

# ***ENVIRONMENTAL PLUS, INC.***

2100 AVE 'O'  
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EUNICE, NM 88231  
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NMOCD approves the  
delineation work plan for  
1RP-4371 with these  
conditions:  
Bottom confirmation samples  
at SP1/SP4, SP2, and SP3.

## **Site Characterization and Work Plan**

**Apache Corp.  
NEDU 503W  
Lea County, New Mexico  
Unit Letter "K", Section 10, Township 21 South, Range 37 East  
Latitude 32.4918556 North, Longitude 103.1526871 West  
NMOCD Reference #1RP-4371**

Prepared For:

Apache Corp.  
2350 W Marland Blvd  
Hobbs, New Mexico 88240

Prepared By:

Environmental Plus, Inc.  
2100 Ave 'O'  
Eunice, NM 88231

**March 2017**

A handwritten signature in black ink, appearing to read 'Daniel Dominguez', is written over a horizontal line.

Daniel Dominguez  
Project Manager



The following *Site Characterization and Work Plan* serves as a condensed update on field activities undertaken and proposed actions for the afore referenced Site.

**Background:**

The site is located in Unit Letter K (NE ¼ SW ¼), Section 10, Township 21 South, Range 37 East, approximately four miles north of Eunice, in Lea County, New Mexico. The property is owned by the State of New Mexico.

The release site is located on an active lease road; latitude 32.4918556 North, longitude 103.1526871 West. Area Map, Site Location Map, and Sample/Site Map are included as Figure 1, Figure 2, and Figure 3, respectively. The Initial NMOCD Form C-141 indicated that on June 30, 2016 approximately 65 barrels of produced water were released when a fiberglass line became unglued releasing the fluid to lease road and pasture. A vacuum truck was dispatched to the site and recovered approximately 60 barrels, resulting in a net loss of 5 barrels of produced water. The visually stained area covers approximately 1,700 square feet of lease road and pasture. The Initial NMOCD Form C-141 is included as Attachment IV.

**NMOCD Site Classification:**

A search for water wells was completed utilizing the New Mexico Office of the State Engineer's (NMOSE) website. There are two wells located in the area surrounding the release site (reference *Table 1*). Also, no wells (domestic, agriculture or public) and no bodies of surface water exist within a 1,000-foot radius of the release site (reference *Figure 2*). The NMOSE database indicates average water depth is approximately 73 feet below ground surface (bgs) within a 2,000-meter radius of the release site (reference *Attachment II*).

Utilizing this information, the NMOCD guidelines indicate the NEDU 503W release site to have a ranking score of ten. Based on this score, the NMOCD Recommended Remedial Action Levels (RRALs) for this Site were determined as follows: Benzene – 10 mg/Kg, BTEX – 50 mg/Kg, TPH – 1,000 mg/Kg, and Chloride – 500 mg/Kg.

At the point of release the produced water covered an area about 20' x 30'. This area is loamy clay topsoil. The produced water traveled down a lease road approximately 140'. This area is highly compacted caliche.

**Remediation Progress:**

On July 1, July 7, and August 3, 2016, EPI personnel mobilized on site collect soil samples to determine the vertical extent of contamination. A total of eighteen soil samples were collected from four sample locations; SP1 – SP4. All samples were placed on ice and transported to Cardinal Labs in Hobbs, New Mexico for testing. Laboratory results indicate the release area to be void of Benzene, BTEX, and TPH concentrations in excess of NMOCD Recommended Remedial Action Levels (RRALs) of 10 mg/Kg, 50 mg/Kg, and 1,000 mg/Kg, respectively, in all samples. Chloride concentrations exceed NMOD RRALs of 500 mg/Kg at each sample location to varying depths (reference *Figure 3* and *Table 2*).

**Proposed Actions:**

As per the March 8, 2017 Apache Corp. discussion with NMOCD personnel, EPI proposes to excavate the release area around SP1 and SP4 to a depth of two feet bgs. The area around SP2 and SP3 will be excavated to a depth of one foot bgs. No further sampling of the area will be required. As the release area is located on an active lease road, once excavation activities are complete, EPI proposes to backfill the excavation with clean soil. The road excavation will be backfilled with caliche; the pasture excavation will be backfilled with select topsoil. All soil will be free of rocks, clumps or deleterious material.

Backfilling will continue until the entire excavation is closed. Upon completion of backfill activities, the entire disturbed area will be contoured to blend with existing lease road and pasture and protected against wind/water erosion.

Following completion of NMOCD approved Proposed Actions, EPI will provide a detailed *Final Closure Report* to Apache Corp. and NMOCD personnel. Apache Corp. and EPI personnel would welcome an opportunity to briefly discuss the *Work Plan* at your earliest convenience. However, should you have any questions or concerns please feel free to contact me at (575) 394-3481 or via e-mail at [ddominguezepi@gmail.com](mailto:ddominguezepi@gmail.com) or Mr. Bruce Baker at (432) 631-6982 or via e-mail at [larry.baker@apachecorp.com](mailto:larry.baker@apachecorp.com). All official communication should be addressed to:

Mr. Bruce Baker  
Apache Corp.  
2350 W Marland Blvd  
Hobbs, New Mexico 88240

Sincerely,

ENVIRONMENTAL PLUS, INC.



Daniel Dominguez  
Environmental Consultant

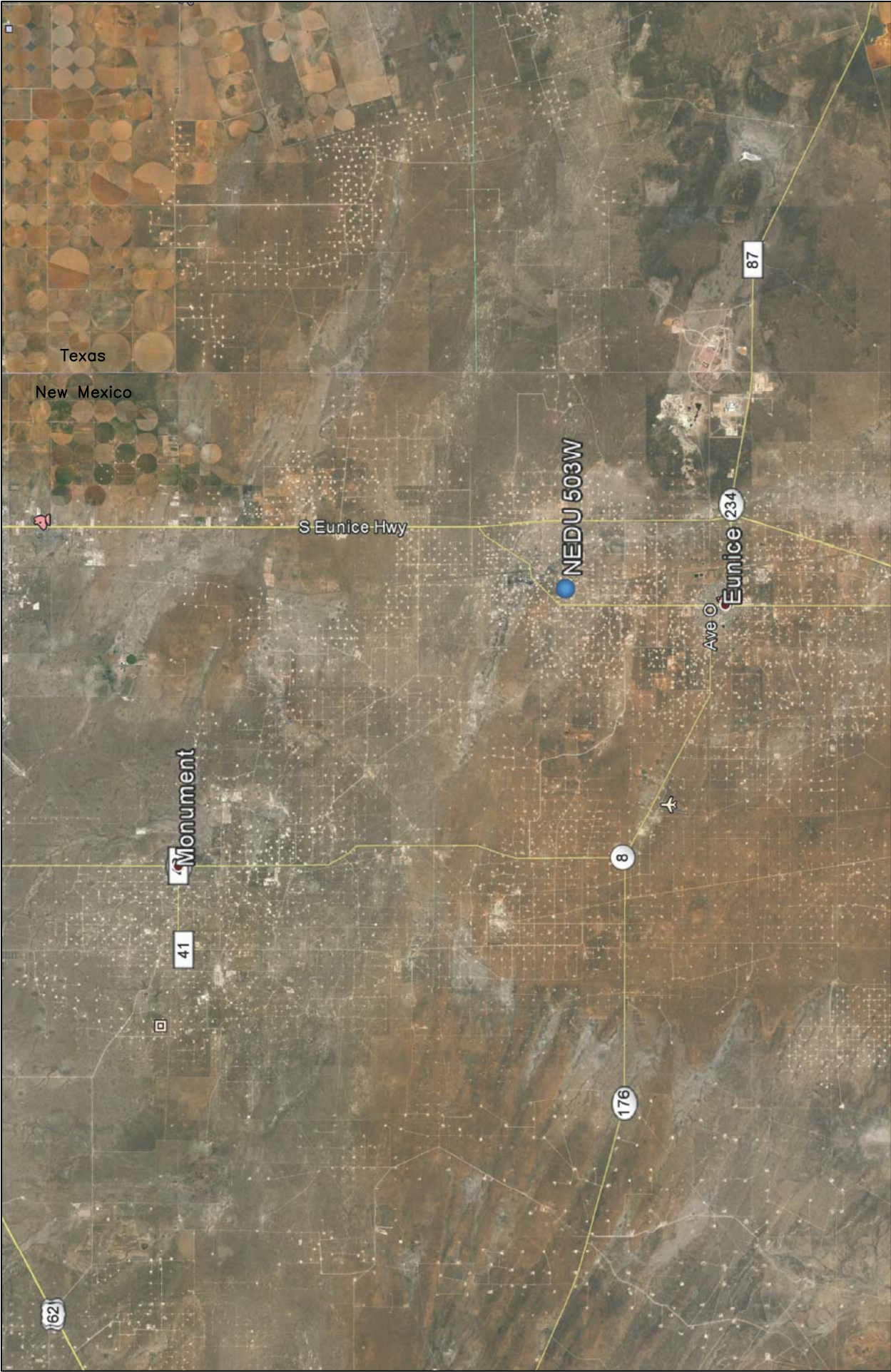
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cc: Olivia Yu, Environmental Specialist – NMOCD District 1, Hobbs  
Bruce Baker, Environmental Technician – Apache Corp.  
File

Encl.: Figure 1 – Area Map  
Figure 2 – Site Location Map  
Figure 3 – Sample/Site Map  
Table 1 – Well Data  
Table 2 – Summary of Soil Sample Field Testing and Laboratory Analytical Results  
Attachment I – Photographs  
Attachment II – NMOSE Average Depth to Groundwater  
Attachment III – Laboratory Analytical Results  
Attachment IV – Copy of Initial NMOCD Form C-141

## **FIGURES**





<b>Figure 1</b> Area Map Apache Corp. NEDU 503W	Lea County, New Mexico NE 1/4 of SW 1/4, Sec. 10, T21S, R37E N 32° 29' 30.98" W 103° 9' 9.11" Elevation: 3,458 feet amsl		DWG By: D Dominguez August 2016	REVISED:	 N
			0 3 6 Miles	SHEET 1 of 1	



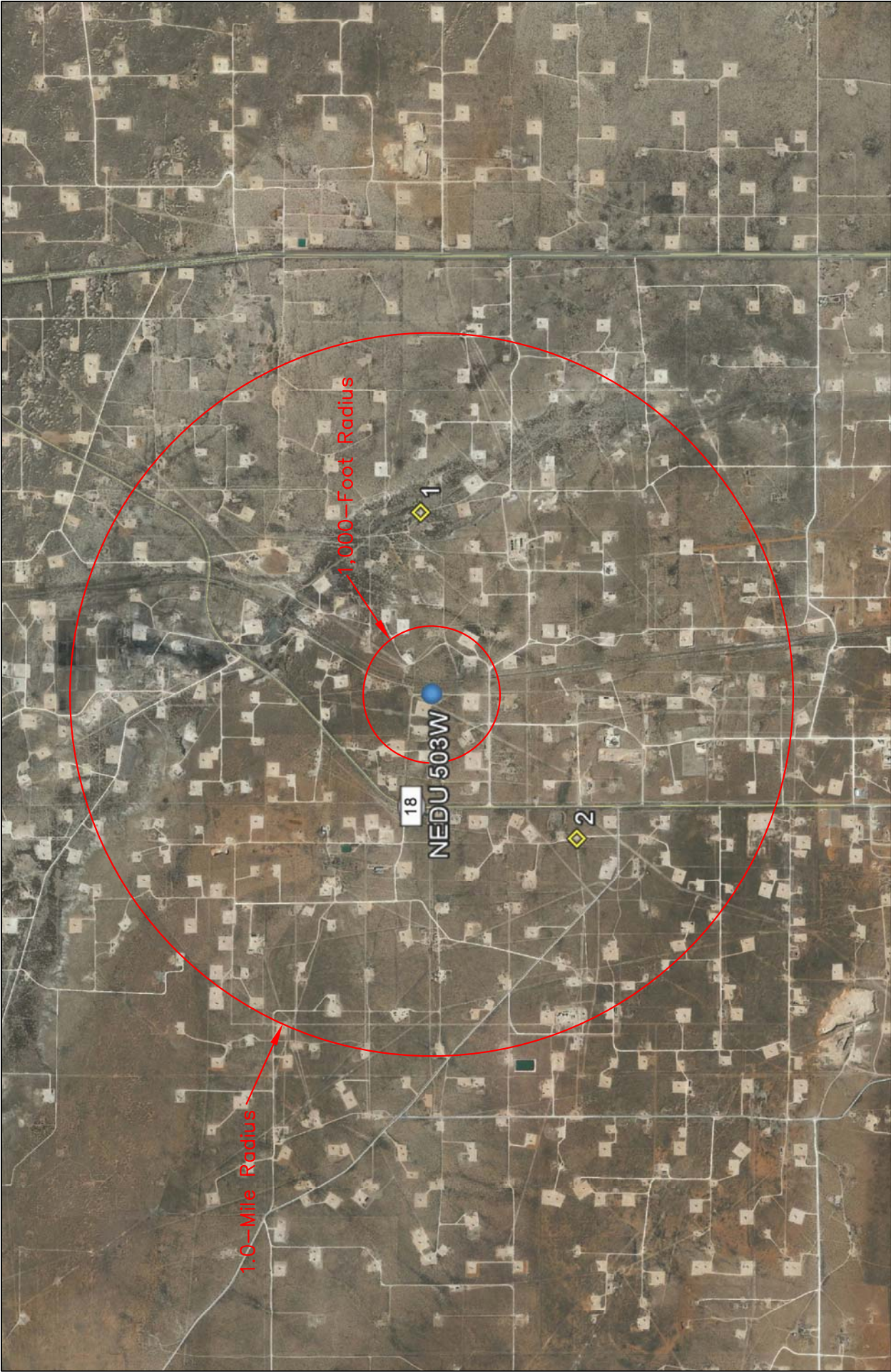
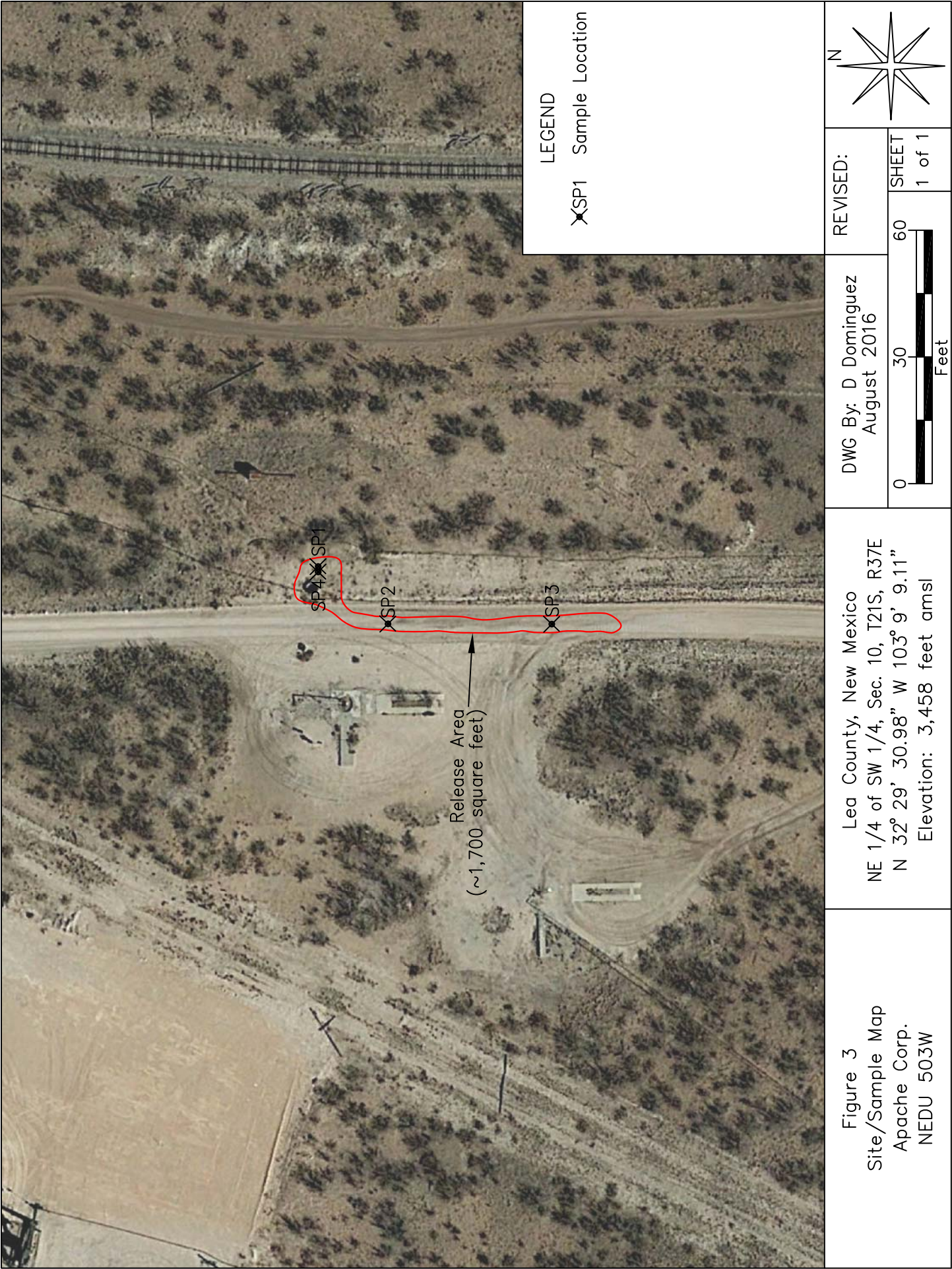


Figure 2 Site Location Map Apache Corp. NEDU 503W	Lea County, New Mexico NE 1/4 of SW 1/4, Sec. 10, T21S, R37E N 32° 29' 30.98" W 103° 9' 9.11" Elevation: 3,458 feet amsl	DWG By: D Dominguez August 2016	REVISED:		
		0 2,000 4,000	4,000	SHEET	
				1 of 1	







## **TABLES**

**TABLE 1**

**Well Data**

**Apache Corporation - NEDU 503W**

Ref #	Well Number	Use	Diversion <sup>A</sup>	Owner	q64	q16	q4	Sec	Twsp	Rng	Easting	Northing	Distance <sup>B</sup>	Date Measured	Surface Elevation <sup>C</sup>	Depth to Water (ft bgs)
1	CP 00215	COM	20	J. M. OWEN	1	1	3	11	21S	37E	674637	3596550	1,061	--	3,415	--
2	CP 00554	STK	3	MILLARD DECK		2	2	16	21S	37E	672744	3595610	1,197	05-Jun-76	3,472	70

\* = Data obtained from the New Mexico Office of the State Engineer Website ([http://iwaters.ose.state.nm.us:7001/iWATERS/wr\\_RegisServlet1](http://iwaters.ose.state.nm.us:7001/iWATERS/wr_RegisServlet1))

<sup>A</sup> = In acre feet per annum

<sup>B</sup> = In meters

<sup>C</sup> = Elevation interpolated from USGS topographical map based on referenced location.

-- = Data not provided

COM = Commercial

STK = 72-12-1 Livestock watering

quarters are 1=NW, 2=NE, 3=SW, 4=SE; quarters are smallest to biggest

**TABLE 2**  
**Summary of Soil Sample Field Testing and Laboratory Analytical Results**  
**Apache Corporation**  
**NEDU 503W**

Sample ID	Depth (feet)	Status	Sample Date	PID Reading (ppm)	Field Chloride (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)	Total BTEX (mg/Kg)	GRO C6-C10 (mg/Kg)	DRO C10-C28 (mg/Kg)	Total TPH (mg/Kg)	Chloride (mg/Kg)
SP1	Surface	In Situ	01-Jul-16	0.5	1,760	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	598	598	<b>2,480</b>
	0.5	In Situ	01-Jul-16	0.0	1,600	--	--	--	--	--	--	--	--	<b>1,600</b>
	1	In Situ	07-Jul-16	0.0	960	--	--	--	--	--	--	--	--	<b>928</b>
SP2	Surface	In Situ	01-Jul-16	0.0	2,400	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<20.0	<b>3,360</b>
	0.5	In Situ	01-Jul-16	0.1	480	--	--	--	--	--	--	--	--	464
	1	In Situ	07-Jul-16	0.0	600	--	--	--	--	--	--	--	--	<b>544</b>
	1.5	In Situ	07-Jul-16	0.0	560	--	--	--	--	--	--	--	--	<b>576</b>
	2	In Situ	07-Jul-16	0.0	400	--	--	--	--	--	--	--	--	432
	3	In Situ	07-Jul-16	0.0	360	--	--	--	--	--	--	--	--	352
SP3	Surface	In Situ	01-Jul-16	0.0	2,480	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	45.5	45.5	<b>2,720</b>
	0.5	In Situ	01-Jul-16	0.1	1,200	--	--	--	--	--	--	--	--	<b>656</b>
	1	In Situ	07-Jul-16	0.0	200	--	--	--	--	--	--	--	--	176
SP4	Surface	In Situ	03-Aug-16	--	>4,000	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	390	390	<b>12,000</b>
	0.5	In Situ	03-Aug-16	--	1,360	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<20.0	<b>1,060</b>
	1	In Situ	03-Aug-16	--	2,000	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	40.8	40.8	<b>3,080</b>
	1.5	In Situ	03-Aug-16	--	640	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<20.0	<b>992</b>
	2	In Situ	03-Aug-16	--	160	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<20.0	176
	2.5	In Situ	03-Aug-16	--	160	--	--	--	--	--	--	--	--	208
NMOCD Recommended Remedial Action Levels					100	10				50			1,000	500

-- = Not Analyzed  
**Bold** values are in excess of NMOCD Recommended Remedial Action Levels



## **ATTACHMENTS**

**ATTACHMENT I**  
**Photographs**



Photograph #1- Point of release



Photograph #2- Looking across release area.



**ATTACHMENT II**  
**NMOSE Average Depth to Groundwater**



# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
<a href="#">CP 00554</a>			LE	2	2	16	21S	37E		672744	3595610*	1197	80	70	10
<a href="#">CP 00552</a>			LE	2	4	04	21S	37E		672700	3598022*	1784	90	75	15
<a href="#">CP 00553</a>			LE	2	4	04	21S	37E		672700	3598022*	1784	90	75	15
<a href="#">CP 00729 POD1</a>	CP	LE		4	1	3	15	21S	37E	673259	3594711*	1786	8015		

Average Depth to Water: **73 feet**

Minimum Depth: **70 feet**

Maximum Depth: **75 feet**

Record Count: 4

UTMNAD83 Radius Search (in meters):

**Easting (X):** 673578

**Northing (Y):** 3596469

**Radius:** 2000

\*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

**ATTACHMENT III**  
**Laboratory Analytical Results**





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

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July 13, 2016

Daniel Dominguez

Environmental Plus, Inc.

P.O. Box 1558

Eunice, NM 88231

RE: NEDU 503 W

Enclosed are the results of analyses for samples received by the laboratory on 07/07/16 15:36.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive, flowing style.

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

Environmental Plus, Inc.  
Daniel Dominguez  
P.O. Box 1558  
Eunice NM, 88231  
Fax To: (505) 394-2601

Received: 07/07/2016  
Reported: 07/13/2016  
Project Name: NEDU 503 W  
Project Number: NONE GIVEN  
Project Location: UL-K SEC. 10, T21S, R37E

Sampling Date: 07/01/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 1 (SURFACE) (H601521-01)**

BTEX 8021B		mg/kg	Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/08/2016	ND	1.99	99.5	2.00	0.129	
Toluene*	<0.050	0.050	07/08/2016	ND	2.04	102	2.00	0.862	
Ethylbenzene*	<0.050	0.050	07/08/2016	ND	1.96	98.2	2.00	0.914	
Total Xylenes*	<0.150	0.150	07/08/2016	ND	5.93	98.8	6.00	0.0424	
Total BTEX	<0.300	0.300	07/08/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.3 % 73.6-140

Chloride, SM4500Cl-B		mg/kg	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2480	16.0	07/08/2016	ND	400	100	400	7.69	

TPH 8015M		mg/kg	Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	07/11/2016	ND	173	86.7	200	2.02	
DRO >C10-C28	598	50.0	07/11/2016	ND	177	88.5	200	1.15	

Surrogate: 1-Chlorooctane 78.3 % 35-147

Surrogate: 1-Chlorooctadecane 95.4 % 28-171

**Sample ID: SP 1 (6") (H601521-02)**

Chloride, SM4500Cl-B		mg/kg	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1600	16.0	07/08/2016	ND	400	100	400	7.69	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Environmental Plus, Inc.  
 Daniel Dominguez  
 P.O. Box 1558  
 Eunice NM, 88231  
 Fax To: (505) 394-2601

 Received: 07/07/2016  
 Reported: 07/13/2016  
 Project Name: NEDU 503 W  
 Project Number: NONE GIVEN  
 Project Location: UL-K SEC. 10, T21S, R37E

 Sampling Date: 07/07/2016  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SP 1 (1') (H601521-03)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	928	16.0	07/08/2016	ND	400	100	400	7.69	

**Sample ID: SP 2 (SURFACE) (H601521-04)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/08/2016	ND	1.99	99.5	2.00	0.129	
Toluene*	<0.050	0.050	07/08/2016	ND	2.04	102	2.00	0.862	
Ethylbenzene*	<0.050	0.050	07/08/2016	ND	1.96	98.2	2.00	0.914	
Total Xylenes*	<0.150	0.150	07/08/2016	ND	5.93	98.8	6.00	0.0424	
Total BTEX	<0.300	0.300	07/08/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3360	16.0	07/08/2016	ND	400	100	400	7.69	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/11/2016	ND	173	86.7	200	2.02	
DRO >C10-C28	<10.0	10.0	07/11/2016	ND	177	88.5	200	1.15	

Surrogate: 1-Chlorooctane 80.1 % 35-147

Surrogate: 1-Chlorooctadecane 74.7 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

Environmental Plus, Inc.  
Daniel Dominguez  
P.O. Box 1558  
Eunice NM, 88231  
Fax To: (505) 394-2601

Received: 07/07/2016  
Reported: 07/13/2016  
Project Name: NEDU 503 W  
Project Number: NONE GIVEN  
Project Location: UL-K SEC. 10, T21S, R37E

Sampling Date: 07/01/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 2 (6") (H601521-05)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	464	16.0	07/08/2016	ND	400	100	400	7.69	

**Sample ID: SP 2 (1') (H601521-06)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	544	16.0	07/08/2016	ND	400	100	400	7.69	

**Sample ID: SP 2 (1.5') (H601521-07)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	576	16.0	07/08/2016	ND	400	100	400	7.69	

**Sample ID: SP 2 (2') (H601521-08)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	432	16.0	07/08/2016	ND	400	100	400	7.69	

**Sample ID: SP 2 (3') (H601521-09)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	352	16.0	07/08/2016	ND	400	100	400	7.69	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

Environmental Plus, Inc.  
Daniel Dominguez  
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Eunice NM, 88231  
Fax To: (505) 394-2601

Received: 07/07/2016  
Reported: 07/13/2016  
Project Name: NEDU 503 W  
Project Number: NONE GIVEN  
Project Location: UL-K SEC. 10, T21S, R37E

Sampling Date: 07/01/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 3 (SURFACE) (H601521-10)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/08/2016	ND	1.99	99.5	2.00	0.129	
Toluene*	<0.050	0.050	07/08/2016	ND	2.04	102	2.00	0.862	
Ethylbenzene*	<0.050	0.050	07/08/2016	ND	1.96	98.2	2.00	0.914	
Total Xylenes*	<0.150	0.150	07/08/2016	ND	5.93	98.8	6.00	0.0424	
Total BTX	<0.300	0.300	07/08/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2720	16.0	07/08/2016	ND	400	100	400	7.69	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/11/2016	ND	173	86.7	200	2.02	
DRO >C10-C28	45.5	10.0	07/11/2016	ND	177	88.5	200	1.15	

Surrogate: 1-Chlorooctane 78.3 % 35-147

Surrogate: 1-Chlorooctadecane 78.4 % 28-171

**Sample ID: SP 3 (6") (H601521-11)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	656	16.0	07/08/2016	ND	400	100	400	7.69	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

Environmental Plus, Inc.  
Daniel Dominguez  
P.O. Box 1558  
Eunice NM, 88231  
Fax To: (505) 394-2601

Received: 07/07/2016  
Reported: 07/13/2016  
Project Name: NEDU 503 W  
Project Number: NONE GIVEN  
Project Location: UL-K SEC. 10, T21S, R37E

Sampling Date: 07/07/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 3 (1') (H601521-12)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	176	16.0	07/08/2016	ND	400	100	400	7.69	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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\*=Accredited Analyte

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---

Celey D. Keene, Lab Director/Quality Manager

# Environmental Plus, Inc.

2100 Avenue O, Eunice, NM 88231  
(575) 394-3481 FAX: (575) 394-2601

P.O. Box 1558, Eunice, NM 88231

Chain of Custody Form

LAB Cardinal

Bill To

ANALYSIS REQUEST

Environmental Plus, Inc.

Daniel Dominguez

P.O. BOX 1558

Eunice New Mexico 88231

575-394-3481 / 575-394-2601

Apache

NEDU 503W

UL-K Sec. 10, T21S, R37E

David Robinson

Apache Corp.  
Attn: Bruce Baker

MATRIX

PRESERV.

SAMPLING

LAB I.D.

SAMPLE I.D.

HL01521

1 SP1 (Surface)

2 SP1 (6")

3 SP1 (1')

4 SP2 (Surface)

5 SP2 (6")

6 SP2 (1')

7 SP2 (1.5')

8 SP2 (2')

9 SP2 (3')

10 SP3 (Surface)

(G)RAB OR (C)OMP.

# CONTAINERS

GROUND WATER

WASTEWATER

SOIL

CRUDE OIL

SLUDGE

OTHER:

ACID/BASE

ICE/COOL

OTHER

DATE

TIME

BTEX 8021B

TPH 8015M

CHLORIDES (Cl<sup>-</sup>)

SULFATES (SO<sub>4</sub><sup>2-</sup>)

pH

TCLP

OTHER >>>

PAH

Sampler Relinquished:

Date 7/7/16

Received By: [Signature]

E-mail results to: ddominguezepi@gmail.com & larry.baker@apachecorp.com

NOTES:

Relinquished by: [Signature]

Date 7/7/16

Received By: [Signature]

Checked By: [Signature]

Delivered by: [Signature]

Date 7/7/16

Sample Copied & Intact

Yes

#75



## Chain of Custody Form

ANALYSIS REQUEST

Page 9 of 9

(575) 394-3481 FAX: (575) 394-2601										Bill To		ANALYSIS REQUEST									
Company Name				Environmental Plus, Inc.																	
EPI Project Manager				Daniel Dominguez																	
Mailing Address				P.O. BOX 1558																	
City, State, Zip				Eunice New Mexico 88231																	
EPI Phone#/Fax#				575-394-3481 / 575-394-2601																	
Client Company				Apache				Apache Corp. Attn: Bruce Baker													
Facility Name				NEDU 503W																	
Location				UL-K Sec. 10, T21S, R37E																	
Project Reference																					
EPI Sampler Name				David Robinson																	
LAB I.D.		SAMPLE I.D.		(G)RAB OR (C)OMP.		# CONTAINERS		MATRIX			PRESERV.	SAMPLING									
								GROUND WATER	WASTEWATER	SOIL			CRUDE OIL	SLUDGE	OTHER:						
								ACID/BASE	ICE/COOL	OTHER	DATE	TIME	BTEX 8021B	TPH 8015M	CHLORIDES (Cl <sup>-</sup> )	SULFATES (SO <sub>4</sub> <sup>=</sup> )	pH	TCLP	OTHER >>>	PAH	
HLEP1521				11 SP3 (6")		G 1		X	X	X	01-Jul-16	10:55			X						
				12 SP3 (1")		G 1		X			07-Jul-16	9:15									
				13																	
				14																	
				15																	
				16																	
				17																	
				18																	
				19																	
				20																	
Sampler Relinquished:				Date: 7/7/16		Time: 10:30 AM		Received By: [Signature]		Date: 7/7/16		Time: 3:30 PM		Relinquished By: [Signature]		Date: 7/7/16		Time: 3:30 PM		Checked By: [Signature]	
Delivered by:				-2.70		Sample Cool & Intact		Yes		No											
E-mail results to: ddominguezepi@gmail.com & larry.baker@apachecorp.com																					
NOTES:																					



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

---

August 08, 2016

Daniel Dominguez

Environmental Plus, Inc.

P.O. Box 1558

Eunice, NM 88231

RE: NEDU 503 W

Enclosed are the results of analyses for samples received by the laboratory on 08/03/16 15:37.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive, flowing style.

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

Environmental Plus, Inc.  
Daniel Dominguez  
P.O. Box 1558  
Eunice NM, 88231  
Fax To: (505) 394-2601

Received: 08/03/2016  
Reported: 08/08/2016  
Project Name: NEDU 503 W  
Project Number: NONE GIVEN  
Project Location: UL-K SEC. 10, T21S, R37E

Sampling Date: 08/03/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 4 (SURFACE) (H601737-01)**

BTX 8021B			mg/kg		Analyzed By: MS				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/04/2016	ND	2.18	109	2.00	2.17	
Toluene*	<0.050	0.050	08/04/2016	ND	2.24	112	2.00	1.96	QM-07
Ethylbenzene*	<0.050	0.050	08/04/2016	ND	2.13	107	2.00	2.22	
Total Xylenes*	<0.150	0.150	08/04/2016	ND	6.39	106	6.00	2.20	
Total BTX	<0.300	0.300	08/04/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 73.6-140

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AP				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	12000	16.0	08/05/2016	ND	400	100	400	0.00	

TPH 8015M			mg/kg		Analyzed By: MS				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/04/2016	ND	197	98.5	200	5.03	
DRO >C10-C28	390	10.0	08/04/2016	ND	202	101	200	9.04	

Surrogate: 1-Chlorooctane 87.6 % 35-147

Surrogate: 1-Chlorooctadecane 110 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Environmental Plus, Inc.  
 Daniel Dominguez  
 P.O. Box 1558  
 Eunice NM, 88231  
 Fax To: (505) 394-2601

 Received: 08/03/2016  
 Reported: 08/08/2016  
 Project Name: NEDU 503 W  
 Project Number: NONE GIVEN  
 Project Location: UL-K SEC. 10, T21S, R37E

 Sampling Date: 08/03/2016  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SP 4 (6") (H601737-02)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/04/2016	ND	2.18	109	2.00	2.17	
Toluene*	<0.050	0.050	08/04/2016	ND	2.24	112	2.00	1.96	
Ethylbenzene*	<0.050	0.050	08/04/2016	ND	2.13	107	2.00	2.22	
Total Xylenes*	<0.150	0.150	08/04/2016	ND	6.39	106	6.00	2.20	
Total BTEx	<0.300	0.300	08/04/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1060	16.0	08/05/2016	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/04/2016	ND	197	98.5	200	5.03	
DRO >C10-C28	<10.0	10.0	08/04/2016	ND	202	101	200	9.04	

Surrogate: 1-Chlorooctane 85.4 % 35-147

Surrogate: 1-Chlorooctadecane 92.0 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

Environmental Plus, Inc.  
Daniel Dominguez  
P.O. Box 1558  
Eunice NM, 88231  
Fax To: (505) 394-2601

Received: 08/03/2016  
Reported: 08/08/2016  
Project Name: NEDU 503 W  
Project Number: NONE GIVEN  
Project Location: UL-K SEC. 10, T21S, R37E

Sampling Date: 08/03/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 4 (1') (H601737-03)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/04/2016	ND	2.18	109	2.00	2.17	
Toluene*	<0.050	0.050	08/04/2016	ND	2.24	112	2.00	1.96	
Ethylbenzene*	<0.050	0.050	08/04/2016	ND	2.13	107	2.00	2.22	
Total Xylenes*	<0.150	0.150	08/04/2016	ND	6.39	106	6.00	2.20	
Total BTX	<0.300	0.300	08/04/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3080	16.0	08/05/2016	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/04/2016	ND	197	98.5	200	5.03	
DRO >C10-C28	40.8	10.0	08/04/2016	ND	202	101	200	9.04	

Surrogate: 1-Chlorooctane 73.1 % 35-147

Surrogate: 1-Chlorooctadecane 71.1 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

 Environmental Plus, Inc.  
 Daniel Dominguez  
 P.O. Box 1558  
 Eunice NM, 88231  
 Fax To: (505) 394-2601

 Received: 08/03/2016  
 Reported: 08/08/2016  
 Project Name: NEDU 503 W  
 Project Number: NONE GIVEN  
 Project Location: UL-K SEC. 10, T21S, R37E

 Sampling Date: 08/03/2016  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SP 4 (1.5') (H601737-04)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/04/2016	ND	2.18	109	2.00	2.17	
Toluene*	<0.050	0.050	08/04/2016	ND	2.24	112	2.00	1.96	
Ethylbenzene*	<0.050	0.050	08/04/2016	ND	2.13	107	2.00	2.22	
Total Xylenes*	<0.150	0.150	08/04/2016	ND	6.39	106	6.00	2.20	
Total BTX	<0.300	0.300	08/04/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	992	16.0	08/05/2016	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/04/2016	ND	197	98.5	200	5.03	
DRO >C10-C28	<10.0	10.0	08/04/2016	ND	202	101	200	9.04	

Surrogate: 1-Chlorooctane 92.5 % 35-147

Surrogate: 1-Chlorooctadecane 98.4 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

Environmental Plus, Inc.  
Daniel Dominguez  
P.O. Box 1558  
Eunice NM, 88231  
Fax To: (505) 394-2601

Received: 08/03/2016  
Reported: 08/08/2016  
Project Name: NEDU 503 W  
Project Number: NONE GIVEN  
Project Location: UL-K SEC. 10, T21S, R37E

Sampling Date: 08/03/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 4 (2') (H601737-05)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/04/2016	ND	2.18	109	2.00	2.17	
Toluene*	<0.050	0.050	08/04/2016	ND	2.24	112	2.00	1.96	
Ethylbenzene*	<0.050	0.050	08/04/2016	ND	2.13	107	2.00	2.22	
Total Xylenes*	<0.150	0.150	08/04/2016	ND	6.39	106	6.00	2.20	
Total BTEX	<0.300	0.300	08/04/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	176	16.0	08/05/2016	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/04/2016	ND	197	98.5	200	5.03	
DRO >C10-C28	<10.0	10.0	08/04/2016	ND	202	101	200	9.04	

Surrogate: 1-Chlorooctane 80.8 % 35-147

Surrogate: 1-Chlorooctadecane 79.9 % 28-171

**Sample ID: SP 4 (2.5') (H601737-06)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	208	16.0	08/05/2016	ND	400	100	400	0.00	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Notes and Definitions

QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

---

Cardinal Laboratories

\*=Accredited Analyte

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---

Celey D. Keene, Lab Director/Quality Manager

### Chain of Custody Form

**LAB**  
**Cardinal**

Cardinal

[illegible]

\* Not enough sample. Just from CI use for inference

**ATTACHMENT IV**  
**Copy of Initial NMOCD Form C-141**



District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., 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

**RECEIVED**

By JKeyes at 3:01 pm, Jul 28, 2016

Form C-141

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

## Release Notification and Corrective Action

### OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: Apache Corporation	Contact: Bruce Baker
Address: 2350 W Marland Blvd Hobbs, NM 88240	Telephone No. (432) 631-6982
Facility Name: NEDU 503W	Facility Type: Injection Well

Surface Owner State	Mineral Owner	API No. 30-025-06473
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### LOCATION OF RELEASE

Unit Letter K	Section 10	Township 21S	Range 37E	Feet from the 2080'	North/South Line FSL	Feet from the 2080'	East/West Line FWL	County Lea
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Latitude N32.4918556 Longitude W103.1526871

### NATURE OF RELEASE

Type of Release: produced water	Volume of Release: 65 barrels of produced water	Volume Recovered: 60 barrels of produced water
Source of Release: Fiberglass Line	Date and Hour of Occurrence: 6/30/2016	Date and Hour of Discovery: 6/30/2016 at 7:00 a.m.
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Jamie Keyes (NMOCD)	
By Whom? Bruce Baker	Date and Hour 6/30/2016 at 4:09 p.m. via email.	
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.\*

The 2 inch fiberglass line came unglued tying in at main trunk line. The line was isolated and a vacuum truck was dispatched to pick-up standing fluid. The line has been repaired.

Describe Area Affected and Cleanup Action Taken.\*

Majority of the release was contained at the junction box except for a small volume overfilled running down the lease road and impacted a small area of pasture on the ROW. The site has been mapped and samples collected.

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: <u>Bruce Baker</u>		<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Bruce Baker		Approved by Environmental Specialist: <u>Jamie Keyes</u>	
Title: Environmental Technician	Approval Date: <u>07/28/2016</u>	Expiration Date: <u>09/28/2016</u>	
E-mail Address: larry.baker@apachecorp.com	Conditions of Approval: Discrete samples only. Delineate and remediate per NMOCD guidelines.		Attached <input type="checkbox"/>
Date: 7/28/2016	Phone: (432) 631-6982	IRP 4371 nJXK1621053945 pJXK1621054027	

\* Attach Additional Sheets If Necessary