



**ENVIRONMENTAL PLUS, INC.**  
STATE APPROVED LAND FARM AND ENVIRONMENTAL SERVICES

Micro-Blaze

Micro-Blaze Out™

August 24, 2006

Mr. Larry Johnson, Environmental Engineer  
New Mexico Oil Conservation Division  
1625 North French  
Hobbs, New Mexico 88240

Re: Delineation Report and Remediation Proposal  
Apache Corporation NEDU 809, (Ref. #240011)  
UL- H of Section 22, T21S, R37E  
Latitude 32° 28' 0.9"N and Longitude 103° 08' 40.1"W  
Landowner: C.A. Bettis



Dear Mr. Johnson:

On October 21, 2005, Environmental Plus, Inc. (EPI) was retained by Apache Corporation (Apache) to document, mitigate and remediate the injection water release that occurred at the above referenced location (reference C-141).

**MITIGATION**

After the line was shut-in and repaired, initial mitigation activities commenced with the disposal of approximately 480 barrels of saline produced water (i.e., 3,200 to 3,700 mg/L chloride as per Apache) recovered from the surface pooling areas followed by stockpiling of the saturated near surface soil in a 10 mil polyethylene lined and bermed soil storage area. The initial C-141 was submitted to the New Mexico Oil Conservation Division (NMOCD) on October 28, 2005.

**CURRENT REMEDIATION STATUS**

Impacted soils to a depth of 5 to 7-feet below ground surface within the initial spill area perimeter have been excavated and represent an estimated volume of 5,655 yd<sup>3</sup>. From October 24, 2005 to November 1, 2005, 1,736 yd<sup>3</sup> of impacted soil were transported to Sundance for disposal; the remaining estimated volume of 3,919 yd<sup>3</sup> is stockpiled on site and has an average chloride concentration of 828 mg/Kg.

**NOVEMBER 1, 2005 DELINEATION SUMMARY**

On November 1, 2005, to confirm remediation status, as directed by Apache, soil samples were collected from the floor of the excavation and from the stockpiled soil and submitted to the laboratory for quantification of chloride residuals. Analytical results for the stockpile samples ranged from 720 mg/Kg to 880 mg/Kg and are in excess of the NMOCD chloride remedial goal of 250 mg/Kg. Analytical results for the samples collected from the floor of the excavation ranged from an acceptable 112 mg/Kg in the southeast flowpath north sample to 848 mg/Kg in the north flowpath and central flowpath samples (reference *Figure 1, Figure 2 and Table 1*). Laboratory TPH and BTEX analyses will be performed on selected closure samples to confirm acceptable levels but were not warranted during this sampling event. This delineation of the floor of the excavation did not adequately delineate the vertical extent of this release, consequently, to determine the vertical extents of impact, Apache proposed to collect soil samples from four strategically located soil borings (reference *Figure 2*) at 5-foot vertical intervals and submit to an independent laboratory for chloride analysis. This proposal, (reference previously submitted letter report dated January 20, 2006, Re: Status Report and Delineation Proposal), was subsequently approved by the NMOCD and implemented on February 3, 2006.

ENVIRONMENTAL PLUS, INC.

# **FEBRUARY 3, 2006 DELINEATION SUMMARY**

Prior to advancing the soil borings and collecting the samples, the NMOCD was notified as was the New Mexico ONE CALL system. The soil borings were advanced with a hollow stem auger drill rig and discrete samples collected at the prescribed intervals with a decontaminated stainless steel split spoon sampler. A ramp was excavated on the southwest edge of the excavation to facilitate drill rig access to the floor of the excavation. The analytical results are summarized in Table 1 and illustrated below.

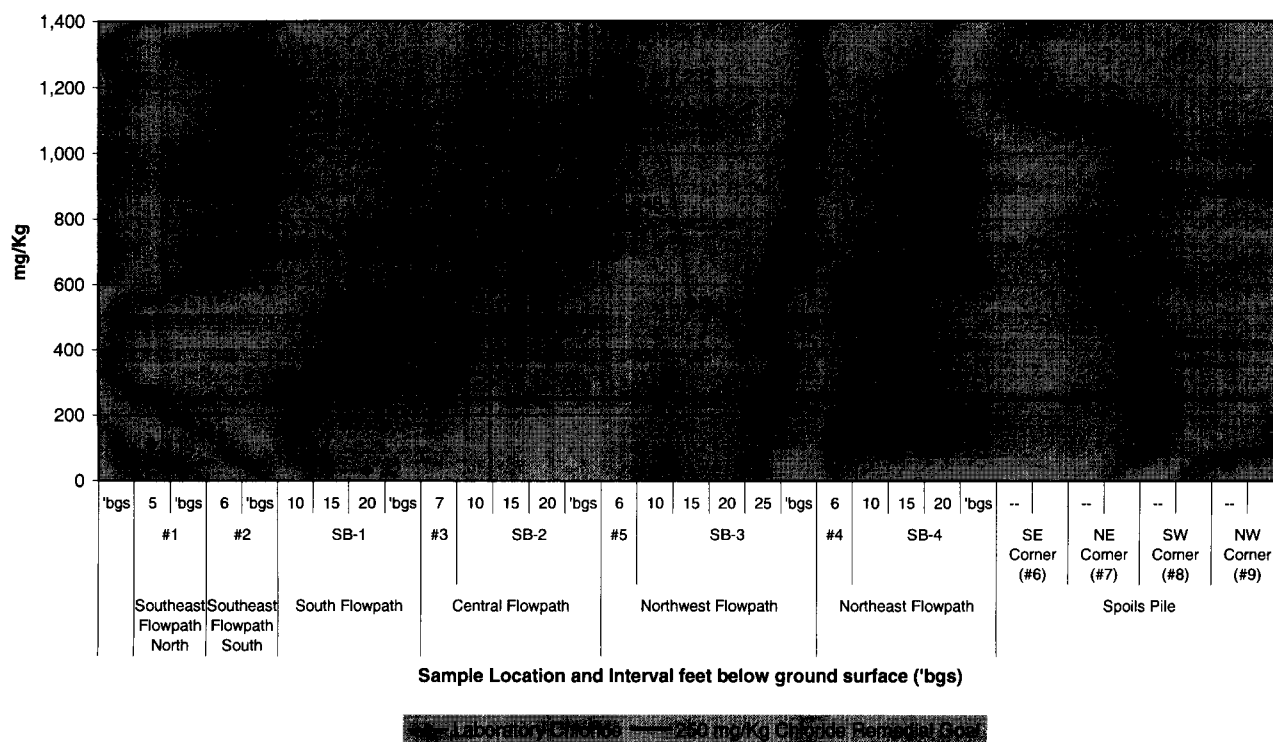
**Soil Boring 1 (SB-1)** was located in the south flowpath and advanced to 20-feet bgs. All samples were less than 250 mg/Kg.

**Soil Boring 2 (SB-2)** was located in the central flowpath and advanced to 20-feet bgs. The chloride concentrations ranged from 800 mg/Kg in the 10-foot bgs sample to 240 mg/Kg in the 15-foot bgs sample, however the 20-foot bgs sample increased to 288 mg/Kg.

**Soil Boring 3 (SB-3)** was located in the northwest flowpath, nearest the leak origin, and advanced to 25-feet bgs. The chloride concentrations ranged from 1,232 mg/Kg in the 10-foot bgs sample to 256 mg/Kg in the 25-foot bgs sample.

**Soil Boring 4 (SB-4)** was located in the northeast flowpath and advanced to 20-feet bgs. The chloride concentrations ranged from 240 mg/Kg in the 10-foot bgs sample to 112 mg/Kg in the 20-foot bgs sample.

**Figure 2**  
**Apache Corporation**  
**Northeast Drinkard Unit (NEDU) #809**  
**Chloride Delineation**



## DISCUSSION OF ANALYTICAL RESULTS

The analytical results collected to date indicate chloride impact in excess of the 250 mg/Kg NMOCD remedial goal persists in the floor of the excavation in all flowpath sectors with the exception of the southeast flowpath north sample location at 5-feet bgs. The vertical extent of impact ranges from 10-feet bgs in the northeast and south flowpaths to 20-feet bgs in the northeast flowpath and 25-feet bgs in the northwest flowpath. The vertical extent in the southeast flowpath south sample location is greater than 6-feet bgs and was not accessible by the drill rig.

TABLE 2		
Apache Corporation		
Northeast Drinkard Unit (NEDU)#809		
Sample Location	Sampling Interval	Laboratory Chloride
	(FT. BGS)	mg/Kg
Southeast Flowpath North	5	112
Southeast Flowpath South	6	<b>800</b>
South Flowpath	10	240
Central Flowpath	20	<b>288</b>
Northwest Flowpath	25	<b>256</b>
Northeast Flowpath	10	240
Spoils Pile Southeast Corner	--	<b>720</b>
Spoils Pile Northeast Corner	--	<b>864</b>
Spoils Pile Southwest Corner	--	<b>848</b>
Spoils Pile Northwest Corner	--	<b>880</b>
NMOCD Remedial Goal		<b>250</b>

## REMEDICATION AND FINAL DELINEATION PROPOSAL

Apache proposes to delineate the vertical extent of chloride impact in the area of the southeast flowpath south sample location and remediate impacted soils down to a depth of 6-feet bgs by disposing in an NMOCD approved facility and, to prevent vertical migration, isolate the remaining chloride source term with an impermeable barrier. To verify adequate removal of impacted soils, soil samples will be collected from the sides of the excavation and submitted to an independent laboratory for chloride analysis. Selected samples will be analyzed for TPH and BTEX. Below is the generalized procedure being proposed.

- Advance a soil boring in the area of the southeast flowpath south sample location to delineate the vertical extent of chloride impact in excess of the NMOCD remedial goal;
- Dispose of the stockpiled soil in the Sundance facility;
- Collect samples of the sides of the excavation at 25-feet horizontal intervals and analyze for chloride to identify soils impacted above the 250 mg/Kg NMOCD remedial goal;
- Excavate and dispose of soil impacted in excess of the 250 mg/Kg NMOCD remedial goal down to a depth 6-feet bgs;
- Collect samples of the sides of the excavation at 25-feet horizontal intervals and analyze for chloride to identify soils impacted above the 250 mg/Kg NMOCD remedial goal;
- Analyze selected samples for TPH and BTEX;
- Submit analytical results to the NMOCD and notify of intent to install liner;
- Receive approval from NMOCD to proceed with liner installation;
- Contour and smooth the floor of the excavation to be slightly higher in the central part of the excavation to promote shedding of storm water;

- Install a 20 mil thick polyethylene liner to isolate and prevent vertical migration of the chloride source term remaining below the 6-feet bgs interval;
- Backfill the excavation with local clean soil and reseed; and
- Prepare and submit final closure documentation and final C-141.

Apache Corporation will implement this proposal upon approval by the NMOCD.

Should you have any questions or concerns please feel free to contact me at (505)394-3481 or Mr. Bryan Tinsley at (505)394-2743. All official communications should be addressed to:

Apache Corporation  
Bryan Tinsley, Area Supervisor  
P.O. Box 1849  
Eunice, New Mexico 88231

Sincerely,



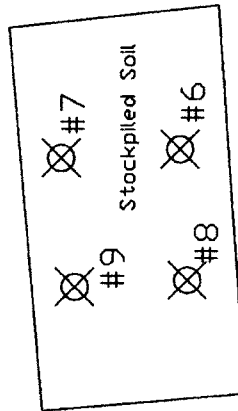
Pat McCasland  
Senior Consultant

cc: Bryan Tinsley, Apache Corporation (Bryan.Tinsley@ApacheCorp.com)  
Guinn Burks, Apache Corporation (Guinn.Burks@ApacheCorp.com)  
Mike Warren, Apache Corporation (Mike.Warren@ApacheCorp.com)  
David Woolf, Apache Corporation (David.Woolf@ApacheCorp.com)  
file

Exhibits:

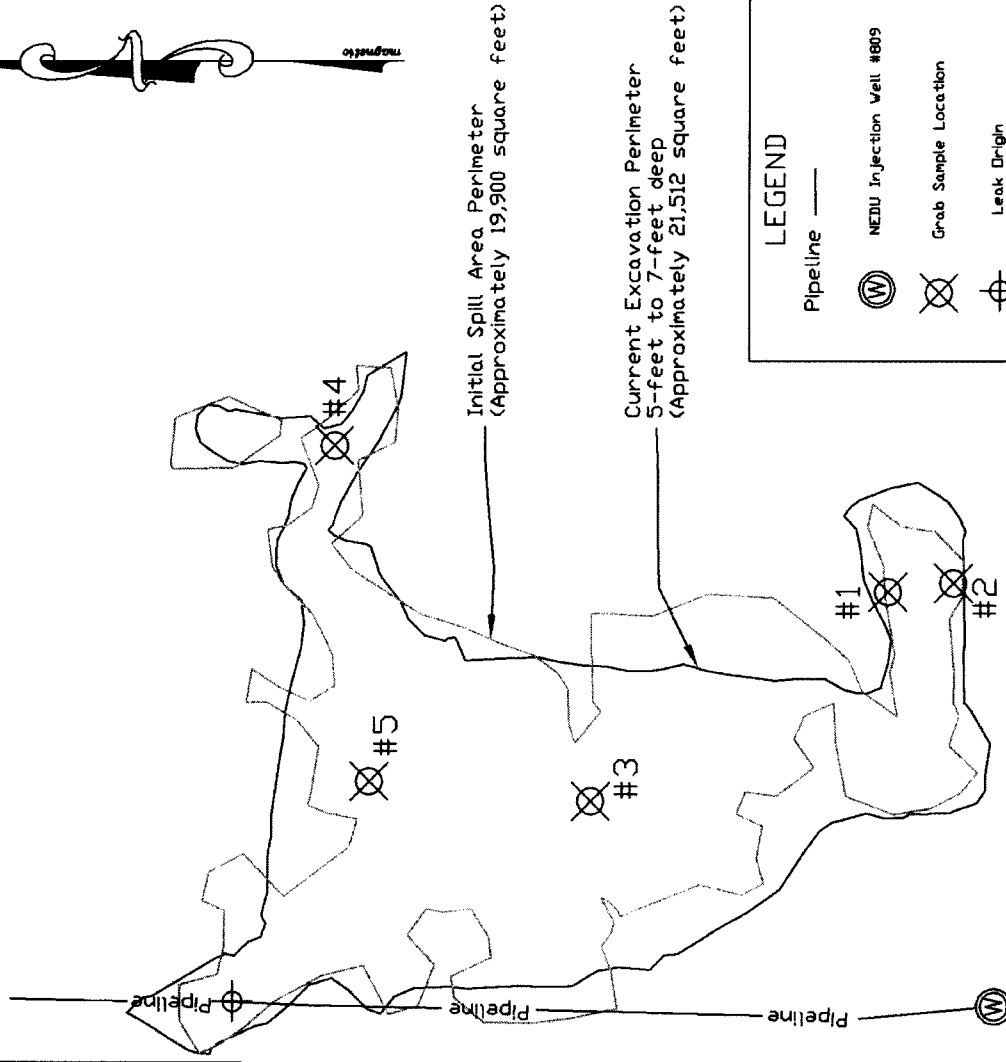
Figure 1 – Sample Location Map  
Figure 2 – Soil Boring Map  
Aerial Map and possible drill pit  
Table 1 – Analytical Results Summary  
Laboratory Reports  
Photographs  
Site Information and Metrics Form  
C-141

Apache Corporation NEDU #809 Chloride Delineation				
Sample Location	Sample ID (Map#)	Sampling Interval feet below ground surface	Chloride (Laboratory) mg/kg	
Southeast Flowpath North	Apache #1 (#1)	5	112	
Southeast Flowpath South	Apache #2 (#2)	6	800	
Central Flowpath	Apache #3 (#3)	7	848	
Northeast Flowpath	Apache #4 (#4)	6	592	
North Flowpath	Apache #5 (#5)	6	848	
Spills Pile Southeast Corner	Apache Pile SE Corner (#6)	—	720	
Spills Pile Northeast Corner	Apache Pile NE Corner (#7)	—	864	
Spills Pile Southwest Corner	Apache Pile SW Corner (#8)	—	848	
Spills Pile Northwest Corner	Apache Pile NW Corner (#9)	—	880	



Disposal volume to date is 1,736 cubic yards.  
Approximately 3,919 cubic yards of soil impacted  
above the New Mexico Oil Conservation Division  
Guidelines are stockpiled inside a bermed and lined  
(10 mil polyethylene plastic) soil storage area.

Figure 1  
Apache Corporation  
NEDU #809 Site Map  
November 1, 2005



**LEGEND**

Pipeline —

⊗ NEDU Injection Well #809

⊗ Grab Sample Location

⊕ Leak Drift

0 50 100  
Feet

DRAWN BY: PW McCasland

DATE: November 2005

REVISED:

Lea County, New Mexico  
SE  $\frac{1}{4}$  of the NE  $\frac{1}{4}$  of Sec. 22, T22S, R37E  
N 32° 28' 0.9" W 103° 08' 40.1"  
Elevation: 3,410 feet amsl

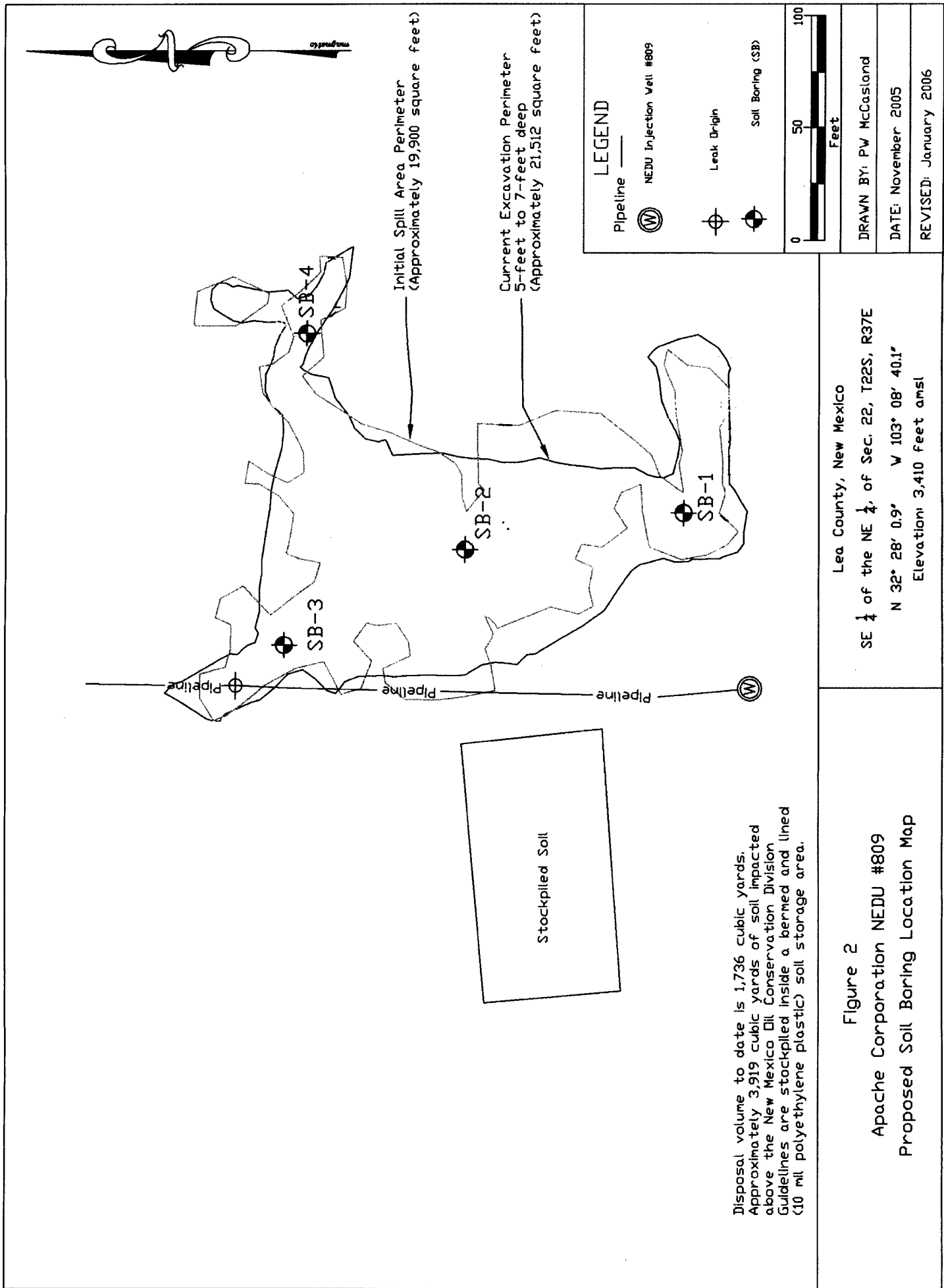


TABLE 1  
Apache Corporation  
Northeast Drunkard Unit (NEDU)#809

Sample Location	SAMPLE ID#	Date	Sampling Interval (FT, Secs)	Soil Status (excavated or in-situ)	Lithology	VOC <sup>2</sup>		DRO <sup>4</sup>	TPH <sup>5</sup>	BTEX	Benzene	Toluene	Ethylbenzene	m,p, & o Xylene	Laboratory Chloride	Corrected Field Chloride
						ppm	mg/kg									
Southeast Flowpath North	Apache #1 (#1)	9/26/2003	5	in-situ	Red Sand	1.70	10	10	20	na	na	na	na	na	112	40
Southeast Flowpath South	Apache #2 (#2)	9/26/2003	6	in-situ	Red Sand	1.40	na	na	na	na	na	na	na	na	800	880
South Flowpath	SB-1 10-11	2/3/2006	10	in-situ	Red Sand	na	na	na	na	na	na	na	na	na	240	
	SB-1 15-16	2/3/2006	15	in-situ	Red Sand	na	na	na	na	na	na	na	na	na	32	
Central Flowpath	SB-1 20-21	2/3/2006	20	in-situ	Red Sand	na	na	na	na	na	na	na	na	na	32	
	Apache #3 (#3)	9/26/2003	7	in-situ	Red Sand	0.90	na	na	na	na	na	na	na	na	848	840
	SB-2 10-11	2/3/2006	10	in-situ	Red Sand	na	na	na	na	na	na	na	na	na	800	
	SB-2 15-16	2/3/2006	15	in-situ	Red Sand	na	na	na	na	na	na	na	na	na	240	
	SB-2 20-21	2/3/2006	20	in-situ	Red Sand	na	na	na	na	na	na	na	na	na	288	
	Apache #5 (#5)	9/26/2003	6	in-situ	Red Sand	0.60	na	na	na	na	na	na	na	na	848	920
Northwest Flowpath	SB-3 10-11	2/3/2006	10	in-situ	Red Sand	na	na	na	na	na	na	na	na	na	1232	
	SB-3 15-16	2/3/2006	15	in-situ	Red Sand	na	na	na	na	na	na	na	na	na	544	
	SB-3 20-21	2/3/2006	20	in-situ	Red Sand	na	na	na	na	na	na	na	na	na	496	
	SB-3 25-26	2/3/2006	25	in-situ	Red Sand	na	na	na	na	na	na	na	na	na	256	
Northeast Flowpath	Apache #4 (#4)	9/26/2003	6	in-situ	Red Sand	0.80	na	na	na	na	na	na	na	na	592	820
	SB-4 10-11	2/3/2006	10	in-situ	Red Sand	na	na	na	na	na	na	na	na	na	240	
	SB-4 15-16	2/3/2006	15	in-situ	Red Sand	na	na	na	na	na	na	na	na	na	160	
	SB-4 20-21	2/3/2006	20	in-situ	Red Sand	na	na	na	na	na	na	na	na	na	112	
Spoils Pile Southeast Corner	Apache Pile SE Corner (#6)	9/26/2003	—	excavated	Red Sand	0.20	na	na	na	na	na	na	na	na	720	800
Spoils Pile Northeast Corner	Apache Pile NE Corner (#7)	9/26/2003	—	excavated	Red Sand	0.40	na	na	na	na	na	na	na	na	864	860
Spoils Pile Southwest Corner	Apache Pile SW Corner (#8)	9/29/2003	—	excavated	Red Sand	1.70	na	na	na	na	na	na	na	na	848	860
Spoils Pile Northwest Corner	Apache Pile NW Corner (#9)	9/29/2003	—	excavated	Red Sand	1.60	na	na	na	na	na	na	na	na	880	920
Background (300-feet south)	NEDU 809 Background	9/29/2003	Surface	in-situ	Red Sand	1.20	na	na	na	na	na	na	na	na	na	20
New Mexico Oil Conservation Division Remedial Goals						100.00			1,000	50	10				250	

<sup>1</sup>lbs - below ground surface

<sup>2</sup>VOC-Volatile Organic Contaminants/Constituents

<sup>3</sup>GRO-Gasoline Range Organics C<sub>6</sub>-C<sub>10</sub>

<sup>4</sup>DRO-Diesel Range Organics C<sub>10</sub>-C<sub>28</sub>

<sup>5</sup>TPH-Total Petroleum Hydrocarbon = GRO+DRO.

<sup>6</sup>Bolded values are in excess of the New Mexico Oil Conservation Division guideline threshold for the parameter

<sup>7</sup>Italicized values are < the instrument detection limit.

<sup>8</sup>na - Not Analyzed

Reported detection limits are considered "de minimus" values and are included in the GRO/DRO and BTEX summations.

BTEX = the mass sum of benzene, toluene, ethylbenzene and total xylenes

32°28'15"N

32°28'10"N

32°28'05"N

32°28'00"N

32°27'55"N

103°08'50"W

103°08'45"W

103°08'40"W

103°08'35"W

Apache Corporation NEDU #809  
Aerial 1997 (USGS)

UTM  
13 North  
NAD 1983 (Conus)



Scale 1:4,000



Feet

Multiple Files

11/10/2005





32°28'00"N

Possible Drill Pit

Northwest Corner

Leak Origin

103°08'40"W

Apache Corporation NEDU #809  
Aerial 1997 (USGS)

UTM  
13 North  
NAD 1983 (Conus)



Scale 1:1,000



Feet

NEDU 809.cor  
11/10/2005





394-  
PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603  
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR  
APACHE CORP.  
ATTN: MIKE WARREN  
P.O. BOX 1849  
EUNICE, NM 88231  
FAX TO: (505) 394-2426

Receiving Date: 11/01/06  
Reporting Date: 11/03/05  
Project Number: NEDU #809  
Project Name: NOT GIVEN  
Project Location: EUNICE, NM

Analysis Date: 11/03/06  
Sampling Date: NOT GIVEN  
Sample Type: SOIL  
Sample Condition: COOL & INTACT  
Sample Received By: BC  
Analyzed By: AH

LAB NUMBER	SAMPLE ID	Cr (mg/Kg)
H10359-1	APACHE #1	112
H10359-2	APACHE #2	800
H10359-3	APACHE #3	848
H10359-4	APACHE #4	592
H10359-5	APACHE #5	848
H10359-6	APACHE PILE SE CORNER	720
H10359-7	APACHE PILE NE CORNER	864
H10359-8	APACHE PILE SW CORNER	848
H10359-9	APACHE PILE NW CORNER	880
Quality Control		980
True Value QC		1000
% Recovery		98.0
Relative Percent Difference		1.0

METHOD: Standard Methods 4500-CrB

NOTE: Analyses performed on 1:4 w/v aqueous extracts.

Amy Hill  
Chemist

11/3/05  
Date

H10359

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 profit incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services rendered by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise.



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

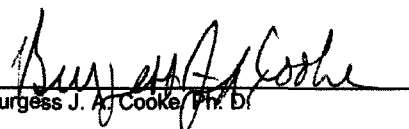
ANALYTICAL RESULTS FOR  
ENVIRONMENTAL PLUS, INC.  
ATTN: PAT McCASLAND  
P.O. BOX 1558  
EUNICE, NM 88231  
FAX TO: (505) 394-2601

Receiving Date: 02/08/06  
Reporting Date: 02/10/06  
Project Owner: APACHE CORPORATION (#240011)  
Project Name: NEDU 809  
Project Location: NOT GIVEN

Sampling Date: 02/03/06  
Sample Type: SOIL  
Sample Condition: COOL & INTACT  
Sample Received By: HM  
Analyzed By: BC

LAB NUMBER	SAMPLE ID	GRO (C <sub>6</sub> -C <sub>10</sub> ) (mg/Kg)	DRO (C <sub>10</sub> -C <sub>28</sub> ) (mg/Kg)	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE:		02/08/06	02/08/06	02/09/06	02/09/06	02/09/06	02/09/06
H10713-1	SB-1 10-11	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H10713-3	SB-1 20-21	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H10713-4	SB-2 10-11	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H10713-6	SB-2 20-21	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H10713-7	SB-3 10-11	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H10713-10	SB-3 25-26	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H10713-11	SB-4 10-11	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H10713-13	SB-4 20-21	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
Quality Control		774	794	0.102	0.108	0.101	0.294
True Value QC		800	800	0.100	0.100	0.100	0.300
% Recovery		96.7	99.3	102.0	109	101	98.1
Relative Percent Difference		8.8	0.9	9.5	6.2	5.9	4.7

METHODS: TPH GRO & DRO - EPA SW-846 8015 M; BTEX - SW-846 8260.

  
Burgess J. A. Cooke, Ph.D.

2/10/06  
Date

H10713A.XLS

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.



PHONE (325) 873-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

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

ANALYTICAL RESULTS FOR  
ENVIRONMENTAL PLUS, INC.  
ATTN: PAT McCASLAND  
P.O. BOX 1558  
EUNICE, NM 88231  
FAX TO: (505) 394-2601

Receiving Date: 02/08/06

Reporting Date: 02/10/06

Project Owner: APACHE CORPORATION (#240011)

Project Name: NEDU 809

Project Location: NOT GIVEN

Analysis Date: 02/10/06

Sampling Date: 02/03/06

Sample Type: SOIL

Sample Condition: COOL & INTACT

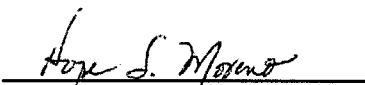
Sample Received By: HM

Analyzed By: HM

LAB NUMBER	SAMPLE ID	Cl <sup>-</sup> (mg/Kg)
H10713-1	SB-1 10-11	240
H10713-2	SB-1 15-16	32
H10713-3	SB-1 20-21	32
H10713-4	SB-2 10-11	800
H10713-5	SB-2 15-16	240
H10713-6	SB-2 20-21	288
H10713-7	SB-3 10-11	1232
H10713-8	SB-3 15-16	544
H10713-9	SB-3 20-21	496
H10713-10	SB-3 25-26	256
H10713-11	SB-4 10-11	240
H10713-12	SB-4 15-16	160
H10713-13	SB-4 20-21	112
Quality Control		510
True Value QC		500
% Recovery		102
Relative Percent Difference		0.04

METHOD: Standard Methods 4500-Cl<sup>-</sup>B

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

  
Chemist

02-13-06  
Date

H10713

# Cardinal Laboratories Inc.

101 East Marland, Hobbs, NM 88240  
505-393-2326 Fax 505-393-2476

2111 Beechwood, Abilene, TX 79603  
915-673-7001 Fax 915-673-7020

Company Name	Environmental Plus, Inc.
EPI Project Manager	Pat McCasland
Billing Address	P.O. BOX 1558
City, State, Zip	Eunice New Mexico 88231
EPI Phone# / Fax#	505-394-3481 / 505-394-2601
Client Company	Apache Corporation
Facility Name	NEDU 809
Project Reference	#240011
EPI Sampler Name	George Blackburn

Apache Corporation  
PO Box 1849  
Eunice, NM 88231  
ATT: Bryan Tinsley

LAB I.D.	SAMPLE I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX								PRESERV.				SAMPLING		TIME	BTEX 8021B	TPH 8016M	CHLORIDES (CI)	SULFATES (SO <sub>4</sub> )	PH	TCLP	OTHER >>>
				GROUND WATER	WASTEWATER	SOIL	CRUDE OIL	SLUDGE	OTHER:	ACID/BASE	ICE/COOL	OTHER	DATE												
H10713	- 1 SB-1 10-11	X				X						X			2/3/06	7:30	X	X	X						
	- 2 SB-1 15-16	X			X							X			2/3/06	7:40			X						
	- 3 SB-1 20-21	X			X							X			2/3/06	7:50	X	X	X						
	- 4 SB-2 10-11	X			X							X			2/3/06	8:10	X	X	X						
	- 5 SB-2 15-16	X			X							X			2/3/06	8:20			X						
	- 6 SB-2 20-21	X			X							X			2/3/06	8:30	X	X	X						
	- 7 SB-3 10-11	X			X							X			2/3/06	8:50	X	X	X						
	- 8 SB-3 15-16	X			X							X			2/3/06	9:00			X						
	- 9 SB-3 20-21	X			X							X			2/3/06	9:10			X						
	- 10 SB-3 25-26	X			X							X			2/3/06	9:20	X	X	X						

Sampler Relinquished:	Received By:	Fax Results To Pat McCasland 505-394-2601	
Relinquished by:	Relinquished By: (lab staff)	REMARKS: CoC requested.	
Delivered by:	Time		
	9:40		
	Sample Cool & Intact		
	Yes		
	No		
	Checked By:		

# Cardinal Laboratories Inc.

101 East Marland, Hobbs, NM 88240  
505-393-2326 Fax 505-393-2476

2111 Beechwood, Abilene, TX 79603  
915-673-7001 Fax 915-673-7020

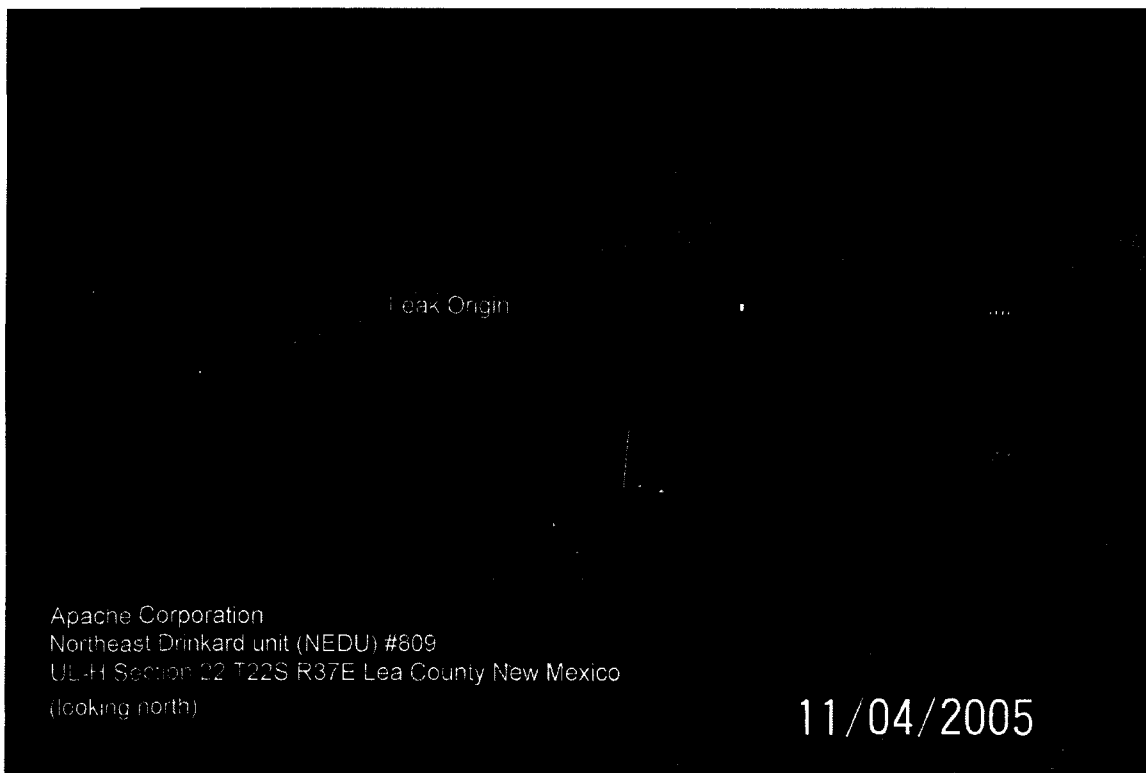
Company Name	Environmental Plus, Inc.
EPI Project Manager	Pat McCasland
Billing Address	P.O. BOX 1558
City, State, Zip	Eunice New Mexico 88231
EPI Phone#/Fax#	505-394-3481 / 505-394-2601
Client Company	Apache Corporation
Facility Name	NEDU 809
Project Reference	#240011
EPI Sampler Name	George Blackburn

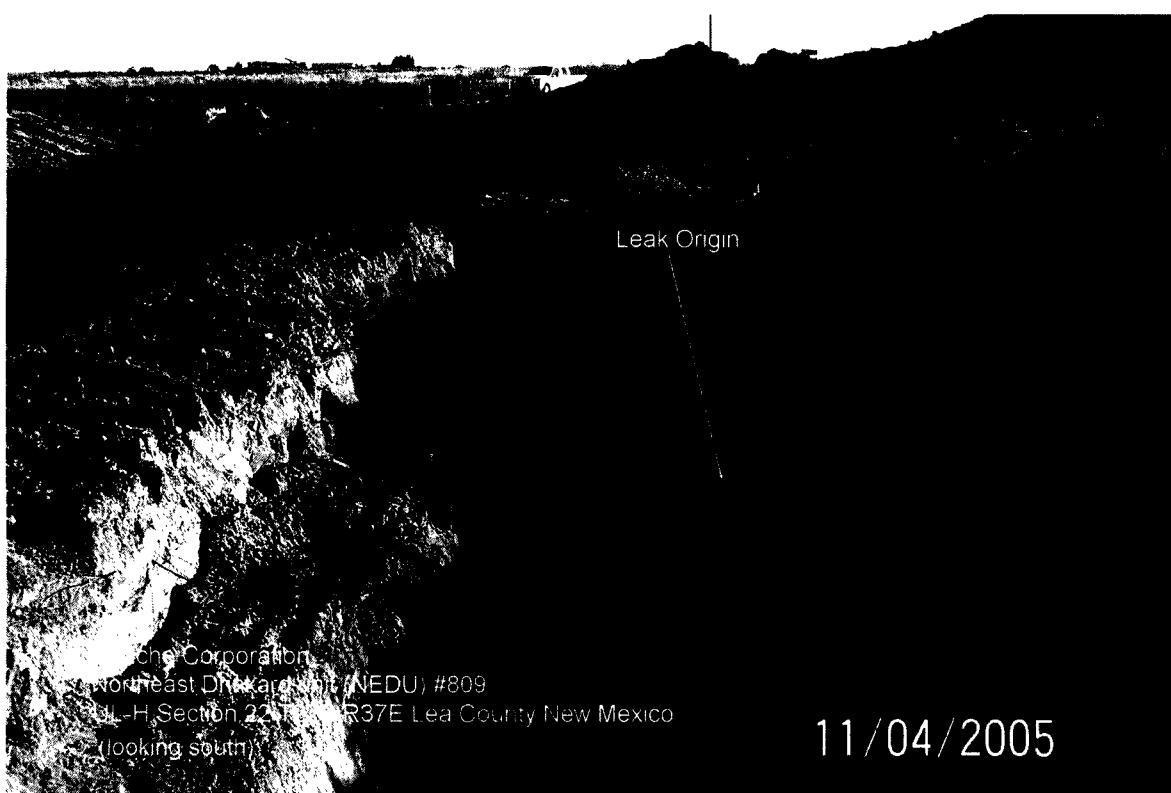
Apache Corporation  
PO Box 1849  
Eunice, NM 88231  
ATT: Bryan Tinsley

LAB I.D.	SAMPLE I.D.	(G) RAB OR (C) OMP.	# CONTAINERS	MATRIX								PRESERV.			SAMPLING		BTEX 8021B	TPH 8015M	CHLORIDES (CI)	SULFATES (SO <sub>4</sub> )	PH	TCLP	OTHER >>>																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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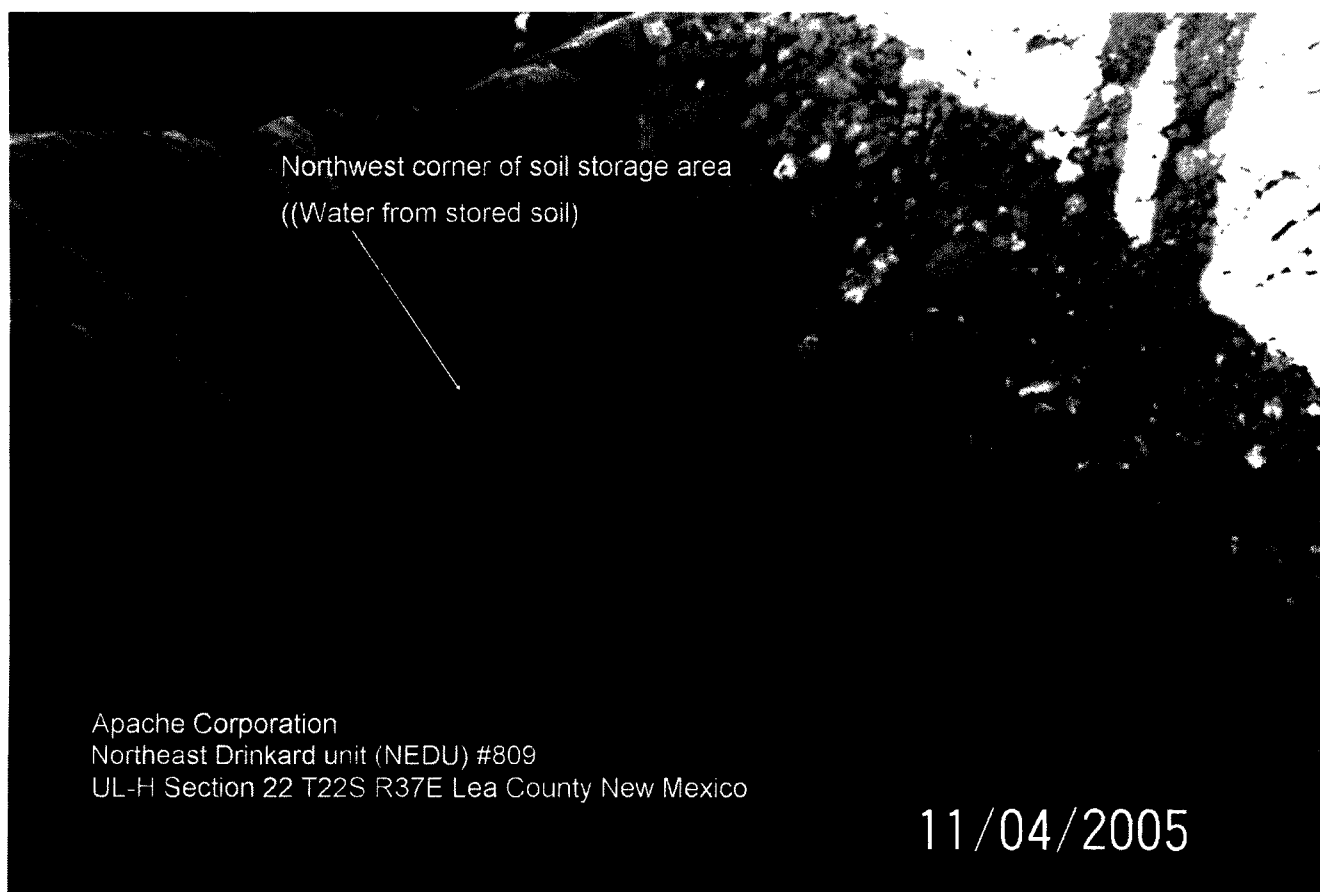
Sampler Relinquished:	Date: 2-8-06 Time: 8:21a	Received By: Dawn Boone
Relinquished by: <i>Pat McCasland</i>	Date: 02-08-06 Time: 9:40	Received By: (lab staff) Hope S. Moore
Delivered by: Dawn Boone	Sample Cool & Intact Yes	Checked By:

Fax Results To Pat McCasland 505-394-2601  
REMARKS: CoC requested.











Apache Corporation Site Information and Metrics		Incident Date: 10/21/2005	NMOCD Notified: 10/21/2005
SITE: NEDU 809		Assigned Site Reference #: 240011	
Company: Apache Corporation			
Street Address: PO Box 1849			
Mailing Address: 1.5 miles North of Eunice			
City, State, Zip: Eunice, New Mexico 88231			
Representative: Mike Warren			
Representative Telephone: 505.394.2743			
Telephone:			
Fluid volume released (bbls): ~600-800 bbls		Recovered (bbls): 480	
>25 bbls: Notify NMOCD verbally within 24 hrs and submit form C-141 within 15 days. (Also applies to unauthorized releases >500 mcf Natural Gas)			
5-25 bbls: Submit form C-141 within 15 days (Also applies to unauthorized releases of 50-500 mcf Natural Gas)			
Leak, Spill, or Pit (LSP) Name: NEDU 809			
Source of contamination: Water injection system line			
Land Owner, i.e., BLM, ST, Fee, Other: C.A. Bettis			
LSP Dimensions			
LSP Area: 19,900 ft <sup>2</sup>			
Location of Reference Point (RP)			
Location distance and direction from RP			
Latitude: 32 28' 0.9"N			
Longitude: 103 8' 40.1"W			
Elevation above mean sea level: 3,410'amsl			
Feet from South Section Line			
Feet from West Section Line			
Location- Unit or ¼¼: SE¼ of the NE¼		Unit Letter: H	
Location- Section: 22			
Location- Township: T21S			
Location- Range: R37E			
Surface water body within 1000' radius of site: none			
Surface water body within 1000' radius of site:			
Domestic water wells within 1000' radius of site: none			
Domestic water wells within 1000' radius of site:			
Agricultural water wells within 1000' radius of site: none			
Agricultural water wells within 1000' radius of site:			
Public water supply wells within 1000' radius of site: none			
Public water supply wells within 1000' radius of site:			
Depth from land surface to ground water (DG) ~68'bgs			
Depth of contamination (DC) - ?			
Depth to ground water (DG - DC = DtGW) - 50-100 feet			
<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 99 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 = 10	
Ground water Score = 10		Wellhead Protection Area Score = 0	
Site Rank (1+2+3) = 10		Surface Water Score = 0	
<b>Total Site Ranking Score and Acceptable Concentrations</b>			
Parameter	>19	10-19	0-9
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
<sup>1</sup> 100 ppm field VOC headspace measurement may be substituted for lab analysis			

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 March 17, 1999

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>Bryan Tinsley</b>
Address PO Box 1849, Eunice, New Mexico 88231	Telephone No. 505.394.2743
Facility Name NEDU 809	Facility Type Water injection system line

Surface Owner C.A. Bettis	Mineral Owner	Lease No.
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**LOCATION OF RELEASE**

Unit Letter H	Section 22	Township T21S	Range R37E	Feet from the	North/South Line	Feet from the	East/West Line	County: Lea
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Latitude: 32° 28' 0.9"N

Longitude: 103° 8' 40.1"W

**NATURE OF RELEASE**


Type of Release Produced Water	Volume of Release 600-800 barrels	Volume Recovered 480 barrels
Source of Release Water injection system line	Date and Hour of Occurrence 10/21/2005 AM	Date and Hour of Discovery 10/21/2005 PM
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Paul Kautz	
By Whom? Mike Warren, Apache	Date and Hour 10/21/2005 PM	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. NA	

If a Watercourse was Impacted, Describe Fully.\*  
NA

Describe Cause of Problem and Remedial Action Taken.\*  
2" Fiberglass injection pipeline failed. The line was shut in and repaired and a vacuum trucks were utilized to recover and dispose of approximately 480 garrels of produced water.

Describe Area Affected and Cleanup Action Taken.\*  
The site will be delineated and remediated in accordance with the NMOCD guidelines. Remedial Goals: Chloride = 250 mg/Kg or a concentration that will not be capable of impacting local groundwater in excess of the 250 mg/L New Mexico Water Quality Control Commission Standard; TPH 8015m = 1,000 mg/Kg; Benzene = 10 mg/Kg; and BTEX, i.e., the mass sum of Benzene, Ethyl Benzene, Toluene, and Xylenes = 50 mg/Kg.

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: Bryan Tinsley	Approved by District Supervisor: 	
Title: Area Supervisor	Approval Date: 11-20-06	Expiration Date: —
Date: Phone: 505.394.2743	Conditions of Approval: —	Attached <input type="checkbox"/>

\* Attach Additional Sheets If Necessary

application - pPAC0627540969

RP#1056