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

Form C-141 Revised August 8, 2011

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

-			Rele	ase Notific	ation	and Co	rrective A	ction				
						OPERA			☐ Initi	al Report	\boxtimes	Final Report
Name of Co						Contact Larry Bruce Baker						
Facility Nar		9, Eunice, NI Satellite #4	VI 88231			Telephone No. (432) 631-6982 Facility Type Satellite						
				Minoral O					ADIN	2002500	016	
Surface Ow	ner Apac	he Corporati	on	Mineral O					APINO	3002509	916	
T. C. T.	l a .:		- I			OF REI		T = "				
Unit Letter	Section	Township	Range	Feet from the	North/	South Line	Feet from the	East/V	Vest Line	County		:
<u>L</u>	15	21S	37E	1858		FSL	1233	F	WL	Lea		
			Lat	titude		_ Longitud	le					
				NAT	URE	OF RELI	EASE					
Type of Relea						Volume of	Release 85 bbls			Recovered 7		
Source of Re	lease Oil ta	ink ran over				Date and H Unknown	Iour of Occurrenc	e	Date and 5:28 pm	Hour of Dis	covery	6/15/13
Was Immedia	ate Notice C					If YES, To	Whom?		3.26 pm			
			Yes 🖂	No Not Re	quired							
By Whom? Was a Watero	Done Poor					Date and H	lour Dlume Impacting t	ha Wats				
was a water	course Reac		Yes 🛛	No		11 165, V	nume impacting t	ne wate	ercourse.			
If a Watercou	irse was Im	pacted, Descri	ibe Fully.*	•					w=	421		
Describe Cau	ise of Proble	em and Remed	dial Action	Taken.*				V		V 2		
The oil tank a	at the site ra	n over when t	he comm.	system failed. A	total of	85 barrels of	oil was released a	and a tot	tal of 70 bb	ols of oil was	recove	ered. The
transfer pump	os were run	to get the leve	els down a	t the site.								ļ
				en.* A total of 2								
				amples were taker is. The results of								
The release a	rea was scra	aped down 1 -	- 1.5 feet a	nd a total of 105	yards of	excavated so	il was taken to a l	NMOCI	O approved	I facility for	disposa	al. A bottom
				a commercial latused on an Apache								
throughout th	e release in	the lease pad	and then b	packfill the site wi	ith clean	i, imported ca	liche to bring the	excava	tion back t	o ground sur	face. O	n October
				the liner installatine base of the exca								
October 8th, 2	2013, Pettig	rew & Associa	ates were	on site to conduct	a clay c	ompaction te	st at two points o	ver the c	clay barrier	. The result	s of the	compaction
				G 1 and 95.6% at en to a commercia							excavat	ion up to
I hereby certi	fy that the i	nformation gi	ven above	is true and comp	lete to th	ne best of my	knowledge and u	nderstar	nd that pur	suant to NM		
				id/or file certain re e of a C-141 repo								
should their o	operations h	ave failed to a	idequately	investigate and re	emediate	e contaminati	on that pose a thr	eat to gr	ound wate	r, surface wa	iter, hu	man health
		.ddition, NMC ws and/or regu		tance of a C-141	report de	oes not reliev	e the operator of	responsi	ibility for c	compliance w	vith any	other
rederan, otate,		no ana or rega					OIL CON	SERV	ATION	DIVINO	N _A	
Signature:	Lann	Boure	Bake	24				M	MAN (·	MA/V	カ
	0					Approved by	Environmental S	Envir	onment	al Speciali	ist '	V
Printed Name	e: Larry B	ruce Baker										
Title: Enviro	nmental Te	eh				Approval Da	te: 10/31/13		Expiration	Date:	-	
E-mail Addre	ess: larry.ba	aker@apachec	corp.com	· · · · · · · · · · · · · · · · · · ·		Conditions o	litions of Approval:		Attached	ttached 🗖		
Date:	10-3	1-13	Phone:	(432) 631-6982						IRP-9	- 15-	z950
Attach Addi	tional She	ets If Necess	ary						JUN 🖺	Attached 1RP-9	;	



APACHE CORPORATION

P.O.Box 1849 Eunice, NM 88231 Phone 575.394.3159

NEDU Satellite #4 (1RP-9-13-2950)

Termination Request

approved

Environmental Specialist
NMOCD - DIST |

10/31/13

API No. 3002509916

Release Date: June 15th, 2013

Unit Letter L, Section 15, Township 21S, Range 37E

Rice Environmental Consulting & Safety

P.O. Box 2948, Hobbs, NM 88241 Phone 575.393.2967

October 17th, 2013

Geoffrey Leking

New Mexico Energy, Minerals, & Natural Resources Oil Conservation Division, Environmental Bureau – District 1 1625 N. French Dr. Hobbs, NM 88240-9273

> RE: Termination Request Apache Corporation – NEDU Satellite #4 (1RP-9-13-2950) UL/L sec. 15 T21S R37E API No. 3002509916

Mr. Leking:

Apache Corporation (Apache) has retained Rice Environmental Consulting and Safety (RECS) to address potential environmental concerns at the above-referenced site.

Background and Previous Work

The site is located approximately 2.5 miles north of Eunice, New Mexico at UL/L sec. 15 T21S R37E. NMOCD – District 1 records indicate that groundwater will likely be encountered at a depth of approximately 43 +/- feet.

On June 15th, 2013, Apache discovered that when the communication system failed at the NEDU Satellite #4, an oil tank ran over releasing 85 barrels of oil. 70 barrels of oil was recovered. The transfer pumps were run to get the levels down at the site. A total of 2,606 sq ft of facility pad and pasture was affected. An initial C-141 was submitted to NMOCD on September 9th, 2013 (Appendix A).

On June 17th, 2013, RECS personnel were on site to begin initial sampling. Surface samples were taken throughout the site and field tested for chlorides and hydrocarbons (Figure 1). The samples were then taken to a commercial laboratory for analysis. The results of this testing showed chloride levels below 250 mg/kg and elevated hydrocarbon levels (Appendix B). The release area was scraped down 1 – 1.5 feet and a total of 105 yards of excavated soil was taken to a NMOCD approved facility for disposal. A bottom composite sample of the excavation was taken to a commercial laboratory for analysis (Figure 2). Laboratory GRO reading returned a result of non-detect and the DRO reading returned a result of 290 mg/kg (Appendix C).

Based on an Apache meeting with NMOCD – District 1, a decision was made to install a 6 inch clay barrier throughout the release in the lease pad and then backfill the site with clean, imported caliche to bring the excavation back to ground surface. The clay barrier would serve as an infiltration barrier for the site that will inhibit the downward migration of residual constituents in the vadose zone to groundwater.

On October 7th, 2013, RECS personnel were on site to begin the liner installation. A total of 48 yards of clay and 84 yards of clean caliche was imported to site to install the clay barrier and backfill the site. At the base of the excavation a 6 inch clay barrier was installed throughout the release area in the facility (Figure 2). On October 8th, 2013, Pettigrew & Associates were on site to conduct a clay compaction test at two points over the clay barrier. The results of the compaction test showed a Dry Density % Max of 97.1% at SG 1 and 95.6% at SG-2. Caliche was then backfilled over the clay barrier to bring the excavation up to ground surface. A sample of the caliche was taken to a commercial laboratory for analysis and returned a chloride result of 32 mg/kg. The clay compaction test results and the imported caliche laboratory can be found in Appendix D.

Photo documentation of these activities can be found in Appendix E.

Given that the majority of contaminated soil was removed from the site and a clay barrier was install at the site to prevent the migration of residual contaminates to groundwater, RECS on behalf of Apache respectfully requests 'remediation termination' or similar site closure for this site. A final C-141 can be found in Appendix F.

RECS appreciates the opportunity to work with you on this project. Please call Hack Conder at (575) 393-2967 or me if you have any questions or wish to discuss the site.

Sincerely,

Lara Weinheimer

Project Scientist

AC.W.

RECS

(575) 441-0431

Attachments:

Figure 1 – Initial Sampling Data

Figure 2 – Excavation Data

Appendix A – Initial C-141

Appendix B – Initial Sampling Lab

Appendix C – 5 Point Bottom Composite Lab

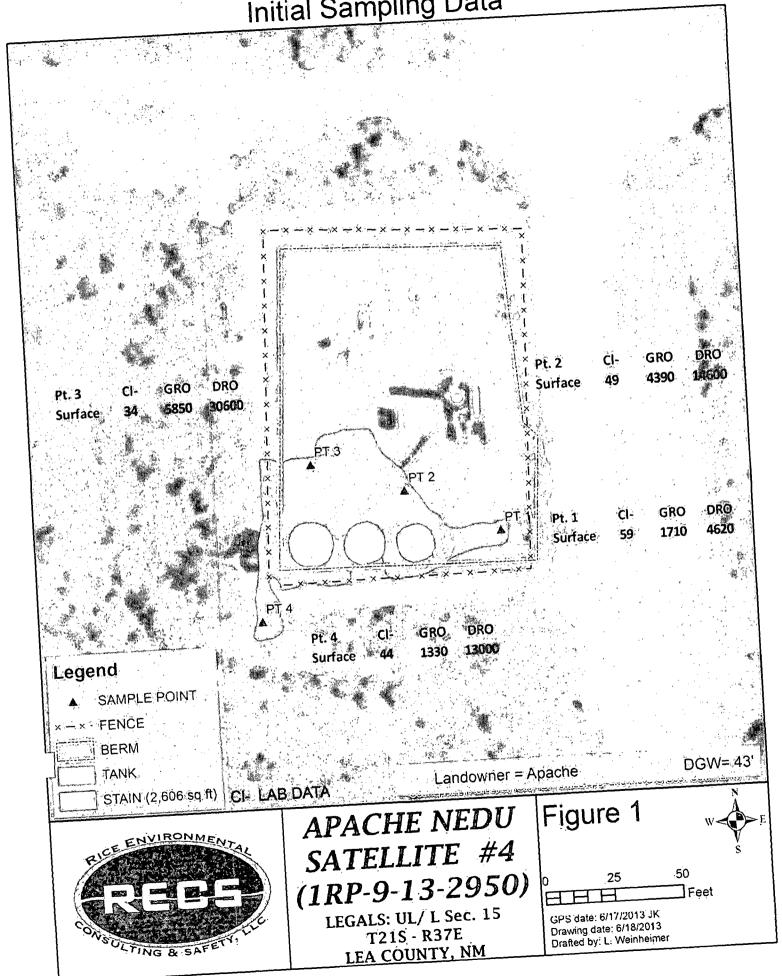
Appendix D – Clay Compaction Test and Imported Caliche Lab

Appendix E – Photo Documentation

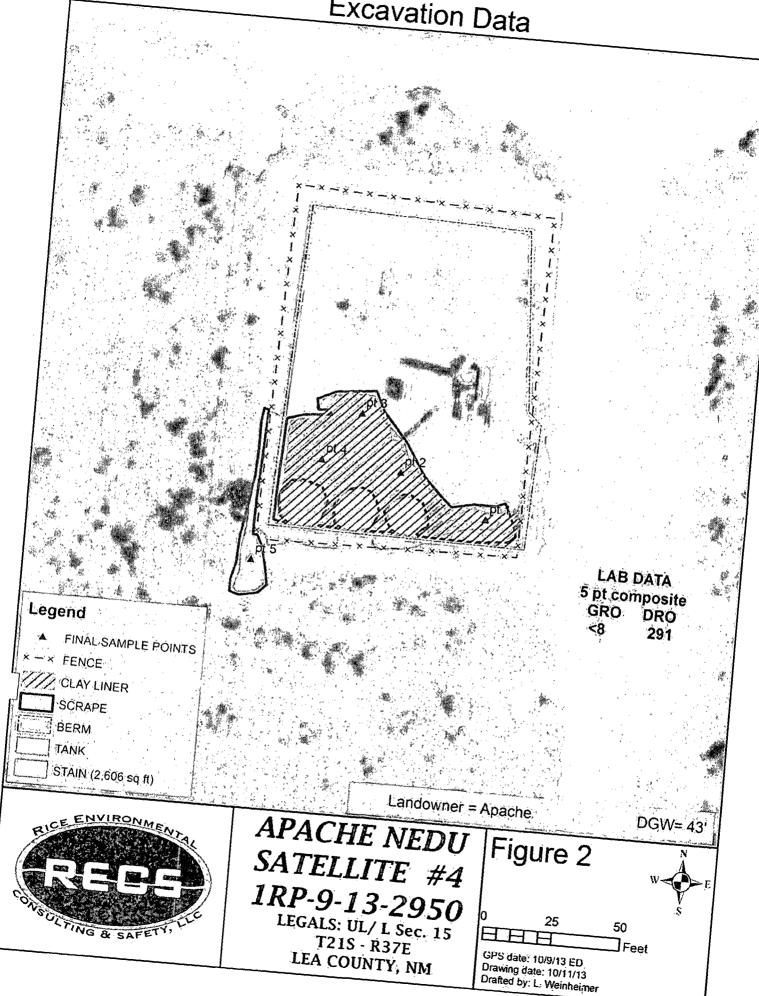
Appendix F – Final C-141



Initial Sampling Data



Excavation Data



Appendix A Initial C-141

District I
1625 N. French Dr., Hobbs, NM 88240
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District IV

HORBS OCD

State of New Mexico

Energy Minerals and Natural Resources

SEP 0 9 2013

Oil Conservation Division 1220 South St. Francis Dr.

Form C-141 Revised August 8, 2011

accordance with 19,15.29 NMAC.

LRP-9-13-29*5*0

Submit 1 Copy to appropriate District Office in

1220 S. St. Francis Dr., Santa Fe, NM 87505 RECEIVED Santa Fe, NM 87505 Release Notification and Corrective Action **OPERATOR** ☐ Initial Report Final Report Name of Company Apache Corporation Contact Larry Bruce Baker Address PO Box 1849, Eunice, NM 88231 Telephone No. (432) 631-6982 Facility Name NEDU Satellite #4 (NOARLS may nou 701) Facility Type Satellite Mineral Owner API No. 3002509916 Surface Owner Apache Corporation LOCATION OF RELEASE Feet from the North/South Line Feet from the East/West Line Unit Letter Section Township Range County 15 21S 37E 1858 1233 FWI. Latitude Longitude NATURE OF RELEASE Type of Release Oil tank Volume of Release 85 bbls Volume Recovered 70 bbls Source of Release Oil tank ran over Date and Hour of Occurrence Date and Hour of Discovery 6/15/13 Unknown 5:28 pm Was Immediate Notice Given? If YES, To Whom? No ☐ Not Required ☐ Yes By Whom? Date and Hour Was a Watercourse Reached? If YES, Volume Impacting the Watercourse. ☐ Yes ☒ No If a Watercourse was Impacted, Describe Fully.* Describe Cause of Problem and Remedial Action Taken.* The oil tank at the site ran over when the comm. system failed. A total of 85 barrels of oil was released and a total of 70 bbls of oil was recovered. The transfer pumps were run to get the levels down at the site. Describe Area Affected and Cleanup Action Taken.* A total of 2,606 sq ft of facility pad and pasture was affected. The release was sampled and then scraped down 1 ft by hand. Composite samples were taken to a commercial laboratory for analysis. The site will be assessed for further action. 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. Larry Buce Baker Signature: Approved by Environmental Environmental Specialist Printed Name: Larry Bruce Baker Approval Date: 6/15/13 Expiration Date: 8/15/13 Title: Environmental Tech Conditions of Approval: SVBMIT FIME E-mail-Address: -larry.baker@apachecorp.com ----Attached |

C-141 BY 8/15/13

8-28-13

Phone: (432) 631-6982

^{*} Attach Additional Sheets If Necessary

Appendix B
Initial Sampling Lab

RICE Environmental Consulting and Safety (RECS)
P.O. Box 2948 Hobbs, NM 88241
Phone 575.393.2967



Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Steven Fleming Apache Corp.-Midland 303 Veterans Airpark Lane Suite #3000 Midland, TX, 79705

Report Date: July 2, 2013

Work Order: 13062108

Project Location: Apache NEDU Sat. #4 AD, NM Project Number: Apache NEDU Sat. #4 AD

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

			Date	rune	Date
Sample	Description	Matrix	Taken	Taken	Received
332871	PT 1 Surface	soil	2013-06-17	10:00	2013-06-21
332872	PT 2 Surface	soil	2013-06-17	10.05	2013-06-21
332873	PT 3 Surface	soil	2013-06-17	10:10	2013-06-21
332874	PT 4 Surface	soil	2013-06-17	10:15	2013-06-21

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 16 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director Dr. Michael Abel, Project Manager

Report Contents

Case Narrative	3
Analytical Report Sample 332871 (PT 1 Surface) Sample 332872 (PT 2 Surface) Sample 332873 (PT 3 Surface) Sample 332874 (PT 4 Surface)	4 4 5 6 7
Method Blanks QC Batch 102572 - Method Blank (1)	9
QC Batch 102589 - Method Blank (1)	9
	10
	10
	$\frac{10}{11}$
QC Batch 102572 - MS (1)	11
	11 12
	13
•	13
	$\frac{13}{13}$
± ± ± − − − − − − − − − − − − − − − − −	13 13
	13
QC Batch 102767 - CCV (1)	14
••	L5
Report Definitions	
	$\frac{15}{15}$
	15

Case Narrative

Samples for project were received by TraceAnalysis, Inc. on 2013-06-21 and assigned to work order 13062108. Samples for work order 13062108 were received intact at a temperature of 5.5 C.

Samples were analyzed for the following tests using their respective methods.

		Prep	Prep	QC	Analysis
Test	Method	Batch	Date	Batch	Date
Chloride (Titration)	SM 4500-Cl B	87058	2013-07-02 at 08:30	102767	2013-07-02 at 11:00
TPH DRO - NEW	S 8015 D	86903	2013-06-25 at 11:45	102589	2013-06-25 at $12:09$
TPH GRO	S 8015 D	86891	2013-06-24 at 09:48	102572	2013-06-24 at 09:48

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 13062108 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Work Order: 13062108 Page Number: 4 of 16 Apache NEDU Sat. #4 AD, NM

Analytical Report

Sample: 332871 - PT 1 Surface

Laboratory: Lubbock

Analysis: Chloride (Titration)

QC Batch: 102767 Prep Batch: 87058 tration) Analytical Method: SM 4500-Cl B

Date Analyzed: 2013-07-02 Sample Preparation: 2013-07-02

4500-Cl B Prep Method: N/A 3-07-02 Analyzed By: GS 3-07-02 Prepared By: GS

Sample: 332871 - PT 1 Surface

Laboratory: Lubbock

Prep Batch:

Analysis: TPH DRO - NEW QC Batch: 102589

86903

Analytical Method: S 8015 D Date Analyzed: 2013-06-25 Sample Preparation: 2013-06-25

Prep Method: N/A
Analyzed By: DS
Prepared By: DS

Spike Percent Recovery Dilution Surrogate Flag Cert Result Units Amount Recovery Limits n-Tricosane 312 mg/Kg 20 100 312 35.2 - 240 Qsr

Sample: 332871 - PT 1 Surface

Laboratory: Lubbock

Analysis: TPH GRO QC Batch: 102572 Prep Batch: 86891 Analytical Method: S 8015 D
Date Analyzed: 2013-06-24
Sample Preparation: 2013-06-24

015 D Prep Method: S 5035 .3-06-24 Analyzed By: MT .3-06-24 Prepared By: MT

Spike Percent Recovery Surrogate Cert Result Units Dilution Amount Recovery Limits Flag Trifluorotoluene (TFT) 0.752 2.00 38 mg/Kg 69.6 - 124 Qsr Qsr

 $continued \dots$

Work Order: 13062108

Page Number: 5 of 16 Apache NEDU Sat. #4 AD, NM

cample	continued		
sumpte	сонинива	٠	

							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		35.7	mg/Kg	20	2.00	1785	77.7 - 120

Sample: 332872 - PT 2 Surface

Laboratory:

Lubbock

Analysis: Chloride (Titration)

102767

Analytical Method:

SM 4500-Cl B 2013-07-02

Prep Method: N/A Analyzed By: GS

QC Batch: Prep Batch: 87058

Date Analyzed: Sample Preparation: 2013-07-02

Prepared By: GS

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride			49.0	mg/Kg	1	5.00

Sample: 332872 - PT 2 Surface

Laboratory: Lubbock

Analysis: TPH DRO - NEW QC Batch: 102589 Prep Batch: 86903

Analytical Method: Date Analyzed:

Sample Preparation:

S 8015 D 2013-06-25 2013-06-25

Prep Method: N/AAnalyzed By: DS

Prepared By: DS

RLParameter Result Units Dilution RLFlag Cert $\overline{\mathrm{DRO}}$ 14600 mg/Kg 20 50.0

							$_{ m Spike}$	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qsr	Qsr		545	$_{ m ing/Kg}$	20	100	545	35.2 - 240

Sample: 332872 - PT 2 Surface

Laboratory: Lubbock

Analysis: TPH GRO QC Batch: 102572Prep Batch: 86891

Analytical Method: S 8015 D Date Analyzed: 2013-06-24 2013-06-24 Sample Preparation:

Prep Method: S 5035 Analyzed By: MT Prepared By: MT

RLFlag Cert Result Units Dilution RLParameter GRO Qs 4390 mg/Kg 100 4.00

Prep Batch: 86891

Parameter

GRO

Flag

Qs

Work Order: 13062108

Page Number: 6 of 16 Apache NEDU Sat. #4 AD, NM

Prepared By:

50

Dilution

MT

RL

4.00

Surrogate Trifluorotolu 4-Bromofluor	ene (TFT) obenzene (4-BFB)	Qsr Qsr	Flag Qsr Qsr	Cert	Result 2.91 162	Units mg/Kg mg/Kg	g 10	0 2.00		Recover Limits 69.6 - 12 77.7 - 12
Sample: 33	2873 - PT 3 Surfa	ace								
Laboratory: Analysis: QC Batch: Prep Batch:	Lubbock Chloride (Titration 102767 87058	n)		Date	ytical Met Analyzed ole Prepar	: 2	SM 4500- 2013-07-0 2013-07-0	2	Prep Me Analyze Preparee	d By: GS
Parameter Chloride		Flag		Cert]	RL Result 34.0		Units ng/Kg	Dilution 1	R 5.0
Laboratory: Analysis: QC Batch: Prep Batch:	2873 - PT 3 Surfa Lubbock TPH DRO - NEW 102589 86903			Date	lytical Me e Analyze iple Prepa	d:	S 8015 I 2013-06- 2013-06-	25	Prep Me Analyze Preparec	d By: DS
Parameter		Flag		Cert		RL Result		Units	Dilution	R
DRO				1	:	30600	1	ng/Kg	40	50.
Surrogate n-Tricosane	Flag	Cert	R	Result	Units mg/Kg		lution 40	Spike Amount 100	Percent Recovery 1020	Recover Limits 35.2 - 24
	Qsr Qsr 2873 - PT 3 Surfa Lubbock TPH GRO 102572	ace	Γ		al Method alyzed:	: S 80 2013	· · · · · · · · · · · · · · · · · · ·	100	Prep Metl Analyzed	nod: S 503 By: MT

Sample Preparation: 2013-06-24

 Cert

RL

Result

5850

Units

mg/Kg

Work Order: 13062108

Page Number: 7 of 16 Apache NEDU Sat. #4 AD, NM

							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	$_{ m Units}$	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	Qsr	Qsr		0.643	mg/Kg	50	2.00	32	69.6 - 124
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		132	${ m mg/Kg}$	50	2.00	6600	77.7 - 120

Sample: 332874 - PT 4 Surface

Laboratory:

Lubbock

Analysis:

Chloride (Titration)

QC Batch: 102767 Analytical Method:

SM 4500-Cl B 2013-07-02

Prep Method: Analyzed By:

N/A GS

Prep Batch:

87058

Date Analyzed: Sample Preparation:

2013-07-02

Prepared By: GS

RL

Parameter Flag Cert Result Units Dilution RLChloride 44.0 mg/Kg 5.00

Sample: 332874 - PT 4 Surface

Laboratory:

Lubbock

Analysis: QC Batch:

TPH DRO - NEW

102589 Prep Batch: 86903

Analytical Method: Date Analyzed:

Sample Preparation:

S 8015 D

2013-06-25 2013-06-25

Prep Method: N/A Analyzed By:

DS Prepared By: DS

RL.

			1013			
Parameter	Flag	Cert	Result	Units	Dilution	RL
DRO		1	13000	${ m mg/Kg}$	20	50.0

							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qsr	Qsr		551	mg/Kg	20	100	551	35.2 - 240

Sample: 332874 - PT 4 Surface

Laboratory:

Lubbock

Analysis: QC Batch:

Prep Batch: 86891

TPH GRO 102572

Analytical Method: Date Analyzed:

S 8015 D

2013-06-24 Sample Preparation: 2013-06-24 Prep Method: S 5035

Analyzed By: MTPrepared By: MT

RLCert Result Units Dilution Parameter Flag RLGRO 1330 mg/Kg 4.00 Qs

Work Order: 13062108

Page Number: 8 of 16 Apache NEDU Sat. #4 AD, NM

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.55	mg/Kg	20	2.00	78	69.6 - 124
4-Bromofluorobenzene (4-BFB) Qsr	Qsr		51.7	mg/Kg	20	2.00	2585	77.7 - 120

Work Order: 13062108

Page Number: 9 of 16 Apache NEDU Sat. #4 AD, NM

Method Blanks

Method Blank (1)

Prep Batch: 86891

QC Batch: 102572

QC Batch:

102572

Date Analyzed:

2013-06-24

Analyzed By: MT

QC Preparation: 2013-06-24

Prepared By: MT

Parameter	Flag		Cert		MDL Result		Units	RL
GRO			1		< 0.230		mg/Kg	4
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.06	mg/Kg	1	2.00	103	69.6 - 124
4-Bromofluorobeuzene (4-BFB)			2.14	$m\sigma/K\sigma$	1	2.00	107	77.7 - 120

Method Blank (1)

Prep Batch: 86903

QC Batch: 102589

QC Batch:

102589

Date Analyzed: QC Preparation:

2013-06-25 2013-06-25 Analyzed By: DS

Prepared By:

MDL Cert Result Units Parameter Flag DRO <15.3 mg/Kg

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			98.8	mg/Kg	1	100	99	35.2 - 240

Method Blank (1)

QC Batch: 102767

QC Batch:

102767

Date Analyzed:

2013-07-02

Analyzed By: GS

RL

Prep Batch: 87058

QC Preparation: 2013-07-02

Prepared By:

MDLUnits Parameter Flag Cert Result Chloride < 3.05 mg/Kg

Work Order: 13062108

Page Number: 10 of 16 Apache NEDU Sat. #4 AD, NM

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch:

102572

Date Analyzed:

2013 - 06 - 24

Analyzed By: MT

Prep Batch: 86891

QC Preparation: 2013-06-24

Prepared By: MT

			LCS			Spike	Matrix		Rec .
Param	\mathbf{F}	$^{\mathrm{C}}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		1	17.6	mg/Kg	1	20.0	< 0.230	88	66.9 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	$^{\rm C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO		1	17.9	mg/Kg	1	20.0	< 0.230	90	66.9 - 120	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.72	2.05	mg/Kg	1	2.00	86	102	69.6 - 124
4-Bromofluorobenzene (4-BFB)	2.26	2.25	${ m mg/Kg}$	1	2.00	113	112	77.7 - 120

Laboratory Control Spike (LCS-1)

QC Batch:

102589

Date Analyzed:

2013-06-25

Analyzed By: DS

Prep Batch: 86903

QC Preparation: 2013-06-25

Prepared By: DS

			LCS			Spike	Matrix		Rec.
Param	F	$^{\rm C}$	Result	Units	Dil.	$\mathbf{A}\mathbf{mount}$	Result	Rec.	Limit
DRO		1	228	mg/Kg	1	250	<15.3	91	64.8 - 138

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

			LCSD			$_{ m Spike}$	Matrix		Rec.		RPD
Param	F	$^{\rm C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO		1	232	mg/Kg	1	250	<15.3	93	64.8 - 138	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	$_{ m Units}$	Dil.	Amount	Rec.	Rec.	Limit
n-Tricosane	96.8	95.8	mg/Kg	1	100	97	96	35.2 - 240

Work Order: 13062108

Page Number: 11 of 16 Apache NEDU Sat. #4 AD, NM

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 87058

102767

Date Analyzed:

2013-07-02

Analyzed By: GS

QC Preparation: 2013-07-02

Prepared By: GS

			LCS			$_{ m Spike}$	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride			101	mg/Kg	1	100	< 3.05	101	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

			LCSD			$_{ m Spike}$	Matrix		Rec.		RPD
Param	F	$^{\rm C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride			102	mg/Kg	1	100	< 3.05	102	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Spiked Sample: 332872 Matrix Spike (MS-1)

QC Batch:

102572

Date Analyzed:

2013-06-24

Analyzed By: MT

Prep Batch: 86891

QC Preparation: 2013-06-24

Prepared By: MT

					MS			Spike	Matrix		Rec.
Param			F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		Qs	Qs	1	3920	mg/Kg	100	20.0	4390	-2350	38.8 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

				MSD			Spike	Matrix		Rec.		RPD
Param		\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	${f Limit}$	RPD	Limit
GRO	Qs	Qs	1	3890	mg/Kg	100	20.0	4390	-2500	38.8 - 120	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

			MS	MSD			Spike	MS	MSD	Rec.
Surrogate			Result	Result	Units	Dil.	Amount	Rec.	Rec.	${f Limit}$
Trifluorotoluene (TFT)	Qsr	Qsr	2.97	2.97	mg/Kg	100	2	148	148	69.6 - 124
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	162	145	mg/Kg	100	2	8100	7250	77.7 - 120

Matrix Spike (MS-1) Spiked Sample: 333112

QC Batch:

102589

Date Analyzed:

2013-06-25

Analyzed By: DS

Prep Batch: 86903

QC Preparation: 2013-06-25

Prepared By: DS

Work Order: 13062108

MS

Page Number: 12 of 16 Apache NEDU Sat. #4 AD, NM

Rec.

Param	I	3	C = F	Result	Units	Dil.	Amount	Re	sult Re	c.	Limit
DRO			1	214	mg/Kg	1	250	<1	15.3 86	5 15	.5 - 174
Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.											
			MSD			Spike	Matrix		Rec.		RPD
Param	F	С	Result	Units	Dil.	Amount	Result	Rec.	$_{ m Limit}$	RPD	$_{ m Limit}$
DRO		1	254	mg/Kg	g 1	250	<15.3	102	15.5 - 174	17	20
Percent recovery is based on the	spike	resu	lt. RPD	is based	on the s	spike and s	spike dupli	cate res	sult.		
	MS	S	MSI)			Spike	MS	S MSI)	Rec.
Surrogate	Resu	ılt	Resu	lt U	Juits	Dil.	Amount	Rec	c. Rec		Limit
n-Tricosane	99.	4	115	n	$_{ m ig/Kg}$	1	100	99	115	35	.2 - 240

Matrix Spike (MS-1) Spiked Sample: 333762

QC Batch: 102767 Date Analyzed:

2013-07-02

Spike

Matrix

Analyzed By: GS

Prep Batch: 87058

QC Preparation: 2013-07-02

Prepared By: GS

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	$^{\rm C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride			1620	mg/Kg	1	500	1201	84	63.6 - 131

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

			MSD			Spike	Matrix		${ m Rec.}$		RPD
Param	F	$^{\rm C}$	Result	Units	Dil.	Amount	Result	Rec.	$_{ m Limit}$	RPD	Limit
Chloride			1590	mg/Kg	1	500	1201	78	63.6 - 131	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Work Order: 13062108

Page Number: 13 of 16 Apache NEDU Sat. #4 AD, NM

Calibration Standards

Standard (CCV-1)

QC Batch: 102572

Date Analyzed: 2013-06-24

Analyzed By: MT

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	1.07	107	80 - 120	2013-06-24

Standard (CCV-2)

QC Batch: 102572

Date Analyzed: 2013-06-24

Analyzed By: MT

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	1.04	104	80 - 120	2013-06-24

Standard (CCV-1)

QC Batch: 102589

Date Analyzed: 2013-06-25

Analyzed By: DS

				CCVs	CCVs	CCVs	Percent	
				${f True}$	Found	Percent	Recovery	Date
Param	Flag	Cert	$_{ m Units}$	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	228	91	80 - 120	2013-06-25

Standard (CCV-2)

QC Batch: 102589

Date Analyzed: 2013-06-25

Analyzed By: DS

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	\mathbf{Units}	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	240	96	80 - 120	2013-06-25

Work Order: 13062108

Page Number: 14 of 16 Apache NEDU Sat. #4 AD, NM

Standard (ICV-1)

QC Batch: 102767

Date Analyzed: 2013-07-02

Analyzed By: GS

				ICVs	ICVs	ICVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	$\operatorname{Conc.}$	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2013-07-02

Standard (CCV-1)

QC Batch: 102767

Date Analyzed: 2013-07-02

Analyzed By: GS

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2013-07-02

Report Date: July 2, 2013 Work Order: 13062108 Page Number: 15 of 16
Apache NEDU Sat. #4 AD Apache NEDU Sat. #4 AD, NM

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

	Certifying	Certification	Laboratory
С	Authority	Number	Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704219-13-9	Lubbock

Standard Flags

F	Description
r	Description

- B Analyte detected in the corresponding method blank above the method detection limit
- H Analyzed out of hold time
- J Estimated concentration
- Jb The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
- Je Estimated concentration exceeding calibration range.
- MI1 Split peak or shoulder peak
- MI2 Instrument software did not integrate
- MI3 Instrument software misidentified the peak
- MI4 Instrument software integrated improperly
- MI5 Baseline correction
- Qc Calibration check outside of laboratory limits.
- Qr RPD outside of laboratory limits
- Qs Spike recovery outside of laboratory limits.
- Qsr Surrogate recovery outside of laboratory limits.
- U The analyte is not detected above the SDL

Attachments

Work Order: 13062108 Page Number: 16 of 16 Apache NEDU Sat. #4 AD, NM

The scanned attachments will follow this page. Please note, each attachment may consist of more than one page.

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TraceAnalysis, Inc.

nail: lab@traceanalysis.com

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 Tel (806) 794-1296 Fax (806) 794-1298 5002 Basin Street, Suite A1 Midland, Texas 79703, Tel (432) 689-6301, Fax (432) 689-6313; 200 East Sunset Rd., Suité,E. El Paso, Texas 79922. Tel·(915) 585-3443: Fax (915) 585-944. BioAquatic Testing 2501 Mayes Rd.; Ste 100 Carrollton, Texas 75006 Tel (972) 242-7750

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RICE Environmental Consulting and Safety (RECS)
P.O. Box 2948 Hobbs, NM 88241
Phone 575.393.2967



Certifications

NCTRCA DBE NELAP DoD LELAP Oklahoma ISO 17025 Kansas

Analytical and Quality Control Report

Steven Fleming Apache Corp.-Midland 303 Veterans Airpark Lane Suite #3000 Midland, TX, 79705

Report Date: July 1, 2013

Work Order:

13062720



Project Location: Apache NEDU Sat. #4 AD, NM Project Number: Apache NEDU Sat. #4 AD

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

			Dave	11110	Date
Sample	Description	Matrix	Taken	Taken	Received
333521	NEDU Satellite #4 Battery 5 pt. Composite	soil	2013-06-25	13:30	2013-06-27

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 11 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

> Dr. Blair Leftwich, Director Dr. Michael Abel, Project Manager

Report Contents

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QC Batch 102705 - Method Blank (1)	
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QC Batch 102705 - LCS (1)	
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Case Narrative

Samples for project were received by TraceAnalysis, Inc. on 2013-06-27 and assigned to work order 13062720. Samples for work order 13062720 were received intact at a temperature of 1.8 C.

Samples were analyzed for the following tests using their respective methods.

		Prep	Prep	$_{ m QC}$	Analysis
Test	Method	Batch	Date	Batch	Date
TPH DRO - NEW	S 8015 D	86961	2013-06-27 at 14:00	102661	2013-06-27 at 14:09
TPH GRO	S 8015 D	87002	2013-06-28 at 16:07	102705	2013-06-28 at $16:07$

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 13062720 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Work Order: 13062720

Page Number: 4 of 11 Apache NEDU Sat. #4 AD, NM

Analytical Report

Sample: 333521 - NEDU Satellite #4 Battery 5 pt. Composite

Laboratory: Lubbock

Analysis:

TPH DRO - NEW

102661

Analytical Method:

S 8015 D

Prep Method: N/A

QC Batch: Prep Batch: 86961

Date Analyzed: Sample Preparation:

2013-06-27 2013-06-27 Analyzed By: DS Prepared By: DS

RL

Parameter	Flag	Cert	Result	Units	Dilution	RL
DRO		1	291	mg/Kg	1	50.0

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			120	mg/Kg	1	100	120	35.2 - 240

Sample: 333521 - NEDU Satellite #4 Battery 5 pt. Composite

Laboratory: Lubbock

Analysis: QC Batch: Prep Batch: 87002

TPH GRO 102705

Analytical Method: Date Analyzed:

S 8015 D 2013-06-28 Sample Preparation: 2013-06-28 Prep Method: S 5035 Analyzed By: JSPrepared By: JS

RL

Parameter	Flag	Cert	Result	Units	Dilution	RL
GRO I		1	<8.00	mg/Kg	2	4.00

						$_{ m Spike}$	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.73	mg/Kg	2	2.00	86	69.6 - 124
4-Bromofluorobenzene (4-BFB)			1.92	${ m mg/Kg}$	2	2.00	96	77.7 - 120

Work Order: 13062720

Page Number: 5 of 11 Apache NEDU Sat. #4 AD, NM

Method Blanks

Method Blank (1)

QC Batch: 102661

QC Batch: 102661

2661

Date Analyzed: 2013-06-27 QC Preparation: 2013-06-27 Analyzed By: DS

Prep Batch: 86961

QC Preparation:

Prepared By: DS

RL

50

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			99.4	mg/Kg	1	100	99	35.2 - 240

Method Blank (1)

QC Batch: 102705

QC Batch: 102705 Prep Batch: 87002 Date Analyzed: 2013-06-28 QC Preparation: 2013-06-28 Analyzed By: JS Prepared By: JS

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	${ m Units}$	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		·	1.71	mg/Kg	1	2.00	86	69.6 - 124
4-Bromofluorobenzene (4-BFB)			1.77	mg/Kg	1	2.00	88	77.7 - 120
, , , , , , , , , , , , , , , , , , ,								

Work Order: 13062720

Page Number: 6 of 11 Apache NEDU Sat. #4 AD, NM

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch:

102661

Date Analyzed:

2013-06-27

Analyzed By: DS

Prep Batch: 86961

QC Preparation: 2013-06-27

Prepared By: DS

			LCS			$_{ m Spike}$	Matrix		Rec.
Param	\mathbf{F}	$^{\rm C}$	Result	Units	Dil.	Amount	Result	Rec.	$_{ m Limit}$
DRO		1	208	mg/Kg	1	250	<15.3	83	64.8 - 138

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	$^{\rm C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO		1	249	mg/Kg	1	250	<15.3	100	64.8 - 138	18	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			$_{ m Spike}$	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	$_{ m Limit}$
n-Tricosane	92.0	115	mg/Kg	1	100	92	115	35.2 - 240

Laboratory Control Spike (LCS-1)

QC Batch:

102705

2013-06-28

Analyzed By: JS

Prep Batch: 87002

Date Analyzed: QC Preparation: 2013-06-28

Prepared By: JS

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	$^{\rm C}$	Result	$_{ m Units}$	Dil.	Amount	Result	Rec.	Limit
GRO		1	15.0	mg/Kg	1	20.0	< 0.230	75	66.9 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	$^{\rm C}$	Result	Units	Dil.	Amount	Result	Rec.	$_{ m Limit}$	RPD	$_{ m Limit}$
GRO	-	1	< 0.230	mg/Kg	1	20.0	< 0.230		66.9 - 120		20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.72	0.00	mg/Kg	1	2.00	86		69.6 - 124
4-Bromofluorobenzene (4-BFB)	1.95	0.00	${ m mg/Kg}$	1	2.00	98		77.7 - 120

Work Order: 13062720

Page Number: 7 of 11 Apache NEDU Sat. #4 AD, NM

Matrix Spike (MS-	1) Spiked	Sample: 333496
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QC Batch: 102661 Date Analyzed:

2013-06-27

Analyzed By: DS

Prep Batch: 86961

QC Preparation: 2013-06-27

Prepared By: DS

			MS	•		Spike	Matrix		Rec.
Param	\mathbf{F}	$^{\rm C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO		1	2930	mg/Kg	1	250	2730	80	15.5 - 174

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

			MSD			Spike	Matrix		Rec.		RPD
Param	F	$^{\rm C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO		1	2920	mg/Kg	1	250	2730	76	15.5 - 174	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	${f Amount}$	Rec.	Rec.	$_{ m Limit}$
n-Tricosane	102	104	mg/Kg	1	100	102	104	35.2 - 240

Matrix Spike (MS-1) Spiked Sample: 333008

QC Batch:

102705

Date Analyzed:

2013-06-28

Analyzed By: JS

Prep Batch: 87002

QC Preparation: 2013-06-28

Prepared By: JS

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	$^{\mathrm{C}}$	Result	Units	Dil.	Amount	Result	Rec.	${f Limit}$
GRO		1	12.2	mg/Kg	1	20.0	< 0.230	61	38.8 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

			· MSD			Spike	Matrix		Rec.		RPD
Param	F	$^{\rm C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO		1	12.3	mg/Kg	1	20.0	< 0.230	62	38.8 - 120	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MS	MSD			$_{ m Spike}$	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.86	1.77	mg/Kg	1	2	93	88	69.6 - 124
4-Bromofluorobenzene (4-BFB)	2.08	2.06	${ m mg/Kg}$	1	2	104	103	77.7 - 120

Work Order: 13062720

Page Number: 8 of 11 Apache NEDU Sat. #4 AD, NM

Calibration Standards

Standard (CCV-1)

QC Batch: 102661

Date Analyzed: 2013-06-27

Analyzed By: DS

				CCVs	CCVs	CCVs	Percent	ъ.
				True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	216	86	80 - 120	2013-06-27

Standard (CCV-2)

QC Batch: 102661

Date Analyzed: 2013-06-27

Analyzed By: DS

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	211	84	80 - 120	2013-06-27

Standard (CCV-1)

QC Batch: 102705

Date Analyzed: 2013-06-28

Analyzed By: JS

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	0.899	90	80 - 120	2013-06-28

Standard (CCV-2)

QC Batch: 102705

Date Analyzed: 2013-06-28

Analyzed By: JS

				CCVs	$\rm CCVs$	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	${ m mg/Kg}$	1.00	0.848	85	80 - 120	2013-06-28

Report Date: July 1, 2013 Apache NEDU Sat. #4 AD Work Order: 13062720

Page Number: 9 of 11 Apache NEDU Sat. #4 AD, NM

Standard (CCV-3)

QC Batch: 102705

Date Analyzed: 2013-06-28

Analyzed By: JS

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	0.820	82	80 - 120	2013-06-28

Report Date: July 1, 2013 Work Order: 13062720 Page Number: 10 of 11 Apache NEDU Sat. #4 AD Apache NEDU Sat. #4 AD, NM

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

	Certifying	Certification	Laboratory
С	Authority	Number	Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704219-13-9	Lubbock

Standard Flags

- F Description
- B Analyte detected in the corresponding method blank above the method detection limit
- H Analyzed out of hold time
- J Estimated concentration
- Jb The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
- Je Estimated concentration exceeding calibration range.
- MI1 Split peak or shoulder peak
- MI2 Instrument software did not integrate
- MI3 Instrument software misidentified the peak
- MI4 Instrument software integrated improperly
- MI5 Baseline correction
- Qc Calibration check outside of laboratory limits.
- Qr RPD outside of laboratory limits
- Qs Spike recovery outside of laboratory limits.
- Qsr Surrogate recovery outside of laboratory limits.
- U The analyte is not detected above the SDL

Result Comments

Report Date: July 1, 2013 Apache NEDU Sat. #4 AD Work Order: 13062720 Page Number: 11 of 11 Apache NEDU Sat. #4 AD, NM

1 Dilution due to hydrocarbons.

Attachments

The scanned attachments will follow this page. Please note, each attachment may consist of more than one page.

LAB Order ID#	13062	120

Pade	1	of	

TraceAnalysis, Inc.

email: lab@traceanalysis.com

6701 Aberdeen Avenue, Suite 9: Lubbock, Texas 79424 Tel (806).794-1296 Fäx (806) 794-1298 1"(800) 378-1296 5002 Basin Street, Suite A1 Midland, Texas 79703 Tel (432) 689-6301 Fax (432) 689-6313 200 East Sunset Rd., Suite E El Paso, Texas 79922 Tel (915) 585-3443 Fax (915) 585-4944 1 (888) 588-3443 BioAquatic Testing 2501 Mayes Rd., Ste 100: Carrollton, Texas 75006 Tel (972) 242:7750

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Appendix D
Clay Compaction Test and Imported Caliche Lab

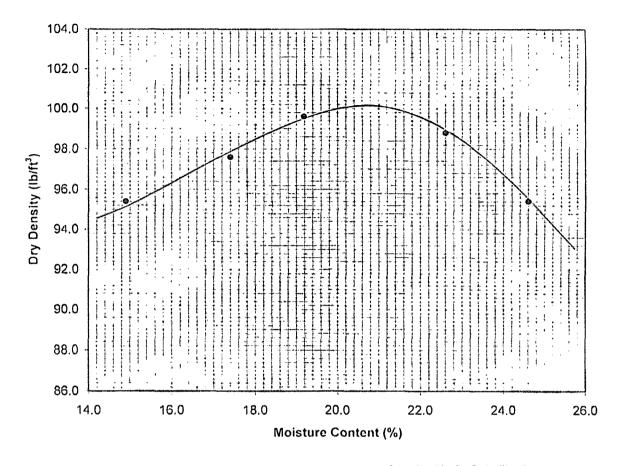
RICE Environmental Consulting and Safety (RECS)
P.O. Box 2948 Hobbs, NM 88241
Phone 575.393.2967



PETTIGREW & ASSOCIATES, P.A.

100 E. Navajo, Suite 100 Hobbs, NM 88240 (575) 393-9827





CLIENT:	Rice	e Envir	onmental (Consultin	a	DBO IE	•	iche Nedi ject No. 2					
			On Site N		~	PROJE	C1. 110	<u> cc:140, 2</u>	013.120				
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DATE:	10)/9/13				LAB NO). <u>13.7</u> 0	48_7050_					
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								PETTIC	REW &	ASSOCIA	ATES		

COPIES: Kyle Norman

BY: Mathematicas P.E.



LABORATORY TEST REPORT PETTIGREW & ASSOCIATES, P.A.

100 E. Navajo, Suite 100 Hobbs, NM 88240 (575) 393-9827



To:

Rice Environmental Consulting

& Safety, LLC 419 W. Cain

Hobbs, NM 88240

Material:

Test Method:

ASTM: D 6938

Project:

Apache Nedu Satellite #4 Project No. 2013.1287

Date of Test:

October 8, 2013

Depth:

See Below

Depth of Probe:

Test No.	Location	Dry Density % Max	% Moisture	Depth
SG 1	Nedu Sat. #4 10' W. & 2' S. of NE Corner	97.1	11.4	FSG
SG 2	Nedu Sat. #4 20' E. & 5' S. of NW Corner	95.6	7.8	FSG

Control Density:

100.2

ASTM: D 698

Optimum Moisture:

20.8%

STD/STAT 2590/483

Required Compaction: 90%

Densometer ID:

5071

PETTIGREW & ASSOCIATES

Lab No.:

13 6015 6017

Copies To:

Kyle Norman

CET III

P.E.



October 15, 2013

BRUCE BAKER

APACHE - EUNICE

P. O. BOX 1849

EUNICE, NM 88231

RE: NEDU SATELLITE #4

Enclosed are the results of analyses for samples received by the laboratory on 10/14/13 16:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. 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.

Cardinal Laboratories is accreditated 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.

Celeg D. Keine

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,

Celey D. Keene

Lab Director/Quality Manager



Analytical Results For:

APACHE - EUNICE **BRUCE BAKER** P. O. BOX 1849 **EUNICE NM, 88231** 394-2425

Fax To:

Received:

10/14/2013

Reported:

10/15/2013 **NEDU SATELLITE #4**

Project Name: Project Number:

NONE GIVEN

Project Location:

NOT GIVEN

Sampling Date:

10/08/2013

Sampling Type:

Soil

Sampling Condition:

** (See Notes)

Sample Received By: Jodi Henson

Sample ID: IMPORTED CALICHE (H302484-01)

Chloride, SM4500CI-B	mg,	/kg	Analyze	d By: AP							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier		
Chloride	32.0	16.0	10/15/2013	ND	416	104	400	0.00			

Cardinal Laboratories *=Accredited Analyte

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 use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the 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.

Celeg D. Keene



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

Cardinal Laboratories *=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's flability 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 whistoever shall be detended waived unless made in writing and received by Clardinal 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, unless 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 the services hereunder by Cardinal, regardless of whether such claims 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.

Celey D. Keene

ARDINAL LABORATORIES

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603

Company Name	: PICE Operating Donche	-	(32	-						1184 760		y y				ANA	LYSI	S RE	QUE	ST			•
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PLEASE NOTE: Liability and Damages. Cardinal's Eability and client's exclusive remedy for any claim arising whether based in contract or tore, shall be familed to the amount paid by the client for the manyees. All claims including these for negligence and any other cause whetherever shall be determed walved unless made in writing and received by Cerdinal within 30 days after completion of the applicable service. In no event shall Cardinal by Eable for incidental or consequental damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries affiliates or successors grising out or orgificated to the performance of services hereunique by Cardinal, reparalless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By:	Pete 14 12 Receiv	ved By:		Phone Result: Fax Result:	☐ Yes	Ø No Ø No	Add'l Phone #; Add'l Fax #:
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† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

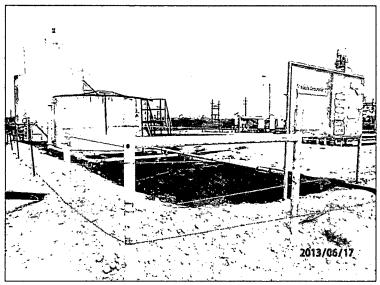


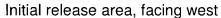
Appendix E
Photo Documentation

RICE Environmental Consulting and Safety (RECS)
P.O. Box 2948 Hobbs, NM 88241
Phone 575.393.2967

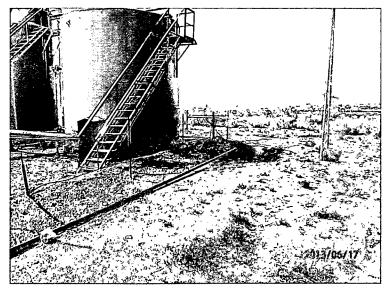
Apache NEDU Satellite #4

Unit Letter L, Section 15, T21S, R37E



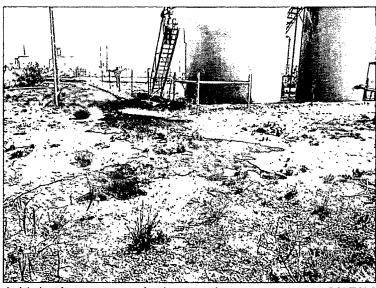


6/17/13



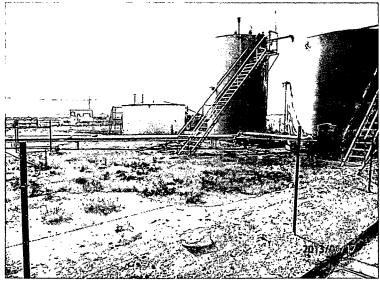
Initial release area, facing southeast

6/17/13



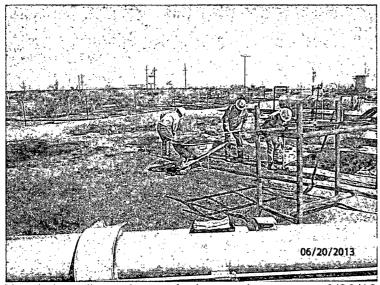
Initial release area, facing northeast

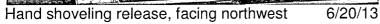
6/17/13

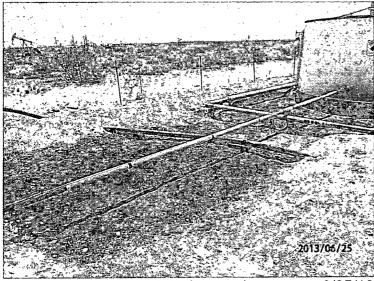


Initial release area, facing southeast

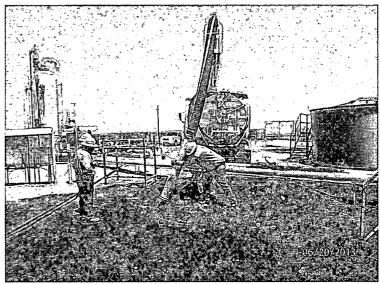
6/17/13





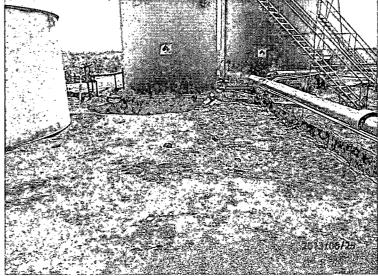


Scrape to 1' completed, facing southwest 6/25/13



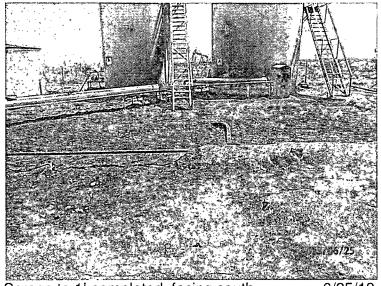
Hydro-vac release, facing east

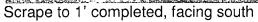
6/20/13



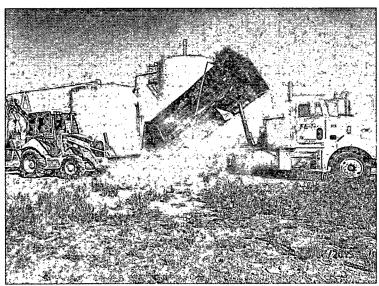
Scrape to 1' completed, facing southwest

6/25/13



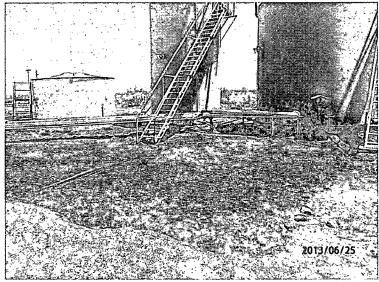


6/25/13



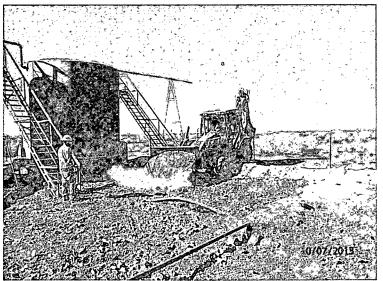
Importing clay, facing north

10/7/13

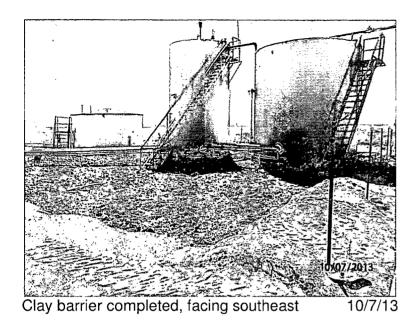


Scrape to 1' completed, facing southeast

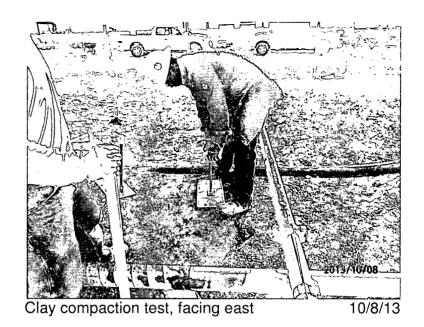
6/25/13

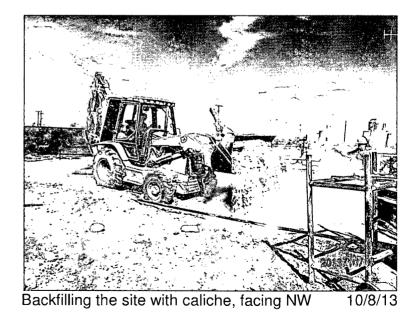


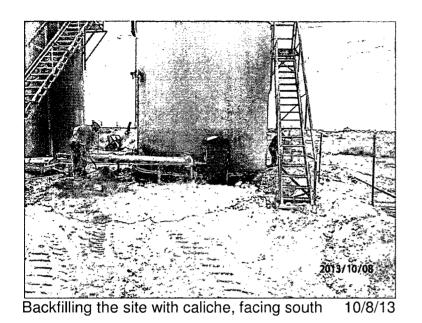
Installing 6 inch clay barrier, facing southwest 10/7/13











Site completed, facing northwest 10/8/13

Appendix F Final C-141 <u>District 1</u> 1625 N. French Dr., Hobbs, NM 88240 <u>District II</u> 811 S. First St., Artesia, NM 88210 District III 1000 Rio Brazos Road, Aztec, NM 87410 District IV

State of New Mexico Energy Minerals and Natural Resources

Form C-141 Revised August 8, 2011 Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

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

1220 S. St. Fran	cis Dr., Santa	a Fe, NM 87505	5	Sa	anta I	Fe, NM 875	05					
			Rele	ease Notific	catio	on and Co	rrective	Actio	on			
						OPERA	ГOR		☐ Initia	al Report	\boxtimes	Final Report
Name of Co	ompany A	pache Corpo	ration			Contact	Larry Bruce	Baker				
		9, Eunice, N					No. (432) 63	1-6982				
Facility Na	me NEDU	Satellite #4		·		Facility Typ	e Satellite					
Surface Ow	ner Apac	he Corporat	ion	Mineral (Owner				API No	. 3002509	916	
				LOC	ATIC	ON OF RE	LEASE					
Unit Letter	Section	Township	Range	Feet from the		h/South Line	Feet from th	Eas	st/West Line	County		
L	15	21S	37E	1858		FSL	1233		FWL	Lea		
	1	215		titude	1	Longitud		l				
			La						-			
- CD 1	011	·		NAT	ruri	E OF REL		1.1			10.1.1.1	
Type of Rele Source of Re							Release 85 b lour of Occurr			Recovered 7 Hour of Dis		6/15/13
Source of Re	icase On ta	ilik tali ovci				Unknown	ioui oi occuii	cricc	5:28 pm	riour or Dis	covery	0/15/15
Was Immedi	ate Notice (Yes ⊠	No □ Not R	equire	If YES, To	Whom?					
By Whom?						Date and I	lour					
Was a Water	course Read		Yes ⊠] No		If YES, Vo	olume Impaction	ng the W	atercourse.			
If a Waterco	urse was Im	pacted, Descr	ibe Fully.	*					DTU	J= 473	, V 	
The oil tank transfer pum	at the site raps were run	to get the lev	the comm. els down a	system failed. And the site.								
were on site then taken to The release a composite sa DRO reading throughout tl 7 th , 2013, RE install the cla October 8 th , test showed a ground surfa	to begin initial a commerce was scrumple of the greturned and release in CCS personal barrier and 2013, Pettig and Dry Densice. A samp	tial sampling. tial laboratory aped down 1- excavation w result of 290 the lease pad all were on sit ad backfill the rew & Associ ty % Max of 9 le of the calic	Surface s for analys – 1.5 feet a ras taken to mg/kg. Bal and then to begin site. At that swere 97.1% at She was taken was tak	cen.* A total of amples were taken is. The results of and a total of 105 of a commercial last ased on an Apach backfill the site with a liner installation in the base of the exconsite to conduct in a commercial and 95.6% a cent to a commercial commercial support in the site of the exconsite to conduct in the commercial support i	en through this to yards aboratone meet with cleation. Acavation tally t	aghout the site esting showed of excavated sory for analysis. ting with NMO can, imported catotal of 48 yarn a 6 inch clay of compaction to a Caliche was pratory for anal	and field tested bloride levels bil was taken to Laboratory CCD – District aliche to bring ds of clay and barrier was insect at two points then backfilled ysis and return	I for chlobelow 2 a NMC RO read I, a decithe exca 84 yards at alled the over the over the ded a chlobelow 2	orides and hyd 50 mg/kg and OCD approved ling returned a sion was mad avation back to s of clean cali aroughout the ne clay barrier e clay barrier oride result of	drocarbons. elevated hy facility for a result of no e to install a o ground sur che was imp release area The result to bring the f 32 mg/kg.	The sa drocard disposa on-dete 6 inch face. O ported to in the t s of the excavat	amples were bon levels. al. A bottom ect and the clay barrier on October to site to facility. On ecompaction up to
regulations a public health should their or the enviro	Il operators or the envi operations h nment. In a	are required to ronment. The nave failed to	o report and acceptance acceptanc	e is true and comp nd/or file certain ce of a C-141 rep investigate and otance of a C-141	release ort by t remedi	notifications a the NMOCD mate contaminat	nd perform co arked as "Fina ion that pose a	rective a l Report threat to	actions for rel t" does not rel o ground wate	eases which ieve the ope r, surface wa	may en rator of ater, hu	ndanger f liability ıman health
Signature:		Bruce	Bah	er		Approved by	OIL Co	NSE I SIEGI	VIXATION Vironmenta	DIVINION OF THE PROPERTY OF TH	WV. ist	ď
Printed Nam	e: Larry B	ruce Baker							1			
Title: Enviro	onmental Te	ech				Approval Da	te: 10/31/1	3	Expiration	Date:	- 	
E-mail Addr	ess: larry.b	aker@apache		: (432) 631-6982		Conditions o	f Approval:	-	-	Attached		z9 <i>5</i> 0

^{*} Attach Additional Sheets If Necessary