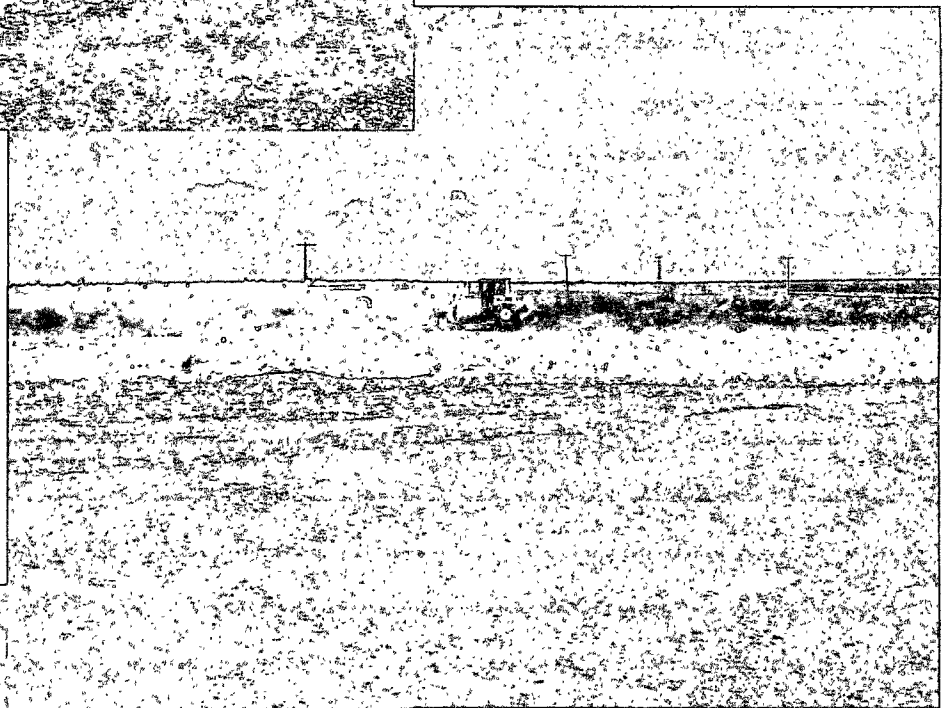


< 7/10/08 – Clean caliche placed on top of contaminated stockpile.

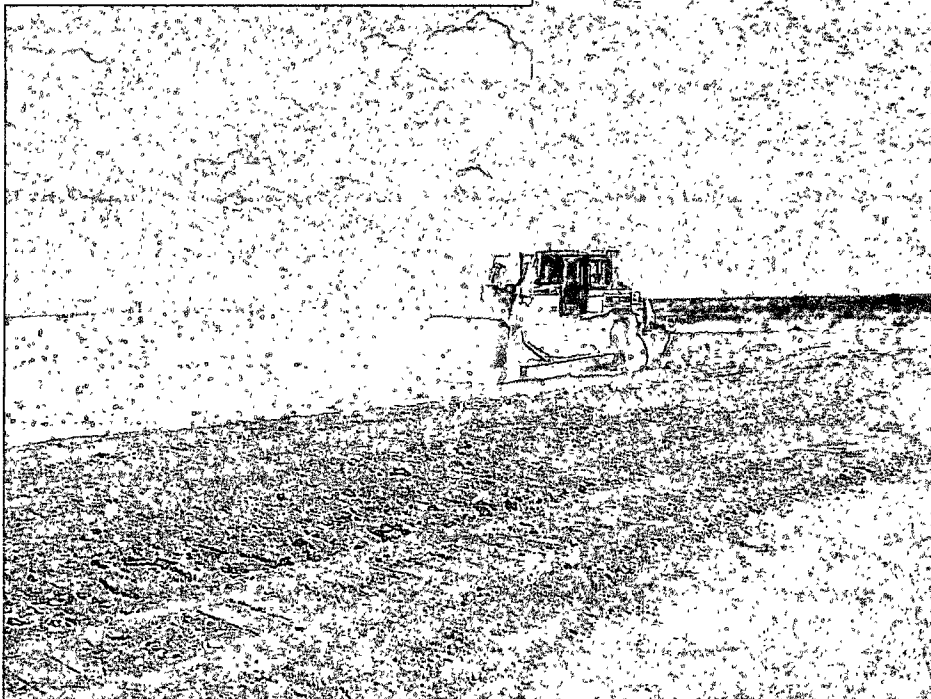




< 7/10/08 – Clean caliche stockpiled on north side of excavation.



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 87501

State of New Mexico  
Energy Minerals and Natural Resources

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

Form C-141

Revised October 10, 2003

Submit 2 Copies to appropriate  
District Office in accordance  
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side of form

## Release Notification and Corrective Action

## OPERATOR



Initial Report



Final Report

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

Surface Owner	Jimmy Cooper	Mineral Owner	API #	30-025-38459
---------------	--------------	---------------	-------	--------------

## LOCATION OF RELEASE

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

Latitude

Longitude

## NATURE OF RELEASE

Type of Release	Drilling Brine	Volume of Release	45	Volume Recovered	25
Source of Release	New well bore	Date/Hour of Occurrence	12:30 PM	Date /Hour of Discovery	9:00 AM
Was Immediate Notice Given?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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: <i>Billy L Stockton</i>	Oil Conservation Division	
Printed Name: Billy L Stockton	Approved by the District <i>Johnston</i> ENVIRONMENTAL ENGINEER	
Title: Environmental Tech	Approval Date: 1.2.08	Expiration Date: 3.3.08
Email Address: billy.stockton@apachecorp.com	Conditions of Approval:	Attached
Date: 12/28/2007 Phone: 806-893-9575	Submit Final C 141	

\*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

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Informational - Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

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

Surface Owner: State of New Mexico	Mineral Owner:	Lease No.:
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LOCATION OF RELEASE

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

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

NATURE OF RELEASE

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

Signature: <i>Harold Swain</i>	OIL CONSERVATION DIVISION <i>Pat Richards</i> COMPLIANCE OFFICER Approved by <i>Pat Richards</i> in absence of <i>Barry Johnson</i>	
Printed Name: Harold Swain	Approval Date: 1/17/08	Expiration Date: 3/3/08
Title: Drilling Foreman, Permian Basin	Conditions of Approval: <i>Delimitation of work</i>	Attached <input type="checkbox"/>
E-mail Address: Harold.swain@usa.apachecorp.com	Date: 1-10-08 Phone: 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.</i>			
<i>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>	<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: 20	Wellhead Protection Score: 0	Surface Water Score: 0	
Site Ranking (1 + 2 + 3): 20			
<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**

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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	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
<b>O</b>	<b>19</b>	<b>19S</b>	<b>37E</b>	<b>1060</b>	<b>2420</b>	<b>103.2892</b>	<b>32.6409</b>	<b>Lea</b>

**NATURE OF RELEASE**

Type of Release	Volume of Release	Volume Recovered
<b>Drilling Brine Water</b>	<b>Greater than 45 bbl</b>	<b>5 bbl</b>
Source of Release	Date and Hour of Occurrence	Date and Hour of Discovery
<b>Overflow of closed-loop containment vessel</b>	<b>12/22/07 9:00AM</b>	<b>12/22/07 9:00AM</b>
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	
<b>Billy L. Stockton</b>	<b>12/22/07 12:45PM</b>	
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:	<b>Natalie Gladden</b>		
Title:	<b>Environmental Tech - Permian Basin</b>		
E-Mail Address:	<b>Natalie.Gladden@usa.apachecorp.com</b>		
Date:	<b>6/24/2009</b>	Phone:	<b>575-390-4186</b>
Approved by District Supervisor:		Approval Date:	Expiration Date:
		Conditions of Approval:	<b>1RP# _ 1701, 1746</b>
			<input type="checkbox"/> Attached

**APACHE CORPORATION**

29

NMGSAU #368