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EXPLORING WHAT'S POSSIBLE

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APACHE CORPORATION

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

Empire Abo Unit C49 SWD

Closure Report

API 30-015-03184

Release Date: March 29, 2011

Unit Letter K, Section 29, Township 17S, Range 29E

Rice Environmental Consulting & Safety

P.O. Box 5630 Hobbs, NM 88241 Phone 575.393.4411 Fax 575.393.0293

September 22, 2011

Mike Bratcher New Mexico Energy, Minerals, & Natural Resources Oil Conservation Division, Environmental Bureau – District 2 811 S. First Street Artesia, NM 88210

RE: TERMINATION REQUEST Apache – Empire Abo Unit C-49 SWD AD UL/L sec. 29 T17S R29E

Mr. Bratcher:

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

Background and Previous Work

The site is an accidental discharge of fluids from a tank overflow within the battery firewall at the Apache Empire Abo C-49 SWD when an automation failure caused the tanks to overflow. Standing fluids were recovered with a vacuum truck, and an initial form C-141 was submitted by Apache Corporation on March 29, 2011 (Appendix A). The site is located less than one mile south of U.S. Highway 82 west of Loco Hills, NM in unit letter 'L', section 29, T17S, R29E in Eddy County, New Mexico.

On April 11, 2011, RECS personnel initiated work on the Empire Abo C-49 SWD (See Site Photographs in Appendix C). The leak affected the east, northeast, and south portions of the containment floor from which soil samples were collected. Samples were taken from near surface and at depth and were screened for chlorides. Headspace measurements were also taken in the field using a Photo Ionization Detector (PID) (Figure). Soil samples from Pt. 1, Pt. 4, and Pt. 6 were sent to a commercial laboratory for analysis of chloride.

On April 15, 2011, a soil bore was drilled at the southwest end of the leak area to delineate vertical impact near Pt. 6 which showed the highest concentrations of chloride with 18,000 ppm (parts per million or mg/kg) at 6" bgs (below ground surface) and 2,120 ppm at 1.5 ft. bgs. From the soil bore, 5 samples were sent to a commercial laboratory for analysis of chloride, BTEX, and TPH including GRO (Gasoline Range Organics) and DRO (Diesel Range Organics). All samples were non-detect for BTEX. TPH was only present in the SB1 @ 6" sample as DRO at 43.0 ppm. Chloride in the SB1 @ 6" sample was 2,800 ppm, SB1 @ 6 ft. was 288 ppm, SB1 @ 9 ft. was 208, SB1 @ 12 ft. was 160 ppm, and SB1 @ 18 ft. was 64 ppm (Appendix D).

The impacted area was excavated using a shovel crew due to proximity and array of equipment and underground utilities. The area of Pt.1 was excavated to 1.5 ft. bgs and the remaining area from 6 inches to 1 ft. bgs. A total of 72 cubic yards of impacted soil was removed from the leak area and transported to a NMOCD approved facility for disposal. The excavation was backfilled with 125 cubic yards of clean imported caliche and contoured to the battery floor.

On May 26, 2011, a temporary monitor well was drilled northwest of the leak site to verify the existence of groundwater (Appendix B). A red bed clay formation was encountered from 40 ft. to 55 ft. bgs and drilling ceased at 100 ft. bgs. The temporary well was set with 2 inch PVC casing and screen from 80 ft. to 100 ft. bgs to allow potential groundwater to accumulate. On June 28, 2011, RECS personnel used a Solinist Water Level Meter to verify any accumulation of groundwater. No water was detected within the borehole at the total depth of 99.12 ft. bgs. On July 7, 2011, RECS personnel removed the monitoring well casing and plugged the borehole with bentonite.

Conclusion

Due to confirmed nonexistence of groundwater, the removal of soils of highest impact, and rate of chloride decline, Apache submits the final C-141 (Appendix E) and respectfully requests the closure of the regulatory file for this site.

Apache Corporation appreciates the opportunity to work with you on this project. Please call Natalie Gladden (575) 390-4186 if you have any questions or comments.

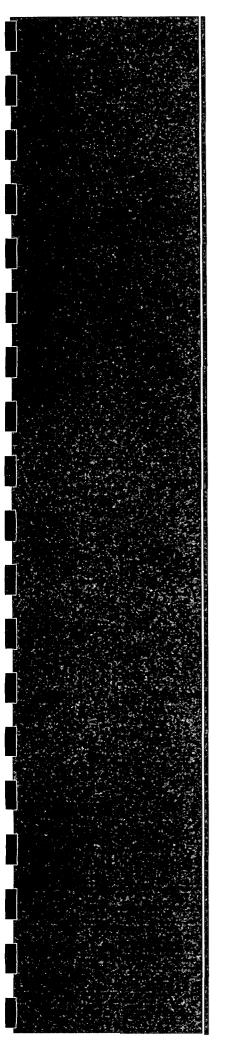
Sincerely,

Bruce Baher

Bruce Baker Head Foreman RECS (575) 631-5157

Attachments:

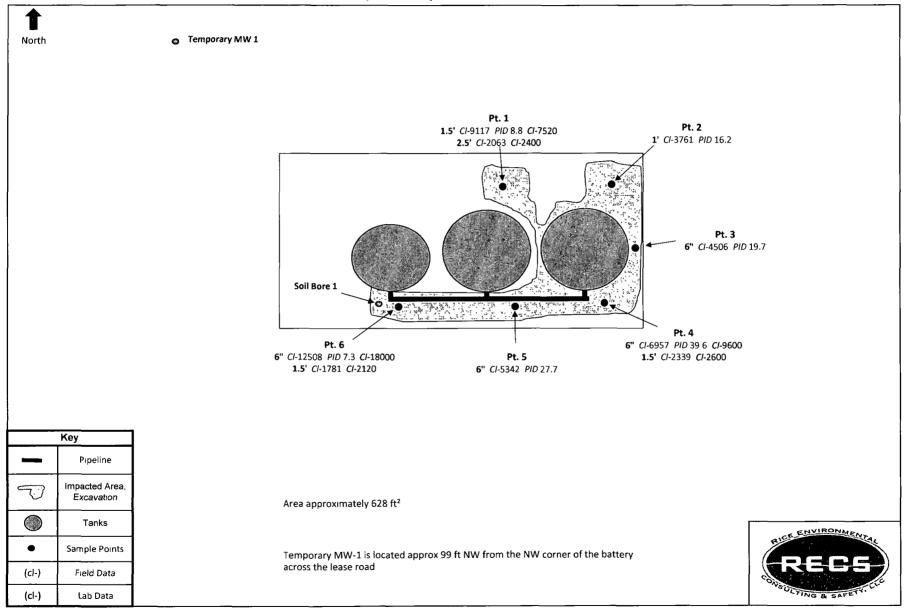
Figure:	Site Diagram with Sample Summary
Appendix A:	Initial Form C-141
Appendix B:	Soil Bore and Temporary Monitoring Well Logs, Letter of Groundwater
	Verification, and Plugging Report
Appendix C:	Site Photographs
Appendix D:	Laboratory Results
Appendix E:	Final Form C-141

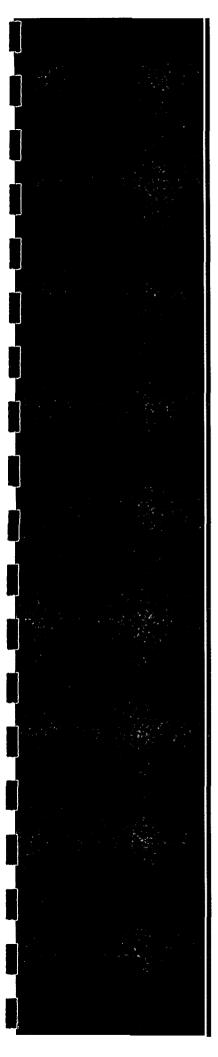


Figure

Figure: Site Diagram with Sample Summary







Appendix A Initial Form C-141

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

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

h			Rel	ease Notific	catio	n and Co	orrective A	ction	ويتعمون فليت			
					CHERO	OPERA'			🛛 Initia	al Report	\boxtimes	Final Report
Name of Co	ompany A	pache Corpo	ration			Contact Natalie Gladden						
		9 Eunice, NI					No. 575-390-41	86				
Facility Nat C50)	me Empire	e Abo Unit (249 SWI) (nearest well E	EAU	Facility Typ	be SWD					
Surface Ow	ner BLM			Mineral C)wner	OCD			Lease N	lo. 30-015	-03184	l .
				LOCA	ATIO	N OF RE	LEASE					
Unit Letter	Section	Township	Range	Feet from the		n/South Linc	Fcet from the	East/W	est Line	County		
K	29	175	29E	2310'	FSL		1650`	FWL		Eddy		
			La	titude		Longitud	le					
				NAT	URE	OF REL	EASE					
Type of Rele	ase Produc	ed Water					Release 525	T	Volume F	Recovered 5	500	
		mation failure					lour of Occurrenc	e		Hour of Dis		
Was Immedi	ate Notice (Yes [] No 🗍 Not R	equired	If YES, To Randy Dad						
By Whom? N				······································			lour 03/29/11@					
Was a Water	course Read		Yes 🗵	No		If YES, Vo	blume Impacting t	he Water	course.			
Describe Cau	If a Watercourse was Impacted, Describe Fully.* Describe Cause of Problem and Remedial Action Taken.* Automation failure caused tanks to overflow. Standing fluid was vacuumed up immediately and soil was pushed up towards metal berms to keep fluid										ccp fluid	
from exiting Describe Are 8-10° of cont	the contains a Affected a aminated so	nent walls. and Cleanup A bil will be han	Action Tal	cen.*	mising	the integrity o	f the tanks and ve valls will be insta	ssals. N	nc arca ex-	cavated will	bebac	
regulations al public health should their o	ll operators or the envir operations h nment. In a	are required to ronment. The ave failed to a ddition, NMO	o report an acceptance dequately CD accept	nd/or file certain r ce of a C-141 repo investigate and r	release ort by ti remedia	notifications a he NMOCD m ite contaminati	knowledge and u nd perform correc arked as "Final R on that pose a thr e the operator of r	etive actic eport" do eat to gro responsib	ons for rel bes not relibund water bility for c	eases which ieve the ope r, surface wa ompliance v	may en rator of ater, hu with any	ndanger fliability man health
Signature:	Jasto	die (-	7 file	oder		Annround hu	OIL CONS		<u>ATION</u>	DIVISIO	<u>)N</u>	
Printed Name	: Natalie C	Hadden	·····				District Output MS			•		
Title: EHS E	avironment	al Tech				Approval Dat	le:	E	xpiration	Date:		
E-mail Addre				<u>1111</u>		Conditions of	Approval:			Attached		
Date: 03/29/	/11	Phone: 575-	3904186		1					1		

* Attach Additional Sheets If Necessarv

Appendix B

Soil Bore and Temporary Monitoring Well Logs, Letter of Groundwater Verification, and Plugging Report

Logger:		Jord	dan Woo	odfin		RE	NMENTAL
Driller:		Harrisor	n & Coo	per, Inc		CONSULTING B	AFETY, LLE
Drilling	Method:		Aır rotar	у		Company: Apache	
Start Date	e:	4	4/15/201	1		Project Name:	Well ID:
End Date		4	4/15/201	1		Empire Abo Unit C-49 SW	
Comme						Project Consultant: REC	
All sam	ples were				soil bore was located 12 ft west	Location: UL/L sec 29 T	17S R29E
		of the			south of the ladder. L. Weinheimer	Lat: N32º48 277'	County Eddy
	TD	= 30 ft			GW = none	Long: W104°06.300'	State NM
Depth	chlorid	ta l	W - C	10.02. Mill (07.20 3.0336			
(feet)	field te		LAB	PID	Description	Lithology W	ell Construction
					Brown medium sand with caliche		
			CI-		mix		
6 in	2454		2800	5			
			GRO <10				
<u> </u>	0.05 T<0 0	<u> </u>	DRO				
E <0	0 <u>5 X <0 1</u>	5	43 0				
1 ft	863	1	ĺ	5.2	Brown fine sand with caliche mix		
						A Contraction of the second seco	
1.5 ft	1223			4.6			
1.5 1	1220			4.0			
					Tan medium silty sand with caliche		
					mix		
3 ft	668			3.3			
311	000			3.3			
			Cl-				
6 ft	376		288 GRO	3.8			
B <0	05 T<0.0	5	<10				
E -0	05 V -0.4	<u> </u>	DRO <10		Tan fine silty sand with caliche mix		
E <0		~ +	<10 CI-		-		
9 ft	232		208	21			
B <0	05 T<0.0		GRO <10				bentonite
			DRO				
E <u><</u> 0.	.05 X <0 1	5	<10				seal
12 ft	217		Cl- 160	0.7			
			GRO				
B <0	0.05 T<0 0	5	<10				
E <0	05 X <0.1	5	DRO <10				
15 ft	173			0.5			
	L						

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
18 ft	148	Cl- 64	04			
B <0).05 T<0 05	GRO <10				
E <0.	05 X <0 15	DRO <10				
21 ft				I		
				Brown fine sand with caliche mix		
 24 ft						
_27 /1				NO SAMPLES TAKEN BELOW		
				18 ft		
27 ft						
30 ft)			RED BED CLAY		

Logger: Driller: Drilling I Start Date End Date: Comme No sam	Method: e: ents: pling occ	Harrisc	DRAF	ber, Inc / 1 s well	Well was set as a temporary well L. Weinheimer GW = none	Pro E Pro Lo	mpany: Apaclo oject Name: mpire Abo Unit oject Consulta cation: UL/L s t: N32°48.294' ng: W104°06.	he C-4 ant	Well ID: C-49 SWD MW-1 ten ant: RECS ec 29 T17S R29E County: E		
Depth (feet)	chlorie field te		LAB	PID	Description		Lithology			nstruction	
5 ft 5 ft 10 ft 15 ft 20 ft 25 ft 30 ft					NO SAMPLES TAKEN					annular space	
35 ft 40 ft					RED BED CLAY MIXED WITH SAND						
45 ft					RED BED CLAY						

Depth (feet)	chloride field tests	LAB	PID	Description	Lithology	Well Construction
50 ft						
55 ft						

Rice Environmental Consulting & Safety

P.O. Box 5630 Hobbs, NM 88241 Phone 575.393.4411 Fax 575.393.0293

July 11th, 2011

Natalie Gladden Apache Corp. P.O. Box 1849 Eunice, New Mexico 88231

Re: Empire Abo Unit C-49 SWD

Ms. Gladden,

On May 26th, 2011, RECS personnel drilled an observational well at the Empire Abo Unit C-49 SWD. On June 28th, I supervised RECS personnel checking for water accumulation within the borehole using a Solinist Water Level Meter. The meter indicated no water had accumulated within the borehole at the total depth of 99.12 ft.

Sincerely,

Juna Bahan

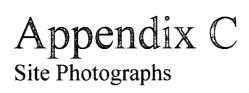
Bruce Baker Head Foreman Rice Environmental Consulting & Safety



P.O. Box 5630 Hobbs, NM 88241 Phone: 575-393-4411

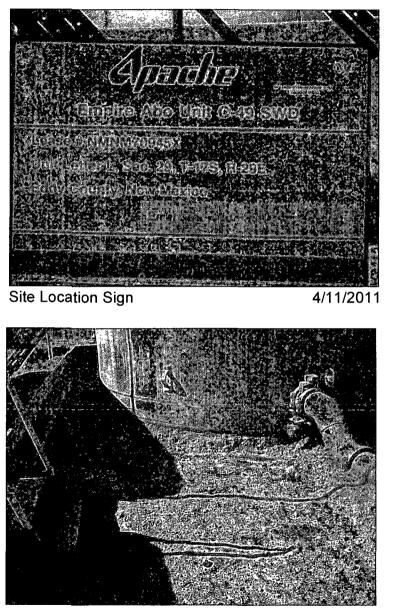
Monitor Well Plugging Report

Client	Apache Corp.
Contractor	RECS
Date Completed	7/7/2011
Site	Empire Abo Unit C-49 SWD
County	Eddy
Legal Description	UL/L sec. 29 T17S R29E
Well ID	Temp. MW-1
Casing Diameter	2"
Well Depth	100'
Casing Material	PVC
Plugging Material	Bentonite



Empire Abo Unit C-49 SWD

Unit L, Section 29, T17S, R29E



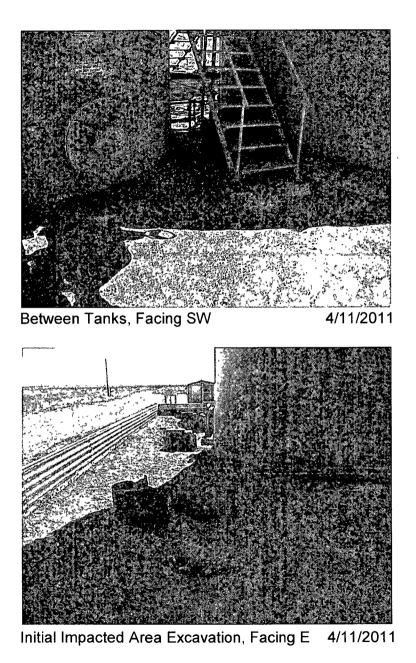
Initial Impacted Area Excavation, Facing S 4/11/2011

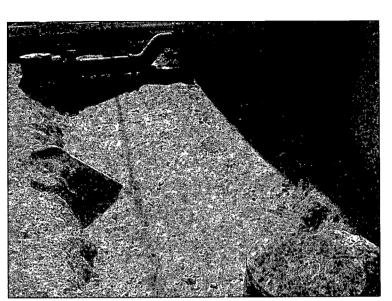


Initial Impacted Area Excavation, Facing W 4/11/2011

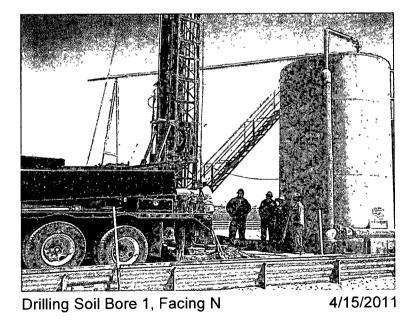


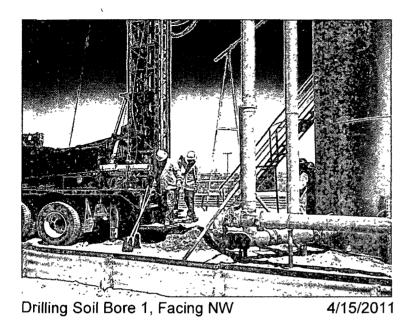
Initial Impacted Area Excavation, Facing W 4/11/2011





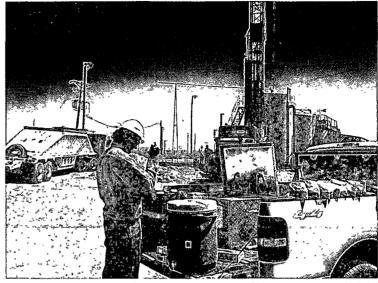
Initial Impacted Area Excavation, Facing E 4/11/2011



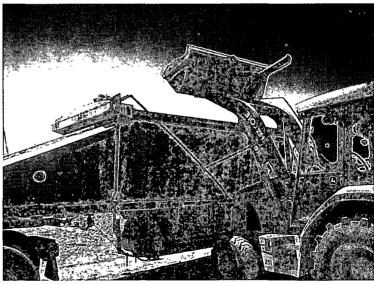


Plugging Soil Bore, Facing W

4/15/2011

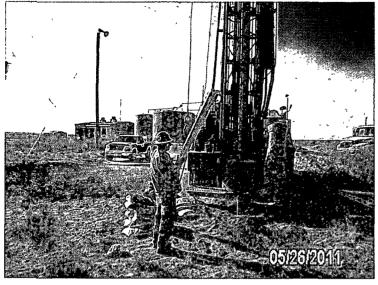


Field Testing Soil Samples, Facing E 4/15/2011



Removing Soil, Facing SW

4/15/2011



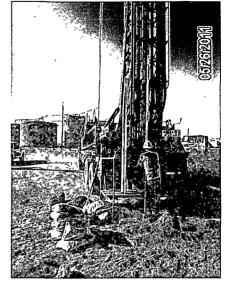
Drilling Temporary MW, Facing SE

5/26/2011



Removing Casing, Facing S

7/7/2011



Installing Casing, Facing SE

5/26/2011



Plugged and Staked, Facing SE

7/7/2011

Appendix D Laboratory Results



APACHE - EUNICE NATALIE GLADDEN P. O. BOX 1849 EUNICE NM, 88231 Fax To: 394-2425

Received:	04/19/2011	Sampling Date:	04/11/2011
Reported:	04/20/2011	Sampling Type:	Soil
Project Name.	EMPIRE APO C-49 SWD AD	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: PT. 1 @ 1.5' (H100789-01)

Chloride, SM4500Cl-B mg/kg			Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	7520	16.0	04/20/2011	ND	400	100	400	0.00	

Sample ID: PT. 4 @ 6" (H100789-02)

Chloride, SM4500CI-B	Analyzed By: HM								
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	9600	16.0	04/20/2011	ND	400	100	400	0.00	

Sample ID: PT. 6 @ 6" (H100789-03)

Chloride, SM4500Cl-B	mg,	/kg	Analyze	Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	18000	16.0	04/20/2011	ND	400	100	400	0.00	

Sample ID: PT. 1 @ 2.5' (H100789-04)

Chloride, SM4500CI-B	/kg	Analyze	d By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2400	16.0	04/20/2011	ND	400	100	400	0 00	

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE Liability and Damages Cardinal's liability and clients exclusive remedy for any claim ansing, 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 whatscover 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 inodential or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidianes, affiliates or successors ansing 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.

Celey D. Kune

Celey D. Keene, Lab Director/Quality Manager



APACHE - EUNICE NATALIE GLADDEN P. O. BOX 1849 EUNICE NM, 88231 Fax To: 394-2425

Received:	04/19/2011	Sampling Date:	04/14/2011
Reported:	04/20/2011	Sampling Type:	Soil
Project Name:	EMPIRE APO C-49 SWD AD	Sampling Condition.	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: PT. 4 @ 1.5' (H100789-05)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2600	16.0	04/20/2011	ND	400	100	400	0.00	

Sample ID: PT. 6 @ 1.5' (H100789-06)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2120	16.0	04/20/2011	ND	400	100	400	0.00	

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE Lability and Damages Cardinals lability and client's exclusive remedy for any claim ansing, 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 whatspeerer shall be deemed waved unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidianes, affiliates or successors ansing out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claims based on any of the site set state reasons or otherwise Results relate only to the samples identified above. This reproduced exception in All written approval of Cardinal Laborationes.

Celez D. Kune

Celey D. Keene, Lab Director/Quality Manager

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

ARDINAL LABORATORIES

Company Name	(303) 333-2320 TAX (303) 333-2							Т			_	LL TO						ANAL	YSIS	RE	QUE	ST			l
Project Manage	r: Natalie Gladden							Ρ.	0.‡	# :				T											
Address:								Company:			1		1		S										
City.	State: NM	Zır).					A	tn:									on							
Phone #;	 Fax #:		Address:								Cations/Anions														
Project #:	Project Owne				Ci	ty:						Σ	ł	-	S/P										
Project Name:			····					St	ate	•		Zip:		es	S I		TPH	ů							
Project Location: Empire Apo C-49 SWD AD				*	e #:				Chlorides	801	BTEX		atic	DS											
Sampler Name:									ix #				-	2			exas	ပိ							
FOR LAB USE ONLY		Т	Τ		Ņ	ATR	IX_	~,	PR	RESE	RV	SAMPLI	NG	1 	H		j tê j	e							
Lab I.D.	Sample I.D.	(G)RAB OR (C)OM	# CONTAINERS	GROUNDWATER	WASTEWATER	SoiL		OTHER	ACID/BASE	ICE / COOL	OTHER	DATE	TIME					Complete							
H10274991	Pl 1@1.5'	6	1			✓	_	-				4/11/11											_		
	Pt 4@6"	<u>.</u>	1			✓				i 		4/11/11		<u>√</u>											
3	Pt 6@6"	i.	1									4/11/11		 ✓ 							l				
	Pt 1@25	1:2	1			/		·				4/14/11		√											
	Pt 4@15'	0	1	-								4/14/11		√			L								
	Pt 6 @ 1 5'	. 1.2	1		<u> </u>	✓	_					4/14/11		↓											
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101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603 (505) 393-2326 EAX (505) 393-2476 (325) 673-7001 EAX (325) 673-7020

PLASE NOTE Liability and Damages. Cardinals liability and clients exclusive remedy for any claim arising whether based in confract or tort, shall be limited to the amount paid by the client for the analyses. All claims incluring those for negligence and any other cause whichsnever shall be deemed yeared unless, made in writing and received by Cardinal within 30 days, after completion of the applicable service. In no event shall Cardinal be lively for incidental or consequential damages, including without limitation, business instrumptions forso for use for our provident its subsidiates afti alter or successors reaining with or related to the performance of services how because the fragment in gardless of whether such claims based upon any of the above stafet freesons or otherwise.

Relinguished By.	Date [] [] Received By:	Phone Result
Contraction of the second s	Time ral all re allows	Fax Result:
Relinquished By:	Date Received By	email results
	Time	Natalie.Gladden@usa.apachecorp.com;
Delivered By: (Circle One)	Sample Condition CHECKED BY:	Zconder@rice-ecs.com; Bbaker@rice-ecs.com;
Sampler - UPS - Bus - Other:	$\begin{array}{c c} 26 & Cool Intact \\ \hline 26 & Yes \\ \hline 1 No \\ \hline NO \\ \hline$	hconder@rice-ecs.com; Lweinheimer@rice-ecs.com

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476



APACHE - EUNICE NATALIE GLADDEN P. O. BOX 1849 EUNICE NM, 88231 Fax To: 394-2425

Received:	04/15/2011	Sampling Date:	04/15/2011
Reported:	04/20/2011	Sampling Type:	Soil
Project Name:	EMPIRE ABO UNIT C-49 SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 1 @ 6" (H100776-01)

Chloride, SM4500CI-B	mg,	/kg	Analyze	d By: HM	-				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2800	16.0	04/19/2011	ND	448	112	400	3.64	
TPH 8015M	mg,	/kg	Analyze	d By: AB					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/18/2011	ND	206	103	200	1.31	
DR0 >C10-C28	43.0	10.0	04/18/2011	ND	207	104	200	1.30	
Surrogate 1-Chlorooctane	93 1	% 70-130	·						
Surrogate I-Chlorooctadecane	103	% 70-130	I.						

Sample ID: SB 1 @ 6 FT (H100776-02)

Chlonde, SM4500CI-B	mg	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	288	16 0	04/19/2011	ND	448	112	400	3.64	
TPH 8015M	mg,	/kg	Analyze	d By: AB	_				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/19/2011	ND	206	103	200	1.31	
DRO >C10-C28	<10.0	10.0	04/19/2011	ND	207	104	200	1.30	
Surrogate 1-Chlorooctane	93 0	% 70-130							
Surrogate 1-Chlorooctadecane	95 <i>3</i>	% 70-130							

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PLEASE NOTE Lability and Damages Cardinals liability and clients exclusive remedy for any claim ansing, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All daims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurved by client, its subsidianes, affiliates or successors ansing 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 Laboratones.

Celey D. Kune

Celey D. Keene, Lab Director/Quality Manager



APACHE - EUNICE NATALIE GLADDEN P. O. BOX 1849 EUNICE NM, 88231 Fax To. 394-2425

Received:	04/15/2011	Sampling Date	04/15/2011
Reported:	04/20/2011	Sampling Type:	Soil
Project Name	EMPIRE ABO UNIT C-49 SWD	Sampling Condition.	Cool & Intact
Project Number.	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 1 @ 9 FT (H100776-03)

Chloride, SM4500Cl-B	mg,	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	208	16.0	04/19/2011	ND	448	112	400	3 64	
TPH 8015M	mg,	/kg	Analyze	d By: AB					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10 0	10.0	04/19/2011	ND	206	103	200	1.31	
DRO >C10-C28	<10.0	10.0	04/19/2011	ND	207	104	200	1.30	
Surrogate I-Chlorooctane	88 5	% 70-130					<u>.</u>		
Surrogate 1-Chlorooctadecane	878	% 70-130							

Sample ID: SB 1 @ 12 FT (H100776-04)

Chloride, SM4500CI-B	mg,	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	04/19/2011	ND	448	112	400	3.64	
ТРН 8015М	mg,	/kg	Analyze	d By: AB					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/19/2011	ND	206	103	200	1.31	
DRO >C10-C28	<10.0	10.0	04/19/2011	ND	207	104	200	1.30	
Surrogate 1-Chlorooctane	95 1	% 70-130)						······································
Surrogate 1-Chlorooctadecane	974	% 70-130)						

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Celey D. Keene, Lab Director/Quality Manager



APACHE - EUNICE NATALIE GLADDEN P. O. BOX 1849 EUNICE NM, 88231 Fax To: 394-2425

Received:	04/15/2011	Sampling Date:	04/15/2011
Reported:	04/20/2011	Sampling Type:	Soil
Project Name:	EMPIRE ABO UNIT C-49 SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 1 @ 18 FT (H100776-05)

Chloride, SM4500Cl-B	mg/	kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	04/19/2011	ND	448	112	400	3.64	
TPH 8015M	mg/	'kg	Analyze	d By: AB					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/19/2011	ND	206	103	200	1.31	
DRO >C10-C28	<10.0	10.0	04/19/2011	ND	207	104	200	1.30	
Surrogate 1-Chlorooctane	93 0	% 70-130							
Surrogate 1-Chlorooctadecane	96 6	% 70-130							

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Celey D. Keene, Lab Director/Quality Manager

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

ARDINAL LABORATORIES

	(505) 393-2326 FA	X (505) 393-24	76	(32	5) 673-	7001	FAX	(325)	673-	7020									_				
Company Name	Apache								BI	LL TO					/	ANAL	YSIS	RE	QUES	ST			
Project Manage	Natalie Gladden						P.0). # .															
Address:						· ···-	Co	mpar	y .							SC				1			
City:		State: NM	Zip:				At	n:								<u>ō</u>						ļ	
Phone #:	ade ana kao, kaorinan-kaona kaona kaoni ny fisika kaolina dia ma	Fax #:					Ad	dress	i.							F -						-	
Project #.		Project Owner					Cit	y				6	Σ		I	Cations/Anions							
Project Name.	Empire Abo Unit C-49	SWD			_		Sta	ite		Zıp:		ě	15	\times	Ъ	5							
Project Locatio	n:					_	Ph	one #	<u> </u>			ĿĔ	ò	μÌ	S	ati	DS						
Sampler Name	Jordan Woodfin						Fa	x # [.]				Chlorides	ГРН 8015	BTEX	Texas TPH		D L				1		
FOP LAB USE ONLY				-	M	ATRIX		PRES	ERV.	SAMPL	NG	1Ū	ᆸ		e l	fe			[]				
Lab I.D.	Sample I.	D.	(G)RAB OR (C)OMP	# CONTAINERS	GROUNDWATER WASTEWATER		ISI UDGE O I HER	ACID/BASE	OTHER	DATE	TIME					Complete							
H100776-1	SB 1 @ 6″		3	1		/		V	1	4/15/11	;130	\checkmark									_		
	SB 1 @ 6ft		ij	1		/		V	1	/	1135	1	\bigvee_{\perp}										
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Jorda	n Woodfin	Time: LIZ,	U	Li	11	X	LLI	(A	Ŵ.	L	REMARK												
Relinguished B		Date	Re	ceive	ed By	<u> </u>					email	resu	ults										
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101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603

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APACHE - EUNICE NATALIE GLADDEN P. O. BOX 1849 EUNICE NM, 88231 Fax To: 394-2425

Received:	04/15/2011	Sampling Date:	04/15/2011
Reported:	04/20/2011	Sampling Type:	Soil
Project Name:	EMPIRE ABO UNIT C-49 SWD	Sampling Condition	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 1 @ 6" (H100776-01)

BTEX 8021B	mg,	/kg	Analyze	d By: CMS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0 050	04/20/2011	ND	2.35	118	2.00	15.9	
Toluene*	<0.050	0.050	04/20/2011	ND	2.32	116	2.00	16.4	
Ethylbenzene*	<0.050	0.050	04/20/2011	ND	2.31	115	2 00	14.4	
Total Xylenes*	<0.150	0.150	04/20/2011	ND	6.84	114	6.00	14.1	
							12.0 0012 1011 1		

Surrogate 4-Biomofluorobenzene (PIL 879% 70-130

Sample ID: SB 1 @ 6 FT (H100776-02)

BTEX 8021B	mg/	/kg	Analyze	d By: CMS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/20/2011	ND	2.35	118	2.00	15.9	
Toluene*	<0 050	0 050	04/20/2011	ND	2 32	116	2.00	16.4	
Ethylbenzene*	<0.050	0 050	04/20/2011	ND	2.31	115	2.00	14.4	
Total Xylenes*	<0.150	0 150	04/20/2011	ND	6.84	114	6.00	14 1	

Surrogate 4-Biomofluorobenzene (PIL 953% 70-130

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Celey D. Keene, Lab Director/Quality Manager

Page 2 of 6



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Received:	04/15/2011	Sampling Date:	04/15/2011
Reported:	04/20/2011	Sampling Type:	Soil
Project Name:	EMPIRE ABO UNIT C-49 SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location.	NOT GIVEN		

Sample ID: SB 1 @ 9 FT (H100776-03)

BTEX 8021B	mg,	/kg	Analyze	d By: CMS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/20/2011	ND	2.35	118	2.00	15.9	
Toluene*	<0 050	0.050	04/20/2011	ND	2 32	116	2.00	16.4	
Ethylbenzene*	<0 050	0.050	04/20/2011	ND	2.31	115	2.00	14.4	
Total Xylenes*	<0 150	0 150	04/20/2011	ND	6.84	114	6.00	14.1	

Surrogate 4-Bromofluorobenzene (PIL 94 1 % 70-130

Sample ID: SB 1 @ 12 FT (H100776-04)

BTEX 8021B	mg/	kg	Analyzed By: CMS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/20/2011	ND	2.35	118	2.00	15 9	
Toluene*	<0.050	0.050	04/20/2011	ND	2.32	116	2.00	16.4	
Ethylbenzene*	<0.050	0.050	04/20/2011	ND	2.31	115	2.00	14.4	
Total Xylenes*	<0.150	0 150	04/20/2011	ND	6.84	114	6.00	14.1	

Surrogate 4-Bromofluorobenzene (PIL 947% 70-130

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Celey D. Keene, Lab Director/Quality Manager

Rage 3 of 6



APACHE - EUNICE NATALIE GLADDEN P. O. BOX 1849 EUNICE NM, 88231 Fax To: 394-2425

Received:	04/15/2011	Sampling Date:	04/15/2011
Reported [.]	04/20/2011	Sampling Type:	Soil
Project Name:	EMPIRE ABO UNIT C-49 SWD	Sampling Condition	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SB 1 @ 18 FT (H100776-05)

BTEX 8021B	mg,	/kg	Analyze	Analyzed By: CMS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/20/2011	ND	2 35	118	2 00	15.9	
Toluene*	<0.050	0.050	04/20/2011	ND	2.32	116	2.00	16 4	
Ethylbenzene*	<0.050	0.050	04/20/2011	ND	2 31	115	2 00	14.4	
Total Xylenes*	<0.150	0.150	04/20/2011	ND	6.84	114	6.00	14.1	

Surrogate 4-Bromofluorobenzene (PIL 938% 70-130

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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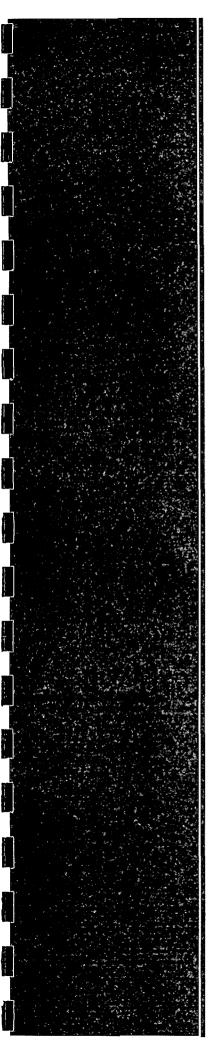
ompany Name	Apache										11.70						ANAL	YSIS	RE	QUE	ST		
Project Manage	r: Natalie Gladden						_	P.C), #:														
ddress:			_					Col	mpan	y:				、	1		S						
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roject Name:	Empire Abo Unit C-49 SWD	·						Sta	te:		Zip:		<u>e</u>	2	*	TPH	ü						
Project Locatio	n:							Pho	one #	:			Chlorides	8015	втех	ر د	Cations/Anions	TDS					
ampler Name:	Jordan Woodfin				_			Fax	c#:				1 2			Texas	Ö						
FOR LAB USE ONLY			Γ		MA	TRI	(_	PRES	ERV	SAMPL	NG	Ū	HdT		e l	te						
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP	AIN	GROUNDWATER	WAS I EWATER SOIL	OIL	SLUDGE	OTHER -	ACID/BASE:	OTHER	DATE	TIME		-			Complete						
100776-1	SB 1 @ 6"	9	1		1	'			V	1	4/15/11	1130	1	V									
2	SB 1 @ 6ft	9	1		-				1		1.	1135	1										
3	SB 1 @ 9ft	3	1					_	∕		11	1138	1	\vee								<u> </u>	
4	SB 1 @ 12ft	-13	$\frac{1}{1}$		<u> </u>	,			- 1		11	1140	↓	\vdash									
5	SB 1 @ 18ft	-Ø	1	┨┼	1			-				1206	↓ _									·	
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Relinguished By	Date 41 S/11 Received By:	Phone Result: D Yes D No Add'l Phone #:
	10-20-10	Fax Result: 🖸 Yes 🖾 No 🛛 Add'l Fax #:
Jordan Woodfin	15 Godi Denson	REMARKS:
Relinquished By:	Date: Received By:	email results
	Time:	Natalie.Gladden@usa.apachecorp.com;
Delivered By: (Circle One)	Sample Condition CHECKED BY:	Zconder@rice-ecs.com; Bbaker@rice-ecs.com;
	Cool_Intact (Initials)	hconder@rice-ecs.com; Lweinheimer@rice-ecs.com
Sampler - UPS - Bus - Other:	3.5° Pres Yes	It Lara added BTEX, report on separate report. Ch
	about a Black for with a share to FOF DOD OUT	

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#26

41-10/11



Appendix E Final Form C-141

State of New Mexico Energy Minerals and Natural Resources

OCT 07 2011

NMOCD ARTEDISATIC Office in accordance with Rule 116 on back

RECEIVED

Form C-141 Revised October 10, 2003

side of form

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

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NOLOGO	Notification	and	I APPORTIVO	Δοτιορ
IXCICASC	Notification	anu	COLLEGINE	ELCHUM

	OPERATOR	Initial Report	🛛 Final Report
Name of Company Apache Corp.	Contact Natalie Gladden		
Address P.O. Box 1849, Eunice, NM, 88231	Telephone No. (575) 390-4186		
Facility Name Empire Abo Unit C49 SWD (nearest well	Facility Type SWD		
EAUC50)			

Surface Owner BLM	Mineral Owner OCD	Lease No. 30-015-03184

LOCATION OF RELEASE								
Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
К	29	178	29E	2310'	FSL	1650'	FWL	Eddy

Latitude_____ Longitude____

NATURE OF RELEASE					
Type of Release Produced Water	Volume of Release 525	Volume Recovered 500			
Source of Release Automation Failure	03/29/11 8am	07/15/11 1030am			
Was Immediate Notice Given?	If YES, To Whom?				
🛛 🖾 Yes 🔲 No 🗍 Not Required	i Randy Dade				
By Whom?	Date and Hour 03/29/11 @ 3:11pm				
Was a Watercourse Reached?	If YES, Volume Impacting the Watercourse.				
If a Watercourse was Impacted, Describe Fully.*	····				
Describe Cause of Problem and Remedial Action Taken.*					
Automation failure caused tanks to overflow. Standing fluid was vacuu	ned up immediately and soil was push	hed up towards metal berms to keen fluid			
from cxiting the containment walls.		···· · · · · · · · · · · · · · · · · ·			
Describe Area Affected and Cleanup Action Taken.* The leak affected the south, east, and northeast areas of the containment	floor. The impacted area was evenue	ted to 10 in to 15 A halow around surface			
and 72 cubic yards of impacted soil were taken to a NMOCD approved of					
bore was drilled to determine depth of impact and then plugged. Sample	is were sent to a NMOCD approved la	aboratory. A temporary monitoring well was			
installed on location to a depth of 100 ft below ground surface, and no w					
backfilled with clean caliche.					
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.					
OIL CONSERVATION DIVISION					
signature: httle (platdee					
Printed Name Natalie Gladden	Approved by District Supervisor:				
Title: EII&S Environmental Tech	Approval Date:	Expiration Date:			

Conditions of Approval:

Date: 0575) 390-4186 * Attach Additional Sheets If Necessary

E-mail Address: Natalie.gladden@apachecorp.com

Attached