SITE INFORMATION

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Report 7	Гуре:	Closure	Report
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General Site In	itormation:			ະ ເ ³ ີ ແລະ ເ ³ ີ ເສັດ ເຊັ່ງ ເຊັ່ງ ເ		
Site:	·	Usage Fede	rai 34 #1H			
Company:	ahin and Da	SWI Energy	Company	Tree	DOOF	
Section, Town	snip and Range			[1195	RZ9E	
Lease NUMDel	ſ .	30-015-4150	0			
County:		Eady Count	<u>y</u>	60000 M		404 0FE07º W
Urs: Surface Ourse		Endoral	32	02290° N		104.05507~ ₩
Surrace Owne	/. /·	rederal				
	•	East of Carleb	ad from the inter	ection of LIS	62 and Burt	on Flats Pd. travel North for 3.85 mile
Directions:		Turn right trav on the left.	eling East for 1.0	miles. Turn le	of traveling h	North for 0.40 miles. The location will I
Release Data:						
Date Released.		12/12/2013				DECEIVED I
Type Release:		Foamy mixtu	re of water, gas.	d.	I NEVENLE	
Source of Cont	amination:	Well blowout				APR 9 4 2014
Fluid Released	· · · · · · · · · · · · · · · · · · ·	440				
Fluids Recover	ed:	270				ANAOCO ARTESIA
Official Comm	unication:	• •	· · · ·	a 1 da 1	· · · · · · · · · · · · · · · · · · ·	
Name:	Vickie Martinez	•			Tom Elliot	t
Company:	SM Energy Compa	nv.			Tetra Tec	h
Address:	3300 N A St. Suite 200		1		4000 NL D	ia Spring Suite 410
	3300 N A St. Suite 200				14000 N. B	
P.U. Box						
City:	Midland Texas, 79	705			Midland, T	exas
Phone number:	(432) 688-1709				(432) 682-	-4559
Fax:	(432) 688-1701					
Email:	vmartinez@sm-e	nergy.com			tom.elliot	t@tetratech.com
Panking Critor	s	ρο. δ. e.	· · · · ·		the states of a	
	ia , , , , , , , , , , , , , , , , , , ,					
Depth to Ground	dwater:		Ranking Score			Site Data
<50 π 50-99 ft			20			40
>100 ft			0			10
			·v			
WellHead Protec	ction:	· · · · · · · · · · · · · · · · · · ·	Ranking Score			Site Data
Water Source <1	1,000 ft., Private <200 f	t.	20			
Water Source >1	1,000 ft., Private >200 f	<i>t</i>	0			0
Surface Body of	Water:		Ranking Score	· / · · · · · · · · · · · · · · · · · ·		Site Data
<200 ft.			20			
200 ft - 1,000 ft.		10				
>1,000 ft.			0			0
T	otal Ranking Score		10			
			-		-	
		Accepta	ble Soil RRAL	(mg/kg)		
		Benzene	Total BTEX	TPH	1	
		10	50	1,000		



March 14, 2014

Mr. Mike Bratcher Environmental Engineer Specialist Oil Conservation Division, District 2 811 S. First Street Artesia, New Mexico 88210

Re: Closure Report for the SM Energy Co., Osage Federal 34 1H, Section 34, Township 19 South, Range 29 East, Eddy County, New Mexico.

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by Sm Energy Co. (SM Energy) to assess a spill from the Osage Federal 34 1H located in Section 34, Township 19 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.62298°, W 104.05507°. The site location is shown on Figures 1 and 2.

Background

According to the state of New Mexico C-141 Initial Report, a well blowout occurred on December 13, 2013, and released approximately four hundred and forty (440) barrels of fluid from the well. To alleviate the problem, SM Energy got the blowout under control and sealed the well. Approximately two hundred and seventy (270) barrels of fluid were recovered. The spill was initiated on the pad and flowed into the pasture affecting an area approximately 65' X 100'. The initial C-141 form is enclosed in Appendix A.

Groundwater

According to the New Mexico State Engineers Office there is one well listed in Section 34 with a depth to groundwater of 60' below surface. According to the NMOCD groundwater map the depth to groundwater is between 50' and 100' below surface. The groundwater data is shown in Appendix B.

Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-



based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 1,000 mg/kg.

Soil Assessment and Analytical Results

On December 18, 2013, Tetra Tech personnel inspected and sampled the spill area. Nine (9) auger holes (AH-1 through AH-9) were installed using a stainless steel hand auger to assess the impacted soils. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The sampling results are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, auger holes (AH-4, AH-5, AH-6, AH-7 AH-8 and AH-9) had samples that were above the RRAL for benzene, which ranged from 10.2 mg/kg to 102 mg/kg. Auger holes (AH-2, AH-4, AH-5, AH-6, AH-7, AH-8 and AH-9) had samples that were above the RRAL for total BTEX. These auger hole samples had BTEX concentrations that ranged from 93.5 mg/kg to 840 mg/kg. Auger holes AH-2, AH-4 and AH-5 were not delineated for both benzene and BTEX.

Auger holes (AH-1, AH-2, AH-4, AH-5, AH-6, AH-7, AH-8 and AH-9) also were above the RRAL for TPH. The maximum TPH concentration was 15,790 mg/kg in AH-6 at a depth of 0-1.0', but declined to 25.4 at a depth of 1-1.5' below surface. Auger hole (AH-1, AH-2, AH-4 and AH-5) were not delineated for TPH.

Auger holes (AH-4, AH-5, AH-7, AH-8 and AH-9) showed chloride concentrations at 0-1' ranging from 2,210 mg/kg to 5,240 mg/kg. A deeper impact was detected in auger hole AH-9 of 3,050 at a depth of 1-1.5', however decreased to 39.3 at a depth of 2-2.5' below surface. Auger holes (AH-4 and AH-5) were not delineated for chlorides.

Site Remediation and Conclusion

From February 11 through 20, 2013, Tetra Tech personnel supervised the excavation of the impacted soils. In order to remove the BTEX, chloride and TPH impacted soils, the area was excavated to a depth of 0.5' to 2.0' below grade. To define the extents, backhoe trenches were installed in some of the impacted area to define extents. The excavated areas are highlighted in Table 1 and shown on Figure 4.

Referring to Table 1, all trenches (T-1, T-2, T-3 and T-4) were below the RRAL for BTEX and TPH. The undefined areas of AH-4 and AH-5 were vertically defined for chlorides from the trench data. Trench T-3 @ AH-4 showed a chloride



concentration of 608 mg/kg at a depth of 1.0' and T-4 @ AH-5 showed a chloride level of 769 at 1.0' below surface and declined with depth.

Based on the trench data, the BLM approved the backfilling of the excavations. The excavation was backfilled with clean material to surface grade. Approximately 1,160 cubic yards of soil were removed and transported to the Lea Land facility for proper disposal.

Based on the remediation activities performed at this location, SM Energy requests closure for this site. The C-141 (Final) is included in Appendix A. If you have any questions or comments concerning the assessment or the remediation activities for this site, please call me at (432) 682-4559.

Respectfully submitted, TETRA TECH

Tom Elliott Project Manager

cc: Vickie Martinez – SM Energy Richard Choate – SM Energy

FIGURES

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Drawn By: Isabel Marmolejo



Drawn By: Isabel Marmolejo





PASTURE





TABLES

Table 1 SM Energy Osage Federal 34 1H Eddy County, New Mexico

Sample	Sample	Sample	Soi	l Status	TF	PH (mg/k	g)	Benzene	Toluene	Ethlybenzene	Xylene	Total	Chloride
ID	Date	Depth (ft)	In-Situ	Removed	GRO	DRO	Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
AH-1	12/18/2013	0-0.5	X		<20.0	1,010	1,010	<0.100	<0.100	<0.100	0.229	0.229	347
T-1	2/11/2014	1	x		<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	-
		ż	x		<10.0	<10.0	<10.0	<0.050	<0.050	< 0.050	<0.150	< 0.300	-
	. п	3	x		<10.0	<10.0	<10.0	< 0.050	< 0.050	< 0.050	<0.150	< 0.300	-
			L	5 · . · · ·	· · · · · · · · ·								
AH-2	12/18/2013	0-0-5	• X * 2,	1. 15 A.	.1,060	1,940	3,000	0.631	21.8		53.2	93.8	854
T-2	2/11/2014	1	X		<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	-
	"	2	X		<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	-
	11	3	X		<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	-
AH-3	12/18/2013	0-0.5	X		20.0	303	323	0.0910	0.104	0.0620	0.245	0.502	55.3
AH-4	12/18/2013	0-1	x .		801	1900	2,701	10.2	66.0	27.7	70.5	174	2,210
T-3	2/11/2014	1	x		<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	608
	"	2	x		<10.0	<10.0	<10.0	< 0.050	< 0.050	< 0.050	<0.150	< 0.300	544
	11	3	x		<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	496
	"	4	X		-	-	-	-	-	-	-	-	560
	"	5	X		-	-	-	-	-	~	-	-	144
	"	6	X		-	-	-	-	-	-	-	-	720
	"	7	X		-	-	-	-	-	-	-	-	784
	"	8	X		-	-	-	-	-	-	-	-	96.0
	"	9	Х		-	-	-	-	-	-	-	-	1,060
	"	10	X		-	-	-	-	-	-	-	_	112
		11	X		-	-	-	-	-	-	-	-	80.0
	"	12	X		-	-	-	-	-		-	-	<16.0

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Table 1 SM Energy Osage Federal 34 1H Eddy County, New Mexico

Sample	Sample	Sample	Soi	l Status	TF	PH (mg/k	(g).	Benzene	Toluene	Ethlybenzene	Xviene	Total	Chloride
ID	Date	Depth (ft)	In-Situ	Removed	GRO	DRO	Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	BTEX (mg/kg)	(mg/kg)
AH-5	12/18/2013	0-1	X	ر است المراجع من المراج مراجع من المراجع من الم مراجع من المراجع من الم	1,800	≈1 ,460	3,260	20.7	126	58.0	154	359	2,240
T-4	2/11/2014	0	X		-	-	-	-	-	-	-	-	240
	"	1	X		<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	768
	"	2	Х		<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	48.0
	"	3	X	i	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	<16.0
	11	4	X		-	-	-	-	-	-	-	-	<16.0
	"	5	X		-	-	-	-	-	-	-	-	<16.0
	"	6	Х		-	-	-	-	-	-	-	-	<16.0
	"	7	X		-	-	-	-	-	-	-	-	<16.0
	"	8	Х		-	-	-	-	-	-	-	-	<16.0
	"	9	Х		-	-	-	-	-	-	-	-	<16.0
	"	10	х		-	-	-	-	-	-	-	-	<16.0
	n	1 <u>1</u>	Х		-	-	-	-	-	-	-	-	<16.0
	"	12	X		-	-	-	-	-	-	-	-	<16.0
AH-6	12/18/2013	0-1	x		6 150	9.640	15 790.	102	366	106	266	840	407
	"	1-1.5	x		25.4	<50.0	25.4	<0.0200	0.0853	0 154	0.601	0.840	<20.0
	"	2-2.5	x			-		-	-	-	-		<20.0
	"	3-35	x		_		-	-	-	-	-	-	<20.0
	"	4-4.5	x		_	-	_	_			-	-	<20.0
	"	5-5.5	X		-	-	-	-	-	-	-	-	25.1

Table 1 SM Energy Osage Federal 34 1H Eddy County, New Mexico

Sample	Sample	Sample	Soi	l Status	TF	PH (mg/k	(g)	Benzene	Toluene	Ethlybenzene	Xylene	Total	Chloride
ID	Date	Depth (ft)	In-Situ	Removed	GRO	DRO	Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
AH-7	12/18/2013	0-1	X		2,860	1,780	4,640	25.8	113	36.2	93.6	269	3,070
	U	1-1.5	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	0.0543	0.0543	<20.0
	U	2-2.5	Х		-	-	-	-	-	-	-	-	<20.0
	"	3-3:.5	X		-	-	-	-	-	-	-	-	<20.0
	"	4-4.5	Х		-	-	-	-	-	-	-	-	<20.0
	11	5-5.5	X		-	-	-	-	-	-	-	-	80.3
	11	6-6.5	Х		-	-	-		-	-	-	-	70.3
	"	7-7.5	X		-	-	-	-	-	-	-	-	55.2
	"	8-8.5	X		-	-	-	-	-	-	-	-	25.1
	"	9-9.5	Х		-	-	-	-	-	-	-	-	<20.0
AH-8	12/18/2013	0=1	X		6,220	2,580	8,800	85.4	296	88.2	223	693	3,200
	"	1-1.5	X		4,260	1,440	5,700	68.8	223	71.8	194	558	<20.0
		2-2.5	X		5.38	<50.0	5.38	<0.0200	<0.0200	<0.0200	0.0418	0.0418	<20.0
	**	3-35	X		-	-	-	-	-	-	-	-	29.6
	"	4-4.5	X		-	-	-	-	-	-	-	-	<20.0
		5-5.5	Х		ŀ	-	-	-	-	-	-	-	69.1
	u	6-6.5	х		-	-		-	-	-	-	-	24.7
AH-9	12/18/2013	0-1	X ,		4 720	1.610	6:330	51.6	238	69 7	182	541	5.240
	"	1-1.5	X	in the second	<4.00	<50.0	<50.0	<0.0200	0:176	0.117	0.419	0.712	3.050
	"	2-2.5	X		-	-	-	-	-	-	-	-	39.3
		3-3.5	x		-	-	-	-	_	-	-	-	<20.0
	"	4-4.5	x		-	-	-	-		-	-	-	<20.0
			·			·							



Excavation Depths

PHOTOGRAPHS



Photo 1. View to the South – Trench in area of AH-1.



Photo 2. View to the West – Area of AH-8 and AH-9.

SM Energy Company Osage Federal 34 1H Eddy County, New Mexico



Photo 3. View to the South – Area of AH-1 and AH-2.



Photo 4. View to the East – Area of AH-4 and 5.







Photo 5.Backfill.



Photo 6. View to the West -Backfill.



APPENDIX A

State of New Mexico Energy Minerals and Natural Resources APR 24 2014

RECEIVED

Form C-141 Revised October 10, 2003

District II 1301 W. Grand Avenue, Artesia, NM 88210 District III 1000 Rio Brazos Road, Aztec, NM 87410 District IV 1220 S. St. Francis Dr., Santa Fe, NM 87505

District I

1625 N. French Dr., Hobbs, NM 88240

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

1301 W. Grand	Avenue, Arte	sia, NM 88210		Oil C	Conser	vation Div	vision NR	AOCI	D ARTE	Shair 2 C	Copies t	o appropriate
District IV	s Koad, Aziet	E- NM 07410		1220	South	St. Franc	is Dr.			Wi	ith Rule	e 116 on back
1220 S. St. Fran	cis Dr., Santa	1 Fe, NM 87505		Sa	inta Fe	e, NM 875	05	يكفو بالكر يتباكه				side of lotin
			Rele	ease Notific	ation	and Co	orrective A	ction	l –			
						OPERA	FOR		🗌 Initia	l Report	\boxtimes	Final Report
Name of Co	ompany	SM Ene	ergy Con	npany	(Contact		Vi	ckie Mart	inez		
Address 33	00 N "A"	ST BLDG 7	7-200 Mi	dland, TX 7970)5 í	Telephone 1	No	<u>(432)</u>	688-1709			
Facility Nar	ne	Usage 34 I	rederal	l H		Facility Typ	be	wen				
Surface Ow	ner: BLM			Mineral C	wner: I	BLM		Le	ease No. (A	API#) 30-0)15-41	508
			I	LOCA	TION	OF RE	LEASE	1				
Unit Letter A	Section 34	Township 19S	Range 29E	Feet from the 450	North/]	South Line North	Feet from the 330	East	West Line East	County	Eddy	7
]	Latitude N 32.6	62298°	Longitud	e W 104.0550	7°				
				NAT	URE	OF REL	EASE					. <u></u>
Type of Rele	ase: Foamy	mixture of pr	oduced, w	ater, gas, oil and s	sand.	Volume of	Release 440 bbl	s	Volume R	ecovered 2	70 bbl	\$
Source of Re	Source of Release: Wellhead (BOP)						lour of Occurrenc	e	Date and I Same	Hour of Dis	covery	
Was Immedia	ate Notice C	iven?	Yes [] No 🗌 Not Re	quired	If YES, To	Whom? Jim Amos with	BLM /	Mike Brate	her with NI	MOCD	
By Whom? N	Aark Bondy	- Richard Ch	oate		-	Date and H	lour 12/13/2013	10:30 I	P.M.			
Was a Watercourse Reached?							olume Impacting t	he Wate	ercourse.			
			Yes 🖄] No		N/A						
If a Watercou	irse was Im	pacted, Descri	ibe Fully.'	*								
Describe Cau	ise of Proble	em and Remed	dial Action	n Taken.*				·······				
Wellbore flui Annular Blov established a during the wo Describe Are	ids were relevout Preven policy that ork. Annula a Affected a	eased to the at ter being used requires a pun r BOPs will no and Cleanup A	mosphere I to seal th np truck to ot be relie Action Tak	, the well pad and the wellbore to the to be connected to d upon as a prima ken.*	small ex surface. all horiz ry wellb	xtent of the a The failed B ontal wells u ore seal.	djacent pasture. T OP element is be nder initial compl	The cause ing exan letion to	e of the inci nined by th ensure the	dent was the e manufactu wellbore sta	e failur irer. W iys full	e of the /e have of water
Tetra Tech pe disposal. The review.	ersonnel ins site was the	pected the site en brought up	e and colle to surface	ected samples to d e grade with clean	efine spi backfill	ills extent. Sc material. Tet	oil that exceeded F tra Tech prepared	RRAL w a closu	vas removec re report an	l and hauled d submitted	away to NM	for proper OCD for
I hereby certi regulations al public health should their o or the enviror federal, state,	fy that the is loperators: or the envir operations have ment. In a or local law	nformation gi are required to onment. The ave failed to a ddition, NMO vs and/or regu	ven above preport ar acceptance dequately CD accep lations.	is true and comp nd/or file certain ro- ce of a C-141 repo investigate and ro- tance of a C-141 r	lete to the elease no ort by the emediate report do	e best of my otifications are NMOCD me contaminations not reliev	knowledge and und perform correc arked as "Final R on that pose a thr e the operator of i	nderstar tive active eport d eat to gr responsi	nd that purs ions:for:rele oes not reli ound water bility for co	uant to NM(asses which eve the oper , surface wa ompliance w	OCD ru may en ator of ter, hun vith any	lles and danger liability nan health other
							OIL CON	SERV	ATION	DIVISIC	<u>N</u>	
6	- 11		~									
Signature: -	-10					Approved by	District Supervise	or:				
Printed Name	e: Tom Ellic	tt as agent for	SM Ener	ву			1					
Title: Project	Manager				/	Approval Dat	e:		Expiration I	Date:		
E-mail Addre	ss: Tom.Ell	iott@TetraTe	ch.com		(Conditions of Approval:						
Date:	3-14	-2014	Pho	ne: (432) 682-455	9							
Attack Addit	ional Shar	to If Magaza										

* Attach Additional Sheets It Necessary

State of New Mexico Energy Minerals and Natural Resources

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

1220 S. St. Fran	cis Dr., Sant	a Fe, NM 8750	5	Sa	anta F	e, NM 875	05	·····			فالمراقع فردو
			Rel	ease Notific	catio	n and Co	orrective A	ction			
						OPERA	FOR	X Initi	al Report	Final F	Leport
Name of Co	ompany SN	4 ENERGY	COMPA	NY		Contact VIC	CKIE MARTIN	EZ			
Address 33	00 N "A"	STREET, B	LDG 7-2	00]	Telephone N	No. (432)688-1	709			·
Facility Nai	ne OSAGI	E 34 FEDER	AL IH			Facility Typ	e WELL	·			~
Surface Ow	ner BLM			Mineral C	Dwner J	wner BLM			o. 30-015-41	508	
				LOCA	атю	N OF RELEASE					
Unit Letter	Section	Township	Range	Feet from the	North	/South Line	Feet from the	East/West Line	County		
A	34	198	29E	450	NOR	ТН	330	EAST	EDDY		
L	1	L	L		ŀ			I	<u> </u>	· <u>····································</u>	
			La	titude		Longitud	le				
				NAT	URE	OF REL	EASE				
Type of Rele	ase FOAM	IY MIXTUR	EOFW	ATER,GAS,OII	L&SAN	DVolume of	Release 440 PR	ELIM Volume	Recovered 27	70	
Vas Immedia	lease WEL	LHEAD (BO	<u>JP)</u>			Date and H	Whom?	be Date and	Hour of Disc	covery SAME	
nus minedi		X	Yes 🗌] No 📋 Not Ro	equired	JIM AMC	S W/BLM - M	IKE BRATCHE	R W/NMOO	CD	
By Whom? N	ARK BC	NDY - RIC	HARD C	НОАТЕ	•••	Date and H	lour 12/13/13 10	0:30 PM			
Was a Water	course Read	hed?	V . 17			If YES, Vo	lume Impacting t	the Watercourse.			
If a Watercou	rse was Im	pacted, Descr	ibe Fully.*	k		•					
Describe Cau Wellbore flu failure of the	se of Proble iids were i Annular We hav	em and Reme eleased to the Blowout Pre	dial Action ne atmosp eventer be	n Taken.* here, the well p ing used to seal	ad and the we	to a small ex ilbore at the	tent, the adjace surface. The fa	ent pasture. The ailed BOP eleme	cause of the nt is being e	incident was examined by the	the he
completion	to ensure t	he wellbore	stays full	of water during	the wo	ork. In addit	ion, Annular Bl	owout Preventer	s will not be	relied upon a	is a
Describe Area	Affected a	ind Cleanup A	Action Tak	en.* primary we	elibore	seal.		·	·		
Most of the dispatched t for personne discharged f	fluids wer o the site l to appro luids ran c	e contained At approximach the well, over to a low	on the we nately mi attach a spot on t	II pad. Cleanup dnight, 6 hours sealing assembl he West side of	after the ve	safety speci e event start tubing and II pad where	alists and well of ed, the flow from lower it into the they were colle	control specialist m the well subsic wellhead, sealin ected by vacuum	s were immi- led to the po ig off the flo trucks.	ediately bint it was safe bw. Most of the	he
I hereby certi- regulations al public health- should their o or the environ federal, state,	fy that the in l operators or the envir perations ha ment. In a or local law	nformation gi are required to onment. The ave failed to a ddition, NMO vs and/or regu	ven above o report an acceptanc dequately CD accep lations.	is true and comp d/or file certain re e of a.C-141 repo investigate and re tance of a C-141	lete to t elease n ort by th emediat report d	he best of my otifications ar e.NMOCD.ma e contaminatio oes not relieve	knowledge and u ad perform correc arked as "Final Re on that pose a thre e the operator of r	nderstand that pur- tive actions for rel eport" does not rel eat to ground wate responsibility for c	suant to NMC eases which r ieve the opera r, surface wat ompliance wi	OCD rules and nay endanger ator of liability er, human heal ith any other	th
· · · · · · · · · · · · · · · · · · ·	China.	1 Å	^			. —	OIL CONS	SERVATION	DIVISIO	N	
Signature: V	IUU	L.U.	Vitt	NN							
Printed Name	VICKIE	MARTINEZ		0		Approved by	Environmental Sp	pecialist:			
Tide, DIO								Duration t	Data		••••••••••••••••••••••••••••••••••••••
THE: ENG	INEEK TE			, 		Approval Date		Expiration			
E-mail Addres	ss: VMAR	TINEZ@SM	I-ENERC	GY.COM		Conditions of	Approval:		Attached		
Date: 12/20/2 Attach Addit	2013 Ional Shee	ts If Necessi	Phone:	(432)688-1709			<u>.</u>				
1 100000 / 10000			J								

OSAGE 34 FEDERAL 1H

C-141 ATTACHMENT

Describe Area Affected and Cleanup Action Taken.* continued:

The cleanup continued throughout the night and into Saturday morning. Jim Amos with the BLM visited the site on Saturday morning to assess the situation and provide some guidance on cleanup strategies. Approximately 17,700 square feet on the pad and another 4,300 off the pad to the west were impacted by the release. Tetra Tech (Environmental testing and consulting company) personnel visited the site Wednesday, December 18, to delineate the extent of the impact. Soil samples were taken to determine hydrocarbon and chloride levels. We are awaiting their recommendations and proposed timing for the final cleanup and remediation of the impacted pasture land. When analysis results are received for the soil samples, they will be evaluated and either a work plan or request for closure will be prepared and submitted for approval. It will likely be mid-January before the work plan or closure request will be ready.

APPENDIX B

Water Well Data Average Depth to Groundwater (ft) SM ENERGY COMPANY - OSAGE 34 1H Eddy County, New Mexico

	18 :	South	:	28 East	:	
6	5	4 108	3	2	1	
7	8 69	9	10	11	12	
18	17	16	15	14	13	
19	20	21 226	22	23	24	
49	29	28	27	26	25	
31	32	33	34	35 65	36	

	19	South		28 East	t
6	5	4	3	2	1
7	8	9 246 265	10	11	12
18 91	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

	20 S	outh	28	East	
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24 .
30	29	28 30	27 35	26	25
31 115	32	33 25 29	34	35	36 19

	18 Sc	outh	29	East	
6	5	4	3	2	1
7	8	9	10 95	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

	19 Sc	outh	29	East	
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13 123 101
19	20 62.9	21	22	23	24
30	29	28	27	26	25
31	32	33	34 site 62' 60'	35 121 110	36 1 15

	20	South	1	29 East	
6	5	4	3	2	1
			91		
7	8	9	10	11	12
18	17	16	15	14	13
19	20 62	21	22	23	24
30 52	29	28	27	26	25
31	32	33	34	35	36

	18	South		30 East	
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

	19	South	:	30 East	:
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30 90	29	28	27	26	25
31 115	32	33	34	35	36

	20 So	outh	East		
6	5 3.5	4	3	2	1
			6		
7	8	9	10	11	12
18	17	16 29	15	14	13
19	20 29	21 150	22	23	24
30	29	28	27	26	25
31	32 170	33 191	34	35	36

New Mexico State Engineers Well Reports

USGS Well Reports

Geology and Groundwater Conditions in Southern Eddy, County, NM

NMOCD - Groundwater Data

Field water level

New Mexico Water and Infrastructure Data System

Tetra Tech Temporary well (TD 180' - Dry Well)

APPENDIX C

.



6701 Aberdeen Avenue: Suite 9 200 East Sunset Road, Suite E 5002 Basin Street, Suite A1 (BioAquatic) 2501 Mayes Rd., Suite 100

Lubbock, El Paso, Texas 79424 Midland. Carroliton,

800-378-1296: Texas 79922 Texas 79703 Texas 75006 E-Mail! lab@traceanalysis.com WEB! www.traceanalysis.com

915-585-3443 FAX 915:585 4944 432-689-6301 FAX 432-689-6313 972-242-7750

806-794-1296

FAX 806 794 1298

Certifications

NELAP DoD LELAP WBE HUB NCTRCA DBE Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

(Corrected Report)

Tom Elliott Tetra Tech 1910 N. Big Spring Street Midland, TX, 79705

Report Date: January 13, 2014

Work Order: 13121935



Project Location: Eddy Co, NM Project Name: SME/Osage Fed 34 1H **Project Number:** TBD

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

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
349548	AH-1 0-0.5'	soil	2013-12-18	00:00	2013-12-19
349549	AH-2 0-0.5'	soil	2013-12-18	00:00	2013 - 12 - 19
349550	AH-3 0-0.5'	soil	2013-12-18	00:00	2013-12-19
349551	AH-4 0-1'	soil	2013-12-18	00:00	2013-12-19
349552	AH-5 0-1'	soil	2013-12-18	00:00	2013-12-19
349553	AH-6 0-1'	soil	2013-12-18	00:00	2013-12-19
349554	AH-6 1-1.5'	soil	2013-12-18	00:00	2013-12-19
349555	AH-6 2-2.5'	soil	2013-12-18	00:00	2013-12-19
349556	AH-6 3-3.5'	soil	2013-12-18	00:00	2013-12-19
349557	AH-6 4-4.5'	soil	2013-12-18	00:00	2013-12-19
349558	AH-6 5-5.5'	soil	2013-12-18	00:00	2013-12-19
349559	AH-7 0-1'	soil	2013-12-18	00:00	2013-12-19
349560	AH-7 1-1.5'	soil	2013-12-18	00:00	2013-12-19
349561	AH-7 2-2.5'	soil	2013-12-18	00:00	2013-12-19
349562	AH-7 3-3.5'	soil	2013-12-18	00:00	2013-12-19
349563	AH-7 4-4.5'	soil	2013-12-18	00:00	2013-12-19

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
349564	AH-7 5-5.5'	soil	2013-12-18	00:00	2013-12-19
349565	AH-7 6-6.5'	soil	2013-12-18	00:00	2013-12-19
349566	AH-7 7-7.5'	soil	2013-12-18	00:00	2013-12-19
349567	AH-7 8-8.5'	soil	2013-12-18	00:00	2013-12-19
349568	AH-7 9-9.5'	soil	2013-12-18	00:00	2013-12-19
349569	AH-8 0-1'	soil	2013-12-18	00:00	2013-12-19
349570	AH-8 1-1.5'	soil	2013-12-18	00:00	2013 - 12 - 19
349571	AH-8 2-2.5'	soil	2013-12-18	00:00	2013-12-19
349572	AH-8 3-3.5'	soil	2013-12-18	00:00	2013-12-19
349573	AH-8 4-4.5'	soil	2013-12-18	00:00	2013 - 12 - 19
349574	AH-8 5-5.5'	soil	2013-12-18	00:00	2013-12-19
349575	AH-8 6-6.5'	soil	2013-12-18	00:00	2013-12-19
349576	AH-9 0-1'	soil	2013-12-18	00:00	2013-12-19
349577	AH-9 1-1.5'	soil	2013-12-18	00:00	2013-12-19
349578	AH-9 2-2.5'	soil	2013-12-18	00:00	2013-12-19
349579	AH-9 3-3.5'	soil	2013-12-18	00:00	2013-12-19
349580	AH-9 4-4.5'	soil	2013-12-18	00:00	2013-12-19

Report Corrections (Work Order 13121935)

• 1/13/14: Added BTEX to samples 349570 and 349571 per client.

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 59 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael abel

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

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Sample 349560 (AH-7 1-1.5')	19
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Sample 349562 (AH-7 3-3.5')	21
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Sample 349567 (AH-7 8-8.5')	23
Sample 349568 (AH-7 9-9.5')	23
Sample 349569 (AH-8 0-1')	23
Sample 349570 (AH-8 1-1.5')	25
Sample 349571 (AH-8 2-2.5')	26
Sample 349572 (AH-8 3-3.5)	28
Sample 349573 (AH-8 4-4.5')	28
Sample 349574 (AH-8 5-5.5)	28
Sample 349575 (AH-8 6-6.5')	28
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QC Batch 107855	- CCV (3)										 		 			53
QC Batch 107859	- CCV (1)										 		 			53
QC Batch 107859	- CCV (2)										 		 			53
QC Batch 107889	- CCV (1)			• •							 		 			53
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Case Narrative

Samples for project SME/Osage Fed 34 1H were received by TraceAnalysis, Inc. on 2013-12-19 and assigned to work order 13121935. Samples for work order 13121935 were received intact at a temperature of 1.4 C.

		Prep	Prep	$\rm QC$	Analysis
Test	Method	Batch	Date	Batch	Date
BTEX	S 8021B	91224	2013-12-20 at 12:31	107810	2013-12-23 at 09:48
BTEX	S 8021B	91258	2013-12-23 at 12:50	107855	2013-12-24 at 13:15
BTEX	S 8021B	91310	2013-12-30 at 14:58	107900	2013-12-30 at 20:21
Chloride (Titration)	SM 4500-Cl B	91411	2014-01-03 at 11:04	108061	2014-01-06 at 16:26
Chloride (Titration)	SM 4500-Cl B	91411	2014-01-03 at $11:04$	108134	2014-01-09 at $09:25$
Chloride (Titration)	SM 4500-Cl B $$	91411	2014-01-03 at $11:04$	108136	2014-01-09 at 09:54
Chloride (Titration)	SM 4500-Cl B $$	91411	2014-01-03 at 11:04	108137	2014-01-09 at 10:31
TPH DRO - NEW	S 8015 D	91251	2013-12-23 at 08:35	107808	2013-12-23 at 08:40
TPH DRO - NEW	S 8015 D	91289	2013-12-27 at $12:00$	107859	2013-12-27 at 08:49
TPH DRO - NEW	S 8015 D	91365	2014-01-02 at $10:30$	107962	2014-01-02 at 14:09
TPH GRO	S 8015 D	91224	2013-12-20 at $12:31$	107811	2013-12-23 at 09:51
TPH GRO	S 8015 D	91286	2013-12-24 at 09:00	107889	2013-12-30 at 15:54

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

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

1

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 13121935 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.

Analytical Report

Sample: 349548 - AH-1 0-0.5'

Chloride						347		mg/Kg		- 5		4:00
Parameter		Flag		Cert	R	esult		Units		Dilution		RL
						\mathbf{RL}						
Prep Batch:	91411			Samp	le Prepara	tion:	2014	-01-03		Prepared E	sy:	AK.
QU Batch:	108061			Date 1	Analyzed:	<i>.</i> .	2014	-01-06		Analyzed E	sy:	AK
Analysis:	Unioride (Titration	1)		Analy	tical Meth	ioa:	SM 4	4500-CI B		Prep Meth	oa:	N/A
Laboratory:	Midland	`		A 1		1	CM (,	NT / A
Sample: 349	548 - AH-1 0-0.5	;,										
4-Bromofluoro	benzene (4-BFB)	•	•		1.76	mg/	′Kg	5	2.00	88	70 -	130
Trifluorotolue	ne (TFT)	1 Qsr	Qsr		1.31	mg/	/Kg	5	2.00	66	70 -	130
Surrogate			Flag	Cert	Result	Un	its	Dilution	Spike Amount	Percent Recovery	Rec Lii	overy nits
Aylene				1	0	.229		mg/Kg		0	0	.0200
Etnylbenzene		U		1	<	0.100		mg/Kg		Э 5	0	.0200
Toluene				1	<	0.100		mg/Kg		5	0	.0200
Benzene				1	<	0.100		mg/Kg		5	0	.0200
Parameter		Flag		Cert	R	esult		Units	j	Dilution		RL
-				~	_	RL		.				
Prep Batch:	91224		Sar	uple Pre	eparation:	2013	8-12-2	0		Prepared By:	A	K
QC Batch:	107810		Dat	te Analy	vzed:	2013	3-12-2	3		Analyzed By	: A	Κ
Analysis:	BTEX		\mathbf{An}	alytical	Method:	S 80	21B			Prep Method	l: S	5035
Laboratory:	Midland											

Sample: 349548 - AH-1 0-0.5'

Laboratory: Analysis: QC Batch: Prep Batch:	ory: Midland s: TPH DRO - NEW ch: 107808 atch: 91251		Analyt Date A Sample	ical Method: nalyzed: Preparation:	S 8015 D 2013-12-23	Prep Method: Analyzed By: Prepared By:	N/A KC KC
Parameter		Flag	Cert	RL Besult	Unite	Dilution	RI.
DRO		r nag	1	1010	mg/Kg	5	50.0

Report Date TBD	Report Date: January 13, 2014 TBD					Work Orde SME/Osag	Page Number: 8 of 59 Eddy Co, NM				
Surrogate		Flag	Cert	t F	Result	Units	Dilu	tion	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qar	Qar			152	mg/Kg	5		100	152	70 - 130
Sample: 34	9548 - Al	H-1 0-0.	5'								
Laboratory:	Midland										
Analysis:	TPH GR	0		A	nalytica	al Method:	S 8015	D		Prep Metho	d: S 5035
QC Batch:	107811			Γ)ate Ana	alyzed:	2013-12	2-23		Analyzed By	7: AK
Prep Batch:	91224			S	ample P	reparation	2013-12	2-20		Prepared By	r: AK
							\mathbf{RL}				
Parameter			Flag		Cert	Re	esult	U	nits	Dilution	RL
GRO		<u>.</u>			1	<	20.0	mg	/Kg	5	4.00
									Spike	Percent	Recovery
Surrogate				Flag	Cert	Result	Units	Dilutio	n Amount	Recovery	Limits
Trifluorotolue	ene (TFT)					2.05	mg/Kg	5	2.00	102	70 - 130
4-Bromofluor	obenzene	(4-BFB)	Qsr	Qsr		4.61	mg/Kg	5	2.00	230	70 - 130

Sample: 349549 - AH-2 0-0.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland BTEX 107810 91224		Ana Dat San	ilytical l e Analy iple Pre	Method: zed: paration:	S 8021B 2013-12-2 2013-12-2	23 20		Prep Methoc Analyzed By Prepared By	l: S 5035 : AK : AK
						\mathbf{RL}				
Parameter		Flag		Cert	\mathbf{R}	esult	Units]	Dilution	RL
Benzene				I	0	.631	mg/Kg		10	0.0200
Toluene				1		21.8	mg/Kg		10	0.0200
Ethylbenzene				1		18.2	mg/Kg		10	0.0200
Xylene				1		53.2	mg/Kg		10	0.0200
~			-		D	TT 1		Spike	Percent	Recovery
Surrogate			Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotolue	ene (TFT)	$2_{\rm Qsr}$	Qar		1.26	m mg/Kg	10	2.00	63	70 - 130
4-Bromofluor	obenzene (4-BFB)	Qsr	Qsr		10.1	m mg/Kg	10	2.00	505	70 - 130

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TBD	SME/Osage Fed 34 1H	Eddy Co, NM

Sample: 349549 - AH-2 0-0.5'

Parameter	Flag	Cert	Result	Units	Dilution	\mathbf{RL}
Prep Batch:	91411	Sample F	reparation:	2014-01-03	Prepared By:	AR
QC Batch:	108061	Date Ana	alyzed:	2014-01-06	Analyzed By:	AR
Analysis:	Chloride (Titration)	Analytica	l Method:	SM 4500-Cl B	Prep Method:	N/A
Laboratory:	Midland					

Sample: 349549 - AH-2 0-0.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DI 107808 91251	RO - NEV	W	Ana Date Sam	lytical Metho e Analyzed: ple Preparat	od: S 8015 2013-1: ion:	D 2-23	Prep Me Analyzec Preparec	thod: N/A l By: KC l By: KC
]	RL			
Parameter			Flag	Cert	Res	ult	Units	Dilution	RL
DRO				1	19	40	mg/Kg	1	50.0
							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qsr	Qsr		167	mg/Kg	1	100	167	70 - 130

Sample: 349549 - AH-2 0-0.5'

Laboratory:MidlandAnalysis:TPH GROQC Batch:107811Prep Batch:91224		A I S	Analytica Date Ana Jample F	ul Method alyzed: 'reparation	: S 8015 2013-1 n: 2013-1	D 2-23 2-20		Prep Metho Analyzed By Prepared By	l: S 5035 7: AK 7: AK
					\mathbf{RL}				
Parameter	Flag		Cert	ŀ	Result	Unit	s	Dilution	RL
GRO			1		1060	mg/K	g	10	4.00
							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				1.86	mg/Kg	10	2.00	93	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		31.3	mg/Kg	10	2.00	1565	70 - 130

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TBD	SME/Osage Fed 34 1H	Eddy Co, NM

Sample: 349550 - AH-3 0-0.5'

Laboratory:	Midland BTEX		A 19.0	Jutical M	Mothodi	S 8021B			Pren Method	· S 5025
Analysis.	107810		Dot	o Analw	and	2012 12 2	92		Applygod By	· AK
QU Daten:	107010		Dat	C Anary:	200.	2013-12-2	20 NO		Dura and Da	
Prep Batch:	91224		San	iple Pre	paration:	2013-12-2	20		Prepared by:	AK
						RL				
Parameter		Flag		Cert	R	esult	Units		Dilution	RL
Benzene				1	0.0	0910	mg/Kg		2	0.0200
Toluene				1	0	.104	mg/Kg		2	0.0200
Ethylbenzene				1	0.0	0620	mg/Kg		2	0.0200
Xylene				1	0	.245	mg/Kg		2	0.0200
								Spike	Percent	Recovery
Surrogate			Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotolue	me (TFT)	3 Qar	Qar.		1.21	mg/Kg	2	2.00	60	70 - 130
4-Bromofluor	obenzene (4-BFB)				1.65	mg/Kg	2	2.00	82	70 - 130

Sample: 349550 - AH-3 0-0.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 108061 91411	Analytic Date An Sample I	al Method: alyzed: Preparation:	SM 4500-Cl B 2014-01-06 2014-01-03	Prep Method: Analyzed By: Prepared By:	N/A AR AR
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride			55.3	mg/Kg	5	4.00

Sample: 349550 - AH-3 0-0.5'

Laboratory:	Midland							
Analysis:	is: TPH DRO - NEW			Analytical Method: S 8015 D			Prep Method:	
QC Batch:	107808		Dat	e Analyzed:	2013-1	2-23	Analyzed	By: KC
Prep Batch:	91251	Sam	ple Prepara	Prepared	By: KC			
					RL			
Parameter		Flag	Cert	Re	sult	Units	Dilution	\mathbf{RL}
DRO		<u> </u>			303	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	70 - 130

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TBD	SME/Osage Fed 34 1H	Eddy Co, NM

Sample: 349550 - AH-3 0-0.5'

Laboratory: Analysis: QC Batch:	Midland TPH GRO 107811			Analytic Date An	al Methoc alvzed:	l: S 8013 2013-1	5 D .2-23		Prep Method Analyzed By	: S 5035 : AK
Prep Batch:	91224		Sample Preparation: 2013-12-20						Prepared By:	AK
						\mathbf{RL}				
Parameter		Flag		Cert		Result	Unit	S	Dilution	\mathbf{RL}
GRO				1		20.0	mg/K	g	2	4.00
Surrogate			Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotolue	ene (TFT)		1108		1.72	mg/Kg	$\frac{2}{2}$	2.00	86	70 - 130
4-Bromofluor	obenzene (4-BFB)				2.50	mg/Kg	2	2.00	125	70 - 130

Sample: 349551 - AH-4 0-1'

Laboratory: Midland Analysis: BTEX QC Batch: 107810 Prep Batch: 91224		Analytical Date Anal Sample Pr	Method lyzed: reparation	: S 80211 2013-12 n: 2013-12	3 -23 -20		Prep Method Analyzed By: Prepared By:	: S 5035 AK AK
				\mathbf{RL}				
Parameter	Flag	Cert		Result	Units		Dilution	RL
Benzene		1		10.2	nıg/Kg		5	0.0200
Toluene	Je	ı		66.0	mg/Kg		5	0.0200
Ethylbenzene		1		27.7	mg/Kg		5	0.0200
Xylene	Je	1		70.5	mg/Kg	_	5	0.0200
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.24	mg/Kg	5	2.00	62	70 - 130
4-Bromofluorobenzene (4-BFB)			14.7	mg/Kg	5	2.00	735	70 - 130

Sample: 349551 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108061	Date Analyzed:	2014-01-06	Analyzed By:	\mathbf{AR}
Prep Batch:	91411	Sample Preparation:	2014-01-03	Prepared By:	AR

continued ...
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TBD	SME/Osage Fed 34 1H	Eddy Co, NM

sample 349551 continued ...

Parameter	Flag	Cert	Result	Units	Dilution	RL
			BL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride	<u>_</u>		2210	mg/Kg	5	4.00

Sample: 349551 - AH-4 0-1'

Laboratory: Midland Analysis: TPH DRO - NE QC Batch: 107808 Prep Batch: 91251			W	Ana Date Sam	lytical Metho 2 Analyzed: ple Preparat	od: S 8015 2013-12 ion:	D 2-23	Prep Me Analyzec Prepared	thod: N/A l By: KC l By: KC
]	RL			
Parameter			Flag	Cert	Res	ult	Units	Dilution	RL
DRO			. .	1	19	00	mg/Kg	5	50.0
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		222	mg/Kg	5	100	222	70 - 130

Sample: 349551 - AH-4 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH GRO 107889 91286		A L S	.nalytica)ate Ana ample P	al Method: alyzed: Preparation	S 8015 2013-12 1: 2013-12	D 2-30 2-24		Prep Methoo Analyzed By Prepared By	l: S 5035 : AK : AK
						RL				
Parameter		Flag		Cert	R	lesult	⁻ Unit	s	Dilution	\mathbf{RL}
GRO				1		801	mg/K	5	100	4.00
Surrogate			Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotolue	ene (TFT)				2.05	mg/Kg	100	2.00	102	70 - 130
4-Bromofluor	obenzene (4-BFB)	Qsr	Qsr		16.5	mg/Kg	100	2.00	825	70 - 130

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TBD	SME/Osage Fed 34 1H	Eddy Co, NM

Sample: 349552 - AH-5 0-1'

Laboratory:	Midland								
Analysis:	BTEX		Analytica	l Method:	S 8021H	3		Prep Method	: S 5035
QC Batch:	107810		Date Ana	lyzed:	2013-12	2-23		Analyzed By:	AK
Prep Batch:	91224		Sample P	reparation:	2013-12	2-20		Prepared By:	AK
					RL				
Parameter		Flag	Cert	F	Result	Units		Dilution	RL
Benzene			1		20.7	mg/Kg		10	0.0200
Toluene		Je	1		126	mg/Kg		10	0.0200
Ethylbenzene			1		58.0	mg/Kg		10	0.0200
Xylene		Je	1		154	mg/Kg		10	0.0200
							Spike	Percent	Recovery
Surrogate		Flag	g Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotolue	ne (TFT)			1.24	mg/Kg	10	2.00	62	70 - 130
4-Bromofluor	obenzene (4-BFB)			29.6	mg/Kg	10	2.00	1480	70 - 130

Sample: 349552 - AH-5 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 108061 91411	Analytic Date An Sample 1	al Method: alyzed: Preparation:	SM 4500-Cl B 2014-01-06 2014-01-03	Prep Method: Analyzed By: Prepared By:	N/A AR AR
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride			2240	mg/Kg	10	4.00

Sample: 349552 - AH-5 0-1'

Laboratory:	Midland TPH DF	RO - NEV	V	Ana	lytical Meth	od: S 8015]	D	Pren Me	thod: N/A
QC Batch: Prep Batch:	sis: 1774 DRO - NEW atch: 107808 Batch: 91251			Date Sam	Date Analyzed: 2013-12 Sample Preparation:			2013-12-23 Analyzed Prepared	
						RL			
Parameter			Flag	Cert	Res	ult	Units	Dilution	RL
DRO		-		1	14	60	mg/Kg	5	50.0
							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qsr	Qsr		196	mg/Kg	5	100	196	70 - 130

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TBD	SME/Osage Fed 34 1H	Eddy Co, NM

Sample: 349552 - AH-5 0-1'

Laboratory:MidlandAnalysis:TPH GROQC Batch:107889Prep Batch:91286		A L S	Analytica Date Ana ample F	al Method: alyzed: Preparation	S 8015 2013-12 n: 2013-12	D 2-30 2-24		Prep Method Analyzed By Prepared By	:: S 5035 : AK : AK
					RL				
Parameter	Flag		Cert	F	lesult	Unit	s	Dilution	RL
GRO			1		1800	mg/K	g	100	4.00
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qar		3.05	mg/Kg	100	2.00	152	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		36.8	mg/Kg	100	2.00	1840	70 - 130

Sample: 349553 - AH-6 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland BTEX 107810 91224		Analytica Date Ana Sample Pr	l Method: lyzed: reparation	S 8021F 2013-12 2013-12	3 23 20		Prep Method Analyzed By: Prepared By:	: S 5035 AK AK
					\mathbf{RL}				
Parameter		Flag	Cert	Ι	Result	Units		Dilution	RL
Benzene			1		102	mg/Kg		50	0.0200
Toluene			1		366	mg/Kg		50	0.0200
Ethylbenzene			1		106	mg/Kg		50	0.0200
Xylene			1		266	mg/Kg		50	0.0200
S (ורד			TT •,		Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotolue	ene (TFT)			1.08	mg/Kg	50	2.00	54	70 - 130
4-Bromofluor	obenzene (4-BFB)			43.3	$\mathrm{mg/Kg}$	50	2.00	2165	70 - 130

Sample: 349553 - AH-6 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B $$	Prep Method:	N/A
QC Batch:	108061	Date Analyzed:	2014-01-06	Analyzed By:	AR
Prep Batch:	91411	Sample Preparation:	2014-01-03	Prepared By:	\mathbf{AR}

continued ...

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TBD	SME/Osage Fed 34 1H	Eddy Co, NM

sample 349553 continued ...

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	\mathbf{RL}
			\mathbf{RL}			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride			407	m mg/Kg	5	4.00

Sample: 349553 - AH-6 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NEW 107808 91251			Ana Date Sam	Analytical Method:S 801Date Analyzed:2013Sample Preparation:			Prep Met Analyzed Prepared	hod: N/A By: KC By: KC
					I	RL			
Parameter			Flag	Cert	Res	ult	Units	Dilution	\mathbf{RL}
DRO				1	96	40	mg/Kg	5	50.0
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qar	Qsr		614	mg/Kg	5	100	614	70 - 130

Sample: 349553 - AH-6 0-1'

Laboratory: Midland Analysis: TPH GRO QC Batch: 107889 Prep Batch: 91286			Analytical Method:S 8015 DDate Analyzed:2013-12-30Sample Preparation:2013-12-24							d: S 5035 7: AK 7: AK
						RL				
Parameter	Flag			Cert	Result		Unit	s	Dilution	$^{\mathrm{RL}}$
GRO				1		6150	mg/K	g	100	4.00
Surrogate			Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotolue	ene (TFT)				1.56	mg/Kg	100	2.00	78	70 - 130
4-Bromofluor	obenzene (4-BFB)	Qar	Qsr		45.9	mg/Kg	100	2.00	2295	70 - 130

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TBD	SME/Osage Fed 34 1H $$	Eddy Co, NM

Sample: 349554 - AH-6 1-1.5'

Laboratory:	Midland								
Analysis:	BTEX		Analytica	l Method:	S 8021I	3		Prep Method	S 5035
QC Batch:	107855		Date Ana	lyzed:	2013-12	-24		Analyzed By:	AK
Prep Batch:	91258		Sample P	reparation	: 2013-12	-23		Prepared By:	AK
					RL				
Parameter		Flag	Cert		Result	Units	3	Dilution	RL
Benzene		U	1	<	0.0200	mg/Kg	g	1	0.0200
Toluene			1	0	0.0853	$\mathrm{mg/K}_{\$}$	S	1	0.0200
Ethylbenzene			1		0.154	mg/Kg	S	1	0.0200
Xylene	<u> </u>		1		0.601	mg/Kg	<u> </u>	1	0.0200
							Spike	Percent	Recovery
Surrogate		Flag	g Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotolue	me (TFT)			1.97	mg/Kg	1	2.00	98	70 - 130
4-Bromofluor	obenzene (4-BFB)			2.12	mg/Kg	1	2.00	106	70 - 130

Sample: 349554 - AH-6 1-1.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 108061 91411	Analytic Date An Sample I	al Method: alyzed: Preparation:	SM 4500-Cl B 2014-01-06 2014-01-03	Prep Method: Analyzed By: Prepared By:	N/A AR AR
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride	U		<20.0	mg/Kg	5	4.00

Sample: 349554 - AH-6 1-1.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NI 107962 91365	EW	Ana Date Sam	lytical Methe e Analyzed: ple Preparat	od: S 8015 2014-0 ion: 2014-0	5 D 01-02 01-02	Prep Me Analyzed Prepared	thod: N/A l By: KC l By: KC
					RL			
Parameter		Flag	Cert	Res	ult	Units	Dilution	RL
DRO		Jb	1	<5	0.0	mg/Kg	1	50.0
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			118	mg/Kg	1	100	118	70 - 130

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TBD	SME/Osage Fed 34 1H	Eddy Co, NM

Sample: 349554 - AH-6 1-1.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH GRO 107889 91286			Analytic Date An Sample 1	al Method: alyzed: Preparation	S 801 2013-1 : 2013-1	5 D 12-30 12-24		Prep Method Analyzed By Prepared By	: S 5035 : AK AK
1				1	1	RL			1 7	
Parameter		Flag		Cert	R	esult	Uni	ts	Dilution	RL
GRO				1		25.4	mg/ŀ	ζg	1	4.00
Surrogate			Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotolue	ene (TFT)		<u> </u>		1.82	mg/Kg	1	2.00	91	70 - 130
4-Bromofluoro	obenzene (4-BFB)				2.00	mg/Kg	1	2.00	100	70 - 130

Sample: 349555 - AH-6 2-2.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 108061 91411	Analy Date Sampl	tical Method: Analyzed: e Preparation:	SM 4500-Cl B 2014-01-06 2014-01-03	Prep Method: Analyzed By: Prepared By:	N/A AR AR
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<20.0	mg/Kg	5	4.00

Sample: 349556 - AH-6 3-3.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titra 108061 91411	tion)	Analytic Date An Sample I	al Method: alyzed: Preparation:	SM 4500-Cl B 2014-01-06 2014-01-03	Prep Method: Analyzed By: Prepared By:	N/A AR AR
				RL			
Parameter		Flag	Cert	Result	Units	Dilution	RL
Chloride		U		<20.0	mg/Kg	5	4.00

Report Date TBD	:: January 13, 2014	Wor SM1	:k Order: 131 E/Osage Fed	Page Number: 18 of 59 Eddy Co, NM		
Sample: 34	9557 - AH-6 4-4.5'					
Laboratory: Analysis: QC Batch: Prep Batch:	aboratory: Midland nalysis: Chloride (Titration) QC Batch: 108061 Prep Batch: 91411		al Method: alyzed: Preparation:	SM 4500-Cl B 2014-01-06 2014-01-03	Prep Method: Analyzed By: Prepared By:	N/A AR AR
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride	U		<20.0	mg/Kg	5	4.00
Sample: 34	9558 - AH-6 5-5.5'					
Laboratory:	Midland					

Analysis: QC Batch: Prep Batch:	Chloride (Titration) 108134 91411		Analytic Date An Sample l	al Method: alyzed: Preparation:	SM 4500-Cl B 2014-01-09 2014-01-03	Prep Method: Analyzed By: Prepared By:	N/A AR AR
Parameter		Flag	Cert	RL Besult	Unite	Dilution	RI.
Chloride		1 102		25.1	mg/Kg	5	4.00

Sample: 349559 - AH-7 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland BTEX 107810 91224		Ana Dat Sam	llytical M e Analy: uple Prej	Method: zed: paration:	S 8021B 2013-12-2 2013-12-2	23 20		Prep Method Analyzed By: Prepared By:	S 5035 AK AK
						\mathbf{RL}				
Parameter		Flag		Cert	\mathbf{R}	esult	Units		Dilution	RL
Benzene				1		25.8	mg/Kg		10	0.0200
Toluene		Je		ł		113	mg/Kg		10	0.0200
Ethylbenzene				1		36.2	mg/Kg		10	0.0200
Xylene	·	Je		1		93.6	mg/Kg		10	0.0200
								Spike	Percent	Recovery
Surrogate			Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotolue	ene (TFT)	4 Qsr	Qsr		1.05	mg/Kg	10	2.00	52	70 - 130
4-Bromofluor	obenzene (4-BFB)	Qsr	Qar		12.9	mg/Kg	10	2.00	645	70 - 130

Report Date TBD	: January 13, 2014	Wor SMI	rk Order: 131 E/Osage Fed	Page Number: 19 of a Eddy Co, Ni		
Sample: 34	9559 - AH-7 0-1'					
Laboratory:	Midland					
Analysis:	Chloride (Titration)	Analytic	al Method:	SM 4500 -Cl B	Prep Method:	N/A
QC Batch:	108134	Date An	alyzed:	2014-01-09	Analyzed By:	\overline{AR}
Prep Batch:	91411	Sample 1	Preparation:	2014-01-03	Prepared By:	AR
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride			3070	m mg/Kg	10	4.00

Sample: 349559 - AH-7 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Maland TPH DRO - NEW 107808 91251			Analytical Method:S 8015Date Analyzed:2013-12Sample Preparation:			D 2-23	Prep Me Analyzec Prepared	thod: N/A l By: KC By: KC
					I	RL			
Parameter	Flag		Flag	Cert	Res	ult	Units	Dilution	RL
DRO				1	17	80	mg/Kg	5	50.0
							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qsr	Qsr		188	mg/Kg	5	100	188	70 - 130

Sample: 349559 - AH-7 0-1'

Laboratory: Midland Analysis: TPH GRO QC Batch: 107889 Prep Batch: 91286			Analytical Method:S 8015 DDate Analyzed:2013-12-30Sample Preparation:2013-12-24						Prep Methoo Analyzed By Prepared By	l: S 5035 7: AK 7: AK
						RL				
Parameter		Flag		Cert	R	lesult	Unit	s	Dilution	RL
GRO				1		2860	mg/Kg	g	100	4.00
Surrogate			Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotolue	ene (TFT)				1.87	mg/Kg	100	2.00	94	70 - 130
4-Bromofluor	obenzene (4-BFB)	Qar	Qsr		48.4	mg/Kg	100	2.00	2420	70 - 130

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Sample: 349560 - AH-7 1-1.5'

Laboratory: Analysis: QC Batch: Bran Batch:	Midland BTEX 107855		Analytica Date Ana	l Method: lyzed:	S 8021I 2013-12	3 2-24		Prep Method Analyzed By Prepared By	: S 5035 : AK
Prep Datch:	91206		Sample r	reparation:	2013-12	-20		r lepared by	AN
					\mathbf{RL}				
Parameter		Flag	Cert		Result	Units		Dilution	RL
Benzene		U	1	<	0.0200	mg/Kg		1	0.0200
Toluene		U	1	<	0.0200	mg/Kg		1	0.0200
Ethylbenzene			1	<	0.0200	mg/Kg		1	0.0200
Xylene			1	0	.0543	mg/Kg		1	0.0200
							Spike	Percent	Recovery
Surrogate		Fla	g Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotolue	ene (TFT)			1.92	mg/Kg	1	2.00	96	70 - 130
4-Bromofluor	obenzene (4-BFB)			2.01	mg/Kg	11	2.00	100	70 - 130

Sample: 349560 - AH-7 1-1.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 108134 91411	An Da Sar	alytical Method: te Analyzed: nple Preparation:	SM 4500-Cl B 2014-01-09 2014-01-03	Prep Method: Analyzed By: Prepared By:	N/A AR AR
			RL			
Parameter	Flag	g Cert	Result	Units	Dilution	RL
Chloride	U		<20.0	mg/Kg	5	4.00

Sample: 349560 - AH-7 1-1.5'

n-Tricosane				118	mg/Kg	1	100	118		
Surrogate	Fla	ag	Cert	Result	Units	Dilution	Amount	Recovery	Limits	
							Spike	Percent	Recovery	
DRO				1	<5	0.0	mg/Kg	1	50.0	
Parameter		I	Flag	Cert	Res	RL sult	Units	Dilution	RL	
QC Batch: Prep Batch:	107859 91289		Date Analyzed: Sample Preparation:		2013-1 ion: 2013-1	2-27 2-26	Analyzed Prepared	By: KC By: KC		
Laboratory: Analysis:	Midland TPH DRO - NEW 107859			Ana	lytical Meth	od: S 8015	D	Prep Met	Method: N/A	

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Sample: 349560 - AH-7 1-1.5'

Laboratory:	Midland									
Analysis:	TPH GRO			Analytic	al Methoo	d: S 801	5 D		Prep Method	: S 5035
QC Batch:	107889			Date An	alyzed:	2013-	12-30		Analyzed By	: AK
Prep Batch:	91286			Sample l	Preparatio	on: 2013-	12-24		Prepared By	AK
						RL				
Parameter		Flag		Cert		Result	Un	its	Dilution	RL
GRO				1		<4.00	mg/l	Kg	1	4.00
								Spike	Percent	Recovery
Surrogate			Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotolue	ene (TFT)				2.34	mg/Kg	1	2.00	117	70 - 130
4-Bromofluor	obenzene (4-BFB)				2.31	mg/Kg	1	2.00	116	70 - 130

Sample: 349561 - AH-7 2-2.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 108134 91411		Anal Date Sam	lytical Method: 2 Analyzed: ple Preparation:	SM 4500-Cl B 2014-01-09 2014-01-03	Prep Method: Analyzed By: Prepared By:	N/A AR AR
-			~	RL			
Parameter		Flag	Cert	Result	Units	Dilution	RL
Chloride		U		<20.0	mg/Kg	5	4.00

Sample: 349562 - AH-7 3-3.5'

Chloride	U		<20.0	mg/Kg	5	4.00
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Prep Batch:	91411	Samı	ble Preparation:	2014-01-03	Prepared By:	AR
Analysis: QC Batch:	108134	Anal Date	ytical Method: Analyzed:	SM 4500-Cl B 2014-01-09	Prep Method: Analyzed By:	N/A AR
Laboratory:	Midland					

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Sample: 349563 - AH-7 4-4.5'										
Laboratory:MidlandAnalysis:Chloride (Titration)QC Batch:108134Prep Batch:91411		Analytic	al Method:	SM 4500-Cl B	Prep Method:	N/A				
		Date An	alyzed:	2014-01-09	Analyzed By:	AR				
		Sample I	Preparation:	2014-01-03	Prepared By:	AR				
Parameter	Flag	Cert	RL Result	Units	Dilution	RL				

<20.0

mg/Kg

4.00

5

Sample: 349564 - AH-7 5-5.5'

U

Chloride

Parameter Flag	g Cert	RL Result	Units	Dilution	RL
Prep Batch: 91411	Sam	ple Preparation:	2014-01-03	Prepared By:	AR
Analysis: Chloride (Titration)	Anal Data	ytical Method:	SM 4500-Cl B	Prep Method:	N/A A B

Sample: 349565 - AH-7 6-6.5'

Laboratory: Midland Analysis: Chloride (Titration) QC Batch: 108134 Prep Batch: 91411		A D Sa	nalytical Method: ate Analyzed: ample Preparation:	SM 4500-Cl B 2014-01-09 2014-01-03	Prep Method: Analyzed By: Prepared By:	N/A AR AR
			RL			
Parameter	Flag	Ce	rt Result	Units	Dilution	RL
Chloride			70.3	mg/Kg	5	4.00

Sample: 349566 - AH-7 7-7.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108134	Date Analyzed:	2014-01-09	Analyzed By:	\mathbf{AR}
Prep Batch:	91411	Sample Preparation:	2014-01-03	Prepared By:	AR.

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			55.2	mg/Kg	5	4.00

Sample: 349567 - AH-7 8-8.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 108134 91411		nalytical Method: ate Analyzed: mple Preparation:	SM 4500-Cl B 2014-01-09 2014-01-03	Prep Method: Analyzed By: Prepared By:	N/A AR AR
			RL			
Parameter	Flag	g Cer	t Result	Units	Dilution	RL
Chloride	······································		25.1	mg/Kg	5	4.00

Sample: 349568 - AH-7 9-9.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 108136 91411		ytical Method: Analyzed: ple Preparation:	SM 4500-Cl B 2014-01-09 2014-01-03	Prep Method: Analyzed By: Prepared By:	N/A AR AR
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride	ບ		<20.0	mg/Kg	5	4.00

Sample: 349569 - AH-8 0-1'

Laboratory:MidlandAnalysis:BTEXQC Batch:107810Prep Batch:91224		Analytical Method: Date Analyzed: Sample Preparation:		S 8021B 2013-12-23 2013-12-20		Prep Method: Analyzed By: Prepared By:	S 5035 AK AK	
					RL			
Parameter		Flag	Cert	Re	sult	Units	Dilution	\mathbf{RL}
Benzene			1	8	35.4	mg/Kg	50	0.0200
Toluene			I		296	m mg/Kg	50	0.0200
Ethylbenzene			1		38.2	mg/Kg	50	0.0200

continued ...

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sample 349569 continued ...

					\mathbf{RL}					
Parameter	Flag		Cert	Cert Re	esult	sult Units		Dilution		
Xylene			1		223	mg/Kg		50	0.0200	
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits	
Trifluorotoluene (TFT)	${}^{5}_{\rm Qsr}$	Qsr		0.903	mg/Kg	50	2.00	45	70 - 130	
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		34.3	mg/Kg	50	2.00	1715	70 - 130	

Sample: 349569 - AH-8 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 108136 91411	Analytic Date An Sample	nalytical Method:SM 4500-Cl Bate Analyzed:2014-01-09mple Preparation:2014-01-03		Prep Method: Analyzed By: Prepared By:	N/A AR AR
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	······································		3200	mg/Kg	10	4.00

Sample: 349569 - AH-8 0-1'

Laboratory:	Midland	l							
Analysis:	TPH DI	RO - NEV	N	Ana	lytical Metho	od: S 8015 I) ·	Prep Me	thod: N/A
QC Batch:	107808			Date	e Analyzed:	2013-12-	-23	Analyzeo	l By: KC
Prep Batch:	91251			Sam	ple Preparat	ion:	Prepared By: I		
					1	RL			
Parameter	rameter Flag		Cert	Result Units			Dilution	RL	
DRO				:1	25	80	mg/Kg	.5	.50.0
							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qsr	Qsr		231	mg/Kg	5	100	231	70 - 130

Sample: 349569 - AH-8 0-1'

Laboratory: Analysis:	Midland TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	$107811 \\91224$	Date Analyzed:	2013-12-23	Analyzed By:	AK
Prep Batch:		Sample Preparation:	2013-12-20	Prepared By:	AK

Report Date: January 13, 2014 TBD	Work Order: 13121935 SME/Osage Fed 34 1H						Page Number: 25 of 59 Eddy Co, NM				
Parameter	Flag Ce		Cert	RL Result Units				Dilution	RL		
GRO		1		(6220	mg/Kg		Page Number: 25 of 59 Eddy Co, NMDilutionRL504.00PercentRecovery Limits5970 - 130540070 - 130			
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits		
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)	6 Qsr Qsr	Qsr Qsr		$\begin{array}{c} 1.18\\ 108 \end{array}$	mg/Kg mg/Kg	50 50	$\begin{array}{c} 2.00 \\ 2.00 \end{array}$	$\frac{59}{5400}$	70 - 130 70 - 130		

Sample: 349570 - AH-8 1-1.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland BTEX 107855 91258		A L S	.nalytical)ate Analy ample Pre	Method: yzed: eparation:	S 8021B 2013-12- 2013-12-	24 23		Prep Method Analyzed By: Prepared By:	S 5035 AK AK
						RL				
Parameter		Flag		Cert	F	Result	Units		Dilution	RL
Benzene				1		68.8	mg/Kg		10	0.0200
Toluene				1		223	mg/Kg		10	0.0200
Ethylbenzene	;			1		71.8	mg/Kg		10	0.0200
Xylene				ł		194	mg/Kg		10	0.0200
								Spike	Percent	Recovery
Surrogate			Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotolue	ene (TFT)				19.1	mg/Kg	10	20.0	96	70 - 130
4-Bromofluor	obenzene (4-BFB)	Qsr	Qsr		34.7	mg/Kg	10	20.0	174	70 - 130

Sample: 349570 - AH-8 1-1.5'

,

aboratory:	Midland					
nalysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A	
C Batch:	108136	Date Analyzed:	2014-01-09	Analyzed By:	\mathbf{AR}	
rep Batch:	91411	Sample Preparation	: 2014-01-03	2014-01-03 Prepared By:		
		RI				
arameter	Flag	Cert Result	t Units	Dilution	RL	
hloride	U	<20.0) mg/Kg	5	4.00	
rep Batch: arameter hloride	91411 Flag	Sample Preparation RI Cert Result <20.0	2014-01-03 t Units) mg/Kg	Dilution 5	A.	

Report Date TBD	Report Date: January 13, 2014 TBD			V S	Vork Order: ME/Osage F		Page Number: 26 of 59 Eddy Co, NM		
Sample: 34	9570 - A	H-8 1-1.	5'						
Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DI 107859 91289	RO - NEV	V	Anal Date Sam	ytical Metho Analyzed: ple Preparati	d: S 8015 2013-1 on: 2013-1	D 2-27 2-26	Prep Me Analyzec Preparec	thod: N/A l By: KC l By: KC
					F	≀ L			
Parameter			Flag	Cert	Resu	ılt	Units	Dilution	RL
DRO				1	144	40	mg/Kg	1	50.0
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		167	mg/Kg	1	100	167	70 - 130

Sample: 349570 - AH-8 1-1.5'

Laboratory:MidlandAnalysis:TPH GROQC Batch:107889Prep Batch:91286			Analytical Method:S 8015 DDate Analyzed:2013-12-30Sample Preparation:2013-12-24						Prep Method Analyzed By Prepared By	: S 5035 : AK AK
						\mathbf{RL}				
Parameter		Flag		Cert	F	lesult	Unit	s	Dilution	RL
GRO				ı		4260	mg/K	3	100	4.00
Surrogate			Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluen	ne (TFT)				1.53	mg/Kg	100	2.00	76	70 - 130
4-Bromofluoro	benzene (4-BFB)	Qar	Qsr		33.8	mg/Kg	100	2.00	1690	70 - 130

Sample: 349571 - AH-8 2-2.5'

Laboratory:MidlandAnalysis:BTEXQC Batch:107900Prep Batch:91310		Analytical M Date Analyze Sample Prepa	ethod: S 8021B ed: 2013-12-3 aration: 2013-12-3	30 30	Prep Method: Analyzed By: Prepared By:	S 5035 AK AK	
				\mathbf{RL}			
Parameter		Flag	Cert	Result	Units	Dilution	\mathbf{RL}
Benzene		U	1	< 0.0200	mg/Kg	1	0.0200
Toluene		U	i	< 0.0200	m mg/Kg	1	0.0200
Ethylbenzene	3	U	1	< 0.0200	m mg/Kg	1	0.0200
Xylene			I	0.0418	m mg/Kg	11	0.0200

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits	
Trifluorotoluene (TFT)			1.94	mg/Kg	1	2.00	97	70 - 130	
4-Bromofluorobenzene (4-BFB)			2.07	mg/Kg	1	2.00	104	70 - 130	

Sample: 349571 - AH-8 2-2.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midłand Chloride (Titration) 108136 91411	Analytic Date Ar Sample	al Method: alyzed: Preparation:	SM 4500-Cl B 2014-01-09 2014-01-03	Prep Method: Analyzed By: Prepared By:	N/A AR AR
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	\mathbf{RL}
Chloride	U		<20.0	mg/Kg	5	4.00

Sample: 349571 - AH-8 2-2.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - 1 107859 91289	NEW	Analytical Method:S 8015 DDate Analyzed:2013-12-27Sample Preparation:2013-12-26				Prep Metho Analyzed B Prepared B	d: N/A y: KC y: KC
					RL			
Parameter		Flag	Cert	Res	ult	Units	Dilution	RL
DRO			1	<5	0.0	mg/Kg	1	50.0
Surrogate	Flag	g Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	~		118	mg/Kg	1	100	118	70 - 130

Sample: 349571 - AH-8 2-2.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH GRO 107889 91286		Analytical M Date Analyz Sample Prep	Iethod: S 801 ed: 2013- paration: 2013-	5 D 12-30 12-24	Prep Method: Analyzed By: Prepared By:	S 5035 AK AK
				\mathbf{RL}			
Parameter		Flag	Cert	Result	Units	Dilution	RL
GRO			1	5.38	mg/Kg	1	4.00

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.82	mg/Kg	1	2.00	91	70 - 130
4-Bromofluorobenzene (4-BFB)			2.26	$\mathrm{mg/Kg}$	1	2.00	113	70 - 130

Sample: 349572 - AH-8 3-3.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titrati 108136 91411	on)	Analytic Date Ar Sample	cal Method: aalyzed: Preparation:	SM 4500-Cl B 2014-01-09 2014-01-03	Prep Method: Analyzed By: Prepared By:	N/A AR AR
				RL			
Parameter		Flag	Cert	Result	Units	Dilution	\mathbf{RL}
Chloride				29.6	mg/Kg	5	4.00

Sample: 349573 - AH-8 4-4.5'

Laboratory:	Midland						
Analysis:	Chloride (Titration)	I	Analytical Method	SM 4500-0	Cl B	Prep Method:	N/A
QC Batch:	108136	I	Date Analyzed:	2014-01-09	i	Analyzed By:	\overline{AR}
Prep Batch:	91411	5	ample Preparation	n: 2014-01-03))	Prepared By:	\mathbf{AR}
			R	L			
Parameter	Fla	ıg Ce	ert Resu	lt	Units	Dilution	RL
Chloride	U		<20	0 m	g/Kg	5	4.00

Sample: 349574 - AH-8 5-5.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 108136 91411	Analytic Date An Sample	al Method: alyzed: Preparation:	SM 4500-Cl B 2014-01-09 2014-01-03	Prep Method: Analyzed By: Prepared By:	N/A AR AR
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			69.1	mg/Kg	5	4.00

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Sample: 34	9575 - AH-8 6-6.5'					
Laboratory: Midland Analysis: Chloride (Titration) QC Batch: 108136 Prep Batch: 91411		Analytic Date Ar Sample	Analytical Method:SM 4500-Cl BDate Analyzed:2014-01-09Sample Preparation:2014-01-03		Prep Method: Analyzed By: Prepared By:	N/A AR AR
Parameter	Flag	Cert	RL Besult	Units	Dilution	RL
Chloride			24.7	mg/Kg	5	4.00

Sample: 349576 - AH-9 0-1'

Laboratory: Midland									
Analysis: BTEX		Aı	nalytical	Method:	S 8021B			Prep Metho	d: S 5035
QC Batch: 107810		Da	ate Anal	yzed:	2013-12-	·23		Analyzed By	y: AK
Prep Batch: 91224		Sa	mple Pr	eparation:	2013-12-	·20		Prepared By	v: AK
					RL				
Parameter	Flag		Cert	F	Result	Units	•	Dilution	RL
Benzene			1		51.6	mg/Kg		50	0.0200
Toluene			ı		238	mg/Kg		50	0.0200
Ethylbenzene			I		69.7	mg/Kg		50	0.0200
Xylene			1		182	mg/Kg		50	0.0200
							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	Qsr	Qsr		84.3	mg/Kg	50	2.00	4215	70 - 130
4-Bromofluorobenzene (4-BH	7B) _{Qsr}	Qsr		23.1	mg/Kg	50	2.00	1155	70 - 130

Sample: 349576 - AH-9 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 108136 91411	Analytic Date An Sample I	al Method: alyzed: Preparation:	SM 4500-Cl B 2014-01-09 2014-01-03	Prep Method: Analyzed By: Prepared By:	N/A AR AR
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	\mathbf{RL}
Chloride			5240	mg/Kg	10	4.00

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Sample: 349576 - AH-9 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DF 107808 91251	RO - NEV	W	Ana Date Sam	lytical Metho e Analyzed: ple Preparati	od: S 8015 2013-1 ion:	D 2-23	Prep Me Analyzee Preparec	ethod: N/A d By: KC d By: KC
					I	RL			
Parameter			Flag	Cert	Res	ult	Units	Dilution	RL
DRO				1	16	10	mg/Kg	5	50.0
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qar	Qar		176	ing/Kg	5	100	176	70 - 130

Sample: 349576 - AH-9 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH GRO 107811 91224		Ar Da Sa	alytical te Anal mple Pr	Method: yzed: eparation	S 8015 2013-12 2013-12	D -23 -20		Prep Method Analyzed By Prepared By	: S 5035 : AK AK
						\mathbf{RL}				
Parameter		Flag		Cert	\mathbf{R}	esult	Units		Dilution	RL
GRO				1	4	720	mg/Kg		50	4.00
Surrogate			Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotolue	ene (TFT)	7 Qar	Qsr		1.07	mg/Kg	50	2.00	54	70 - 130
4-Bromofluor	obenzene (4-BFB)	Qsr	Qsr		80.6	mg/Kg	50	2.00	4030	70 - 130

Sample: 349577 - AH-9 1-1.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland BTEX 107855 91258		Analytical Method:S 8021BDate Analyzed:2013-12-24Sample Preparation:2013-12-23			Prep Method: Analyzed By: Prepared By:	S 5035 AK AK
				RL			
Parameter		Flag	Cert	Result	Units	Dilution	RL
Benzene		υ	l	< 0.0200	mg/Kg	1	0.0200
Toluene			ł	0.176	mg/Kg	1	0.0200
Ethylbenzene	;		1	0.117	mg/Kg	1	0.0200
Xylene			1	0.419	m mg/Kg	1	0.0200

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.91	mg/Kg	1	2.00	96	70 - 130
4-Bromofluorobenzene (4-BFB)			2.13	mg/Kg	1	2.00	106	70 - 130

Sample: 349577 - AH-9 1-1.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 108136 91411	Analytic Date An Sample I	al Method: alyzed: Preparation:	SM 4500-Cl B 2014-01-09 2014-01-03	Prep Method: Analyzed By: Prepared By:	N/A AR AR
			RL			
Parameter	Flag	Cert	Result	\mathbf{Units}	Dilution	\mathbf{RL}
Chloride			3050	nıg/Kg	10	4.00

Sample: 349577 - AH-9 1-1.5'

n-Tricosane			117	mg/Kg	1	100	117	70 - 130
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
DRO		U	1	<0	0.0	mg/Kg	I	<u>50.0</u>
Parameter		Flag	Cert	Res	RL sult	Units	Dilution	RL
Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NE 107859 91289	W	Ana Dat Sam	lytical Methe e Analyzed: ple Preparat	od: S 8015 2013-1 cion: 2013-1	5 D 2-27 2-26	Prep Me Analyzec Prepared	thod: N/A l By: KC l By: KC

Sample: 349577 - AH-9 1-1.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH GRO 107889 91286		Analytical M Date Analyz Sample Prep	fethod: S 801 ed: 2013-1 aration: 2013-1	5 D 12-30 12-24	Prep Method: Analyzed By: Prepared By:	S 5035 AK AK
				RL			
Parameter		Flag	Cert	Result	Units	Dilution	RL
GRO			1	<4.00	mg/Kg	1	4.00

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits	
Trifluorotoluene (TFT)			1.86	mg/Kg	1	2.00	93	70 - 130	
4-Bromofluorobenzene (4-BFB)			1.98	$\mathrm{mg/Kg}$	1	2.00	99	70 - 130	

Sample: 349578 - AH-9 2-2.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 108137 91411	Analytic Date An Sample I	al Method: alyzed: Preparation:	SM 4500-Cl B 2014-01-09 2014-01-03	Prep Method: Analyzed By: Prepared By:	N/A AR AR
_		~	RL	TT		DI
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride			39.3	mg/Kg	5	4.00

Sample: 349579 - AH-9 3-3.5'

Laboratory:	Midland					
Analysis:	Chloride (Titration)	Anal	ytical Method:	SM 4500-Cl B $$	Prep Method:	N/A
QC Batch:	108137	Date	Analyzed:	2014-01-09	Analyzed By:	\mathbf{AR}
Prep Batch:	91411	Sam	ple Preparation:	2014-01-03	Prepared By:	AR
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	\mathbf{RL}
Chloride	U		<20.0	mg/Kg	5	4.00

.

Sample: 349580 - AH-9 4-4.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 108137 91411	Ana Dat San	lytical Method: e Analyzed: pple Preparation:	SM 4500-Cl B 2014-01-09 2014-01-03	Prep Method: Analyzed By: Prepared By:	N/A AR AR
Damanatan	Elom	Cont	RL	Unita	Dilution	IG
Parameter	F lag_	Cert			Dilution	<u> </u>
Unioride	U		<20.0	mg/Kg	0	4.00

Report Date: January 13, 2014 TBD	Work Order: 13121935 SME/Osage Fed 34 1H						Page Number: 32 of 59 Eddy Co, NM		
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits	
Trifluorotoluene (TFT)			1.86	mg/Kg	1	2.00	93	70 - 130	
4-Bromofluorobenzene (4-BFB)			1.98	mg/Kg	1	2.00	99	70 - 130	

Sample: 349578 - AH-9 2-2.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titratio 108137 91411	n)	Analy Date Samp	tical Method: Analyzed: le Preparation:	SM 4500-Cl B 2014-01-09 2014-01-03	Prep Method: Analyzed By: Prepared By:	N/A AR AR
				\mathbf{RL}			
Parameter		Flag	Cert	Result	Units	Dilution	RL
Chloride				39.3	mg/Kg	5	4.00

Sample: 349579 - AH-9 3-3.5'

Laboratory:	Midland					
Analysis:	Chloride (Titration)	Analytic	al Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	108137	Date An	alyzed:	2014-01-09	Analyzed By:	\mathbf{AR}
Prep Batch:	91411	Sample Preparation:		2014-01-03	Prepared By:	\mathbf{AR}
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride	U		<20.0	mg/Kg	5	4.00

Sample: 349580 - AH-9 4-4.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 108137 91411	An Da Sai	alytical Method: te Analyzed: mple Preparation:	SM 4500-Cl B 2014-01-09 2014-01-03	Prep Method: Analyzed By: Prepared By:	N/A AR AR
Douoroatou	Elec	Cart	RL	TI:::	Dilution	DI
Parameter	rag	Cert	, Result	Units	Dilution	RL
Chloride	U .		<20.0	mg/Kg	5	4.00

Method Blanks

n-Tricosane				109	mg/Kg	1	100	109	88.3 -	126.1
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Lim	its
							Spike	Percent	Reco	very
DRO					1		<6.88	mg/Kg		50
Parameter			F	ag	Cert		MDL Result	Units		RL
QC Batch: Prep Batch:	$107808 \\ 91251$			Da QC	te Analyzed: C Preparation:	2013-12-23 2013-12-23		Analy Prepa	yzed By: ared By:	KC KC
Method Bl	ank (1)	QC E	Batch: 107	7808						

Method Blank (1) QC Batch: 107810

QC Batch: 107810 Prep Batch: 91224	Date Analyzed: QC Preparation:		2013-12- 2013-12-	23 20	Analyzed By: Prepared By:		l By: AK By: AK	
					MDL			
Parameter	Flag		Cert		Result		Units	RL
Benzene			1		< 0.00533]	mg/Kg	0.02
Toluene			1		< 0.00645	1	mg/Kg	0.02
Ethylbenzene			1		< 0.0116	1	mg/Kg	0.02
Xylene			1		< 0.00874]	mg/Kg	0.02
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.45	mg/Kg	1	2.00	72	70 - 130
4-Bromofluorobenzene (4-BFB)			1.47	$\mathrm{mg/Kg}$	1	2.00	74	70 - 130

Method Blank	(1)	QC Batch:	107811
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QC Batch:	107811	Date Analyzed:	2013-12-23	Analyzed By:	AK
Prep Batch:	91224	QC Preparation:	2013-12-20	Prepared By:	AK

Report Date: January 13, 2014 TBD			Work Ord SME/Osag	er: 131219 ge Fed 34	Page Number: 34 of 59 Eddy Co, NM			
Puyamotor	Flog		Cont		MDL		Unite	DI
GBO	T tag				<u>~2 32</u>		mg/Kg	
					2.05		1116/11g	
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.13	mg/Kg	1	2.00	106	70 - 130
4-Bromofluorobenzene (4-BFB)			2.20	mg/Kg	1	2.00	110	70 - 130
QC Batch: 107855 Prep Batch: 91258		Date A QC Pr	analyzed: eparation:	2013-12-3 2013-12-3	24 23		Analyzec Prepared	l By: AK By: AK
_			_		MDL			
Parameter	Flag	. ==	Cert		Result		Units	RL
Benzene			1		< 0.00354		mg/Kg	0.02
Toluene			1		<0.00966		mg/Kg	0.02
Xylene			1		<0.00790		mg/Kg mg/Kg	0.02
1,1010					20.00001			0.02
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.94	mg/Kg	1	2.00	97	70 - 130
4-Bromofluorobenzene (4-BFB)			2.03	mg/Kg	1	2.00	102	70 - 130

Method Blank (1) QC Batch: 107859

QC Batch:	107859		[]	Date Analyzed:	2013 - 12 - 27		Anal	yzed By: KC
Prep Batch:	91289		(QC Preparation:	2013-12-27		Prep	ared By: KC
						MDL		
Parameter			Flag	Cert		Result	Units	RL
DRO				1		<6.88	mg/Kg	50
Surrogate	Fla	g Cert	t Resi	ult Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			1	16 mg/Kg	1	100	116	88.3 - 126.1

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Method Blank (1)	QC Batch: 10	07889								
QC Batch: 107889 Prep Batch: 91286			Date A QC Pr	analyzed: eparation:	2013-12-3 2013-12-3	30 24		Analyzee Preparec	l By: AK l By: AK	
D	Ŧ			a		MDL		T T 4.		
Parameter	ł	Flag		Cert		Result		Units		
GRO				1	· · · · · · · · · · · · · · · · · · ·	<2.32	·····	mg/Kg	4	
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits	
Trifluorotoluene (TFT)				1.92	mg/Kg	1	2.00	96	70 - 130	
4-Bromofluorobenzene (4	4-BFB)			1.89	$\mathrm{mg/Kg}$	1	2.00	94	70 - 130	
Method Blank (1)	QC Batch: 10)7900		, .	0010 10					
Method Blank (1) QC Batch: 107900 Prep Batch: 91310	QC Batch: 10	07900	Date A QC Pre	nalyzed: eparation:	2013-12-3 2013-12-3	30 30		Analyzeo Prepareo	l By: AK l By: AK	
Method Blank (1) QC Batch: 107900 Prep Batch: 91310	QC Batch: 10)7900 Flag	Date A QC Pre	nalyzed: eparation:	2013-12-3 2013-12-3	30 30 MDL Bogult		Analyzeo Preparec	l By: AK l By: AK BI	
Method Blank (1) QC Batch: 107900 Prep Batch: 91310 Parameter Benzene	QC Batch: 10)7900 Flag	Date A QC Pro	analyzed: eparation: Cert	2013-12-3 2013-12-3	30 30 MDL Result <0.00354		Analyzed Prepared Units mg/Kg	l By: AK l By: AK RL	
Method Blank (1) QC Batch: 107900 Prep Batch: 91310 Parameter Benzene Toluene	QC Batch: 10	07900 Flag	Date A QC Pr	analyzed: eparation: Cert	2013-12-3 2013-12-3	30 30 MDL Result <0.00354 <0.00966	1	Analyzeo Prepareo Units mg/Kg mg/Kg	l By: AK l By: AK RL 0.02 0.02	
Method Blank (1) QC Batch: 107900 Prep Batch: 91310 Parameter Benzene Toluene Ethylbenzene	QC Batch: 10)7900 Flag	Date A QC Pr	analyzed: eparation: Cert	2013-12-3 2013-12-3	30 30 MDL Result <0.00354 <0.00966 <0.00790		Analyzed Prepared Mg/Kg mg/Kg mg/Kg	l By: AK l By: AK <u>RL</u> 0.02 0.02 0.02	
Method Blank (1) QC Batch: 107900 Prep Batch: 91310 Parameter Benzene Toluene Ethylbenzene Xylene	QC Batch: 10	07900 Flag	Date A QC Pr	analyzed: eparation: Cert	2013-12-3 2013-12-3	30 30 MDL Result <0.00354 <0.00966 <0.00790 <0.00667	1	Analyzed Prepared Units mg/Kg mg/Kg mg/Kg mg/Kg	l By: AK l By: AK RL 0.02 0.02 0.02 0.02	
Method Blank (1) QC Batch: 107900 Prep Batch: 91310 Parameter Benzene Toluene Ethylbenzene Xylene	QC Batch: 10	Flag	Date A QC Pro	analyzed: eparation: Cert	2013-12-3 2013-12-3	30 30 MDL Result <0.00354 <0.00966 <0.00790 <0.00667	Spike	Analyzec Preparec Units mg/Kg mg/Kg mg/Kg mg/Kg Percent Percent	l By: AK l By: AK RL 0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.0	
Method Blank (1) QC Batch: 107900 Prep Batch: 91310 Parameter Benzene Toluene Ethylbenzene Xylene Surrogate Triffuorotoluene (TET)	QC Batch: 10)7900 Flag Flag	Date A QC Pro	Cert Result 2.03	2013-12-3 2013-12-3 Units mg/Kg	30 30 MDL Result <0.00354 <0.00966 <0.00790 <0.00667 Dilution	Spike Amount 2 00	Analyzed Prepared Units mg/Kg mg/Kg mg/Kg mg/Kg Percent Recovery 102	l By: AK l By: AK 0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.0	

QC Batch:	107962		Date Analyzed:	2014-01-02	Analyzed By:	\mathbf{KC}
Prep Batch:	91365		QC Preparation:	2014-01-02	Prepared By:	\mathbf{KC}
				MDL		
Parameter		Flag	Cert	Result	\mathbf{Units}	RL
DRO			1	10.2	mg/Kg	50

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Rec Recovery Liz	overy mits
n-Tricosane			115	mg/Kg	1	100	115 88.3	- 126.1
Method Blank (1) QC 1	Batch: 10806	1			,		
QC Batch: 10806 Prep Batch: 91411	51		Date . QC P	Analyzed: reparation:	2014-01-06 2014-01-03		Analyzed By: Prepared By:	AR AR
Parameter		Flag		Cert		MDL Result	Units	RL
Method Blank (1 QC Batch: 10813 Prep Batch: 91411) QC 1	Batch: 10813	4 Date QC P	Analyzed: reparation:	2014-01-09 2014-01-03		Analyzed By: Prepared By:	AR
Parameter		Flag	• -	Cert		MDL Result	Units	RL
Chloride						<3.85	mg/Kg	4
Method Blank (1) QC I	Batch: 10813	6					
QC Batch: 10813 Prep Batch: 91411	6		Date QC P	Analyzed: reparation:	.2014-01-09 2014-01-03		Analyzed By Prepared By:	AR AR
Parameter Chloride		Flag		Cert		MDL Result <3.85	Units mg/Kg	RL 4

Method Blank	(1)	QC Batch:	108137
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QC Batch:	108137	Date Analyzed:	2014-01-09	Analyzed By:	AR
Prep Batch:	91411	QC Preparation:	2014-01-03	Prepared By:	AR

Report Date: January 13, 2014 TBD		Work Order: 1: SME/Osage Fee	3121935 d 34 1H	Page Number: 37 of 59 Eddy Co, NM	
Parameter	Flag	Cert	$egin{array}{c} \mathrm{MDL} \ \mathrm{Result} \end{array}$	Units	RL
Chloride			<3.85	m mg/Kg	4

.

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 107808 Prep Batch: 91251		Dat QC	e Analyz Prepara	tion: 20	013-12-23 013-12-23			Ana Prej	lyzed By pared By	': KC ': KC
			LCS			Spike	Mat	rix]	Rec.
Param	F	C I	Result	Units	Dil.	Amount	Res	ult Rec.	L	imit
DRO		1	292	mg/Kg	1	250	<6.	88 117	79.4	- 120.1
Percent recovery is based on	the spike res	ult. RPI) is based	l on the	spike and	spike dup	licate re	sult.		
		LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F} \mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO	1	291	mg/Kg	1	250	< 6.88	116 '	79.4 - 120.1	0	20
Percent recovery is based on	the spike res	ult. RPI) is based	l on the	spike and	spike dup	licate re	sult.		
	LCS	LCSI)			Spike	LCS	LCSD]	Rec.
Surrogate	Result	Resul	t U	nits	Dil.	Amount	Rec.	Rec.	L	imit
n-Tricosane	112	112	mg	g/Kg	1	100	112	112	92.9	- 137.7
Laboratory Control Spike	e (LCS-1)									
OC Batch: 107810		Dat	e Analyz	red 20	113_19_93			Ana	lvzed By	· AK
Prep Batch: 91224		QC	Prepara	tion: 20)13-12-20			Prep	pared By	: AK
			LCS			Spike	M	atrix		Rec.
Param	\mathbf{F}	C 3	Result	Units	Dil.	Amount	t R	esult 3	Rec.	Limit
Benzene		1	1.56	mg/Kg	; 1	2.00	<0.	.00533	78	70 - 130
Toluene		1	1.74	mg/Kg	1	2.00	<0.	.00645	87 7	70 - 130
Ethylbenzene		1	1.66	mg/Kg	; 1	2.00	<0	0.0116	83 7	70 - 130
Xylene		1	5.14	mg/Kg	1	6.00	<0.	.00874	86 7	70 - 130
Percent recovery is based on	the enike ree	ult RPF	ie hoear	l on the	enike and	enike dun	licate rea	sult		

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}	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	1.60	mg/Kg	1	2.00	< 0.00533	80	70 - 130	3	20
Toluene		1	1.60	mg/Kg	1	2.00	< 0.00645	80	70 - 130	8	20
Ethylbenzene		1	1.64	mg/Kg	1	2.00	< 0.0116	82	70 - 130	1	20
Xylene		1	4.98	$\mathrm{mg/Kg}$	1	6.00	< 0.00874	83	70 - 130	3	20 `

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

Report Date: January 13, 2014 TBD				Work Ore SME/Osa	der: 1 age Fe	3121933 d 34 1F	5 H		Р	age Numb Ed	er: 39 of 59 dy Co, NM
Surrogate			LCS Result	LCSD Result) t T	Units	Dil.	Spike Amoun	LCS t _ Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)			1.83	1.46	m	ıg/Kg	1	2.00	92	73	70 - 130
			1.94	1.09		ig/ Kg		2.00	91		10 - 150
Laboratory Control Spike (LCS	8-1)										
QC Batch: 107811			Date A	nalyzed:	201	3-12-23				Analyzed	By: AK
Prep Batch: 91224			QC Pre	paration:	201	3-12-20				Prepared	By: AK
			LC	rs				Spike	Matrix		Rec.
Param	F	•	C Res	ult (Units	Dil	. A	mount	Result	Rec.	Limit
GRO			1 15	.2 m	lg/Kg	1		20.0	<2.32	76	70 - 130
Percent recovery is based on the spi	ike re	esult.	RPD is	pased on	the sp	oike and	spike	duplicate	result.		
с						a		-			
Devery	F .	а . Т	LCSD	Unita	וים	Spike	e M	latrix	R Li	ec. mit DI	RPD D Limit
GBO	<u>г</u>	<u> </u>	$\frac{169}{169}$	$\frac{0 \text{ ms}}{n \sigma / K \sigma}$	$\frac{D\Pi}{1}$	20.0		$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	$\frac{30.}{4}$ 70.	$\frac{1110}{130}$ 1	$\frac{D}{1}$ $\frac{D}{20}$
Percent recovery is based on the sni	iko re		BPD is 1	ased on	the er		cniko	duplicate	regult		<u> </u>
refective recovery is based on the spi		sourc.		Jaseu on	one ar	nke and	врис	upheate	reaut.		
			LCS	LCSD) -	- .		Spike	LCS	LCSD	Rec.
Surrogate			Result	Result	t ι	Jnits	Dil.	Amount	= Rec.	Rec.	Limit
A Promofluorobongene (4 PEP)			1.94	2.12	m	g/Kg	1	2.00	97 191	100	70 - 130
				2.40		<u>.g/ Ng</u>		2.00			10 - 100
Laboratory Control Spike (LCS	5-1)										
QC Batch: 107855 Prep Batch: 91258			Date A QC Pre	nalyzed: paration:	201 201	3-12-24 3-12-23				Analyzed Prepared	By: AK By: AK
Param	F	(LCS C Resu	5 lt Ui	nits	Dil.	${ m S}_{ m I}$ An	pike 1011nt	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.83	3 mg	/Kg	1	2	.00 <	< 0.00354	92	70 - 130
Toluene		1	1.84	4 mg	/Kg	1	2	.00 <	<0.00966	92	70 - 130

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

2.09

6.35

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			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	•	1	1.75	mg/Kg	1	2.00	< 0.00354	88	70 - 130	5	20
poputimerod											·

mg/Kg

mg/Kg

1

1

2.00

6.00

70 - 130

70 - 130

104

106

 $<\!0.00790$

< 0.00667

continued ...

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Ethylbenzene

Xylene

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control spikes continued			LCSD			Spike	Matri	iv	Bec		RPD
Param	\mathbf{F}	С	Result	Units	Dil.	Amount	Resu	lt Rec.	. Limit	RPD	Limit
Toluene		1	1.77	mg/K	g 1	2.00	<0.009	966 88	70 - 130) 4	20
Ethylbenzene		ì	2.02	mg/K	g 1	2.00	< 0.007	790 101	70 - 130) 4	20
Xylene		1	6.11	mg/K	<u>g 1</u>	6.00	<0.000	<u>567 102</u>	70 - 130) 4	20
Percent recovery is based on the	spike	e res	ult. RPD	is based	d on the	spike and	spike du	plicate res	sult.		
			LC	CS L	LCSD			Spike	LCS L	CSD	Rec.
Surrogate			Res	ult R	Result	Units	Dil. A	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)			1.9	93	1.92	m mg/Kg	1	2.00	96	96	70 - 130
4-Bromofluorobenzene (4-BFB)			2.1	10	2.11	mg/Kg	1	2.00	105	106	70 - 130
Laboratory Control Spike (L QC Batch: 107859 Prep Batch: 91289	'CS-1	1)	Date QC	e Analyz Prepara	zed: 2 ation: 2	2013-12-27 2013-12-27	6 1		Ana Pre	alyzed B pared By	y: KC y: KC
Dorom		F		LCS ocult	Unite	Dil	Бріке Атори	Mati	rix ilt Roc	1	Rec. Limit
DRO		<u>г</u>		$\frac{1}{278}$	mg/Kg	7 1	250	<6.8	88 111	. <u> </u>	4 - 120.1
Percent recovery is based on the	snike	res	ult RPD	is based	1 on the	spike and	spike du	nlicate res	sult		
i orodni rodovory is baboa on ono	opine			10 00000		~	opino da	p.1104000 1 00			
Demon	D	a	LCSD	T Inside	Dil	Spike	Matrix	Dag	Rec.	חחם	RPD Limit
DRO	F	<u> </u>	277	Units mg/Kg	$\frac{D11.}{r}$	Amount 250	$-\frac{\text{Result}}{< 6.88}$	$\frac{\text{Rec.}}{111}$	$\frac{11111}{79.4 - 120^{-1}}$	$\frac{\text{RPD}}{1}$	<u>20</u>
Date Date Date Date Date Date Date Date	apile	rog		in burge	don the	apiko and		nliesto roc			
reicent recovery is based on the	spike	: 165	un. ni D	15 Daset	1 on the	spike and	spike du	pheate res	5u16.		
	LC	S	LCSD		_		Spike	LCS	LCSD		Rec.
Surrogate	Resi	ult	Result	; U	nits	Dil.	Amount	Rec.	Rec.	1	Limit
II-:IFICOSAIIE	:1:10	<u> </u>	:1:18	<u></u> :1115	g/ng	<u>:1</u>	:100	:1:10	:1:10	.92.3) 13((
Laboratory Control Spike (L	,CS- ∶	1)									
QC Batch: 107889			Date	e Analyz	zed: 2	2013-12-30			Ana	dyzed By	y: AK
Prep Batch: 91286			QC	Prepara	tion: 2	2013-12-24			Pre	pared By	r: AK
				LCS			Spi	ke M	Iatrix		Rec.
Param		\mathbf{F}	C]	Result	Unit	ts Dil.	Amo	unt R	lesult l	Rec.	Limit
GRO			1	17.9	mg/I	Kg 1	$2\overline{0}$.0 <	<2.32	90	70 - 130
Percent recovery is based on the	$\operatorname{spik}\epsilon$	e res	ult. RPD	is based	d on the	spike and	spike du	plicate res	sult.		

Report Date: January 13, 2014 TBD				W SN	ork Or 4E/Os	rder: age 1	13121935 Fed 34 1H	-			Pa	age Nu	umber: Eddy	41 of 59 Co, NM
Param	F	С	LCSE Resul) t U	nits	Dil.	Spike Amour	M nt R	atrix esult	Rec.	${f R}$	ec. mit	RPD	RPD Limit
GRO		1	17.8	mg	g/Kg	1	20.0	<	2.32	89	70 -	130	. 1	20
Percent recovery is based on the	spike	e resi	ılt. RPI) is ba	sed on	the	spike and	spike	duplic	ate res	sult.			
			т	00	TOOT	`			Q:	1	TOC	τc	(CD)	Dec
Surrogate			L Ra	oonlt Senlt	Recul) t	Unite	Dil	iqe ∆me	.ke unt	Rec	R	ec.	Limit
Triffuorotoluene (TFT)			10	94	1.81		mø/Kø	1	2 (00	97		0	70 - 130
4-Bromofluorobenzene (4-BFB)			2	.13	2.08		mg/Kg	1	2.0)0	106	1	04	70 - 130
Laboratory Control Spike (L QC Batch: 107900 Prep Batch: 91310	CS-1	1)	Da QC	te Ana ! Prepa	lyzed: tration	20 : 20	013-12-30 013-12-30					Analy Prepa	yzed B ared B	y: AK y: AK
-		-	~	LCS			-	Sr	oike	M	atrix	-		Rec.
Param		F,	С	Result	U	nits	Dil.	Am	ount	Re	esult	R	ec.	Limit 70 120
Benzene			1	1.64	mg	g/Kg	5 I	2.	.00	<0.	00354	ح م	52 20	70 - 130
Ethylhongono			1	1.00	me	s/ Kg r/Ka		2.	00	<0.	00900	c c	92 91	70 - 130
Xylene			1	5.56	me	5/ Kg 7/Kg	, 1 , 1	6.	.00	< 0.	00667	ç)3	70 - 130
Percent recovery is based on the	spike	resi	ılt. RPI) is ba	sed on	the	spike and	spike	duplic	ate res	alt.			
	-1						opino cinc	- Pillo	aapiio					
	D	a	LCSD	τī	•. т	~	Spike	Ma	atrix	Ð	R	ec.	000	RPD
Param	F	C	Result	Un	$\frac{11}{12}$	$\frac{JII}{1}$	Amount		sult	Rec.		$\frac{\text{mit}}{120}$	<u> </u>	Limit
Toluene		1	1.70	mg/	rg ΊKα	1 1	2.00 2.00	<0.0	00554	00 88	70 - 70 -	- 130	6	20
Ethylbenzene		1	$\frac{1.10}{2.00}$	mg/	Kg Κσ	1	2.00 2.00	<0.	00300	100	70 -	. 130	9	20
Xylene		1	6.04	mg/	'Kg	1	$\frac{2.00}{6.00}$	<0.0	00667	100	70 -	- 130	8	20
Percent recovery is based on the	spike	rest	ılt. RPI) is ba	sed on	the	spike and	spike	duplica	ate res	ult.			
			· T ·	00	TOPE	`	•	-	· C:	1.0	TOP	тс	CD	Dag
Surrogate			L Re	oo sult	Resul	t	Units	Dil	Amo	ne	Bec	EC R	പറ	Limit
Triffuorotoluene (TFT)			2	26	$\frac{10301}{2.12}$	· · · · ·	mg/Kg	1	2.0	<u>0000000000000000000000000000000000000</u>	$\frac{100.}{113}$	10)6	$\frac{111110}{70 - 130}$
4-Bromofluorobenzene (4-BFB)			2	.45	2.31		mg/Kg	1	2.0	0	$110 \\ 122$	1	16	70 - 130
Laboratory Control Spike (La QC Batch: 107962 Prep Batch: 91365	CS-1	l)	Dat	te Ana	lyzed:	2(· 2)	014-01-02					Analy	zed B	y: KC
1 10p 1200011 01000			40	Treba	101011	. 20	JI-1-01-02					Trebe	aua D	,. 110

Report Date: January 13, 2014 TBD		_	Work O: SME/Os	rder: 1312193 sage Fed 34 1	35 H		Page Nu	imber: 4 Eddy (42 of 59 Co, NM
Param DBO	F		CS esult U	nits Dil.	Spike Amount 250	Mat Resi	rix ult Rec. 2 106	I 79.4	Rec. imit - 120 1
Percent recovery is based on th	e spike res	$\frac{1}{1}$	is based on	$\frac{1}{1}$ the spike an	d spike dup	licate res	<u>2 100</u> sult.	10.1	- 120.1
<i>y</i>		LCSD		Spileo	Matrix		Boc		RPD
Param	F C	Result	Units 1	Dil. Amoun	t Result	Rec.	Limit	RPD	Limit
DRO	1	284	mg/Kg	1 250	10.2	110 7	79.4 - 120.1	3	20
Percent recovery is based on th	e spike res	ılt. RPD	is based on	the spike an	d spike dup	licate res	sult.		
	LCS	LCSD			Spike	LCS	LCSD	I	Rec.
Surrogate	Result	Result	Units	5 Dil.	Amount	Rec.	Rec.	L	imit
n-Tricosane	117	118	mg/K	g 1	100	117	118	92.9	- 137.7
Prep Batch: 91411	F		Preparation	2014-01-0 1: 2014-01-0	3 Spike Amount	Mat. Besi	rix Prepa	ured By I I	: AR Rec.
Chloride		2	630 m	g/Kg 1	2500	<3.	85 105	89.7	- 115.9
Percent recovery is based on th	e spike res	ılt. RPD	is based on	the spike an	d spike dup	licate res	sult.		
Param Chloride	F C	LCSD Result 2570	Units I mg/Kg	Spike Dil. Amoun 1 2500	Matrix t Result <3.85	Rec.	Rec. Limit 89.7 - 115.9	RPD 2	RPD Limit 20
Percent recovery is based on th	e spike res	ılt. RPD	is based on	the spike an	d spike dup	licate res	sult.		
Laboratory Control Spike (LCS-1)								
QC Batch: 108134		Date	Analyzed:	2014-01-0	9		Analy	vzed By	: AR
Prep Batch: 91411		QC (Preparatior	n: 2014-01-0	3		Prepa	ured By	: AR
		I	CS		Spike	Mat	rix	F	Rec.

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

Result

2480

 \mathbf{F}

Param

Chloride

 \mathbf{C}

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	С	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride			2630	mg/Kg	1	2500	<3.85	105	89.7 - 115.9

			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride			2570	mg/Kg	1	2500	<3.85	103	89.7 - 115.9	2	20

Units

mg/Kg

Dil.

1

Amount

2500

 Result

<3.85

Rec.

99

Limit

89.7 - 115.9

Report Date: January 13, 2014 TBD				Work SME/	Order: Osage	13121935 Fed 34 1H			Page Nu	imber: 4 Eddy (43 of 59 Co, NM
Param		С	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2620	mg/Kg	1	2500	<3.85	105	89.7 - 115.9	6	20

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

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch:	$\frac{108136}{91411}$	Date Analyzed: QC Preparation:	2014-01-09 2014-01-03		Analyzed By: Prepared By:	AR AR
		x c c		<i>ct</i> - 13	 T.	

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	\mathbf{Limit}
Chloride			2340	mg/Kg	1	2500	<3.85	94	89.7 - 115.9

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}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride			2420	mg/Kg	1	2500	<3.85	97	89.7 - 115.9	3	20

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

Laboratory Control Spike (LCS-1)

QC Batch:	108137	Date Analyzed:	2014-01-09	Analyzed By:	\mathbf{AR}
Prep Batch:	91411	QC Preparation:	2014-01-03	Prepared By:	AR

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride			2630	mg/Kg	1	2500	$<\!3.85$	105	89.7 - 115.9

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	\mathbf{Limit}	RPD	Limit
Chloride			2470	mg/Kg	1	2500	<3.85	99	89.7 - 115.9	6	20

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

Matrix Spike (MS-1) Spiked Sample: 349344

QC Batch:	107808	Date Analyzed:	2013-12-23	Analyzed By:	\mathbf{KC}
Prep Batch:	91251	QC Preparation:	2013-12-23	Prepared By:	\mathbf{KC}

Report Date: January 13, 2014 TBD	Work Order: 13121935 Page Number: 44 Control SME/Osage Fed 34 1H Eddy Co.										44 of 59 Co, NM
				MC			Quiles	Mate			Dag
Paran		F	C I	MS Socult	Unite	Бil	Spike	Boeu	IX It Bec	•	Rec. Limit
DRO		T.		273	mg/Kg	1	250	<u></u>	$\frac{110}{88}$ 109		8 - 149 9
Dependent in housed on the				Lin hand	ing/ing		aniles dun	lieste nog			
Percent recovery is based on the	e spike	e res	uit. RPI	J is based	on the	spike and	spike dup	ficate res	un.		
			MSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	\mathbf{Limit}	RPD	Limit
DRO		ı	265	mg/Kg	1	250	< 6.88	106 6	4.8 - 149.9) 3	20
Percent recovery is based on the	e spike	e res	ult. RPI) is based	on the	spike and	spike dup	licate res	ult.		
	М	IS	MS	D			Spike	MS	MSD		Rec.
Surrogate	Res	sult	Rest	ılt U	nits	Dil.	Amount	Rec.	Rec.		Limit
n-Tricosane	10)8	104	1 mg	g/Kg	1	100	108	104	85.4	4 - 147.7
Matrix Spike (MS-1)SpikQC Batch:107810Prep Batch:91224	æd Sa	mpl	e: 349344 Da QC	1 te Analyz ? Prepara	ed: 20 tion: 20)13-12-23)13-12-20			Ana Pre	lyzed B pared B	y: AK y: AK
				MS			Spike	Ma	atrix		Rec.
Param		\mathbf{F}	С	Result	Units	Dil.	Amoun	t Re	sult	Rec.	Limit
Benzene			1	1.52	mg/Kg	1	2.00	<0.0	00533	76	70 - 130
Toluene			I	1.54	mg/Kg	1	2.00	<0.0	00645	77	70 - 130
Ethylbenzene			ı	1.57	mg/Kg	1	2.00	<0.	0116	78	70 - 130
Xylene			1	4.72	mg/Kg	1	6.00	<0.0	00874	79	70 - 130
Percent recovery is based on the	e spike	e res	ult. RPI	D is based	on the	spike and	spike dup	licate res	ult.		
			MSD			Spike	Matrix	-	Rec		RPD
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	~	1	1.47	mg/Kg	<u> </u>	2.00	< 0.0053	33 74	70 - 130	$\frac{-1}{3}$	20
Toluene		:1	1.50	mg/Kg	, ; :1	2.00	< 0.0064	15 75	70 - 130) .3	20
Ethylbenzene		ı	1.50	mg/Kg	1	2.00	< 0.011	6 75	70 - 130) 5	20
Xylene		ī	4.57	mg/Kg	; 1	6.00	< 0.0087	74 76	70 - 130) 3	20
Percent recovery is based on the	e spike	e res	ult. RPI	D is based	on the	spike and	spike dup	licate res	ult.		
				MS	MSD			Spike	MS	MSD	Rec.
Surrogate				Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	Qsr	Q	sr	1.33	1.28	mg/Kg	1	2	66	64	70 - 130
4-Bromofluorobenzene (4-BFB)				1.55	1.49	mg/Kg	1	2	78	74	70 - 130

TBD	4 Work Order: 13121935 Page Num SME/Osage Fed 34 1H F									
Matrix Spike (MS-1) Spiked S	ampl	le: 3493	344							
QC Batch: 107811		Ι	Date Analy	zed: 20	013-12-23			A	Analyzed	By:
Prep Batch: 91224		C	QC Prepara	ation: 20	013-12-20			F	Prepared	By:
			MS			Spike	М	latrix		F
Param	F	С	Result	Units	s Dil.	Amount	; R	lesult	Rec.	Li
GRO		1	15.4	mg/K	lg 1	20.0	<	<2.32	77	70
Percent recovery is based on the spil	ke res	sult. R	PD is base	d on the	spike and	spike duplic	ate res	sult.		
		MS	SD		Spike	Matrix		Rec	3.]
Param E	r C	Res	ult Unit	ts Dil.	Amount	t Result	Rec.	Lim	it RF	D I
GRO	ı	15	.2 mg/l	Kg 1	20.0	<2.32	76	70 - 1	130 1	L
Percent recovery is based on the spil	ke res	sult. R	PD is base	d on the	spike and	spike duplic	ate res	sult.		
			MS	MSD		SI	oike	MS	MSD	F
Sumorata			Result	Result	Units	Dil. Am	ount	Rec.	Rec.	Li
Surrogate					The second s					
Trifluorotoluene (TFT)			1.95	1.91	$\mathrm{mg/Kg}$	1	2	98	96	70
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)			1.95 2.38	1.91 2.41	mg/Kg mg/Kg	1	2 2	98 119	96 120	70 70
Matrix Spike (MS-1) Spiked S OC Batch: 107855	ampl	e: 3493	1.95 2.38 304	1.91 2.41	mg/Kg mg/Kg	1	2 2	98 119	96 120	70 70 By:
Surrogate Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spiked S QC Batch: 107855 Prep Batch: 91258	ampl	e: 3493 I C	1.952.38304Date Analy QC Prepara	1.91 2.41 zed: 20 ation: 20	mg/Kg mg/Kg 013-12-24 013-12-23	1	2 2	98 119 A F	96 120 Analyzed Prepared	70 70 By: By:
Surrogate Triffuorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spiked S QC Batch: 107855 Prep Batch: 91258	ampl	e: 3493 I Ç	1.95 2.38 304 Date Analy QC Prepara MS	1.91 2.41 zed: 20 ation: 20	mg/Kg mg/Kg 013-12-24 013-12-23	1 1 Spike	2 2 	98 119 A F atrix	96 120 Analyzed Prepared	70 70 By: By:
Surrogate Triffuorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spiked S QC Batch: 107855 Prep Batch: 91258 Param	ampl F	e: 3493 I C	1.95 2.38 304 Date Analy QC Prepara MS Result	1.91 2.41 zed: 20 ation: 20 Units	mg/Kg mg/Kg 013-12-24 013-12-23 Dil.	1 1 Spike Amount	2 2 Ma Re	98 119 A F atrix esult	96 120 Analyzed Prepared Rec.	70 70 By: By: Et
Surrogate Triffuorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spiked S QC Batch: 107855 Prep Batch: 91258 Param Benzene	ampl F	e: 3493 I C	1.95 2.38 304 Date Analy QC Prepara MS Result 1.71	1.91 2.41 zed: 20 ation: 20 Units mg/Kg	mg/Kg mg/Kg 013-12-24 013-12-23 Dil.	1 1 Spike Amount 2.00	2 2 	98 119 A F atrix esult 00354	96 120 Analyzed Prepared Rec. 86	70 70 By: By: Li 70
Surrogate Triffuorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spiked S QC Batch: 107855 Prep Batch: 91258 Param Benzene Toluene	ampl F	e: 3493 I C I	1.95 2.38 304 Date Analy QC Prepara MS Result 1.71 1.75	1.91 2.41 zed: 20 ation: 20 Units mg/Kg mg/Kg	mg/Kg mg/Kg 013-12-24 013-12-23 Dil. 5 1	1 1 Spike Amount 2.00 2.00	2 2 <u>2</u> <u>4</u> <u>8</u> 6 6 6 6 6 6 6 6 6 6	98 119 A F atrix esult 00354 00966	96 120 Analyzed Prepared Rec. 86 88	70 70 By: By: R Li 70 70 70
Surrogate Triffuorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spiked S QC Batch: 107855 Prep Batch: 91258 Param Benzene Toluene Ethylbenzene	amp) F	e: 3493 I C C	1.95 2.38 304 Date Analy QC Prepara MS Result 1.71 1.75 2.00	1.91 2.41 zed: 20 ation: 20 Units mg/Kg mg/Kg mg/Kg	mg/Kg mg/Kg 013-12-24 013-12-23 Dil. 5 1 5 1 5 1	1 1 Spike Amount 2.00 2.00 2.00	2 2 2 3 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	98 119 A F atrix esult 00354 00966 00790	96 120 Analyzed Prepared <u>Rec.</u> 86 88 100	70 70 By: By: Ei 70 70 70
Surrogate Triffuorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spiked S QC Batch: 107855 Prep Batch: 91258 Param Benzene Toluene Ethylbenzene Xylene	ampl F	e: 3493 I C I I I I	1.95 2.38 304 Date Analy QC Prepara MS Result 1.71 1.75 2.00 (6:05	1.91 2.41 zed: 20 ation: 20 Units mg/Kg mg/Kg mg/Kg	mg/Kg mg/Kg 013-12-24 013-12-23 Dil. 5 1 5 1 5 1 5 1	1 1 Spike Amount 2.00 2.00 2.00 6:00	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	98 119 A E atrix esult 00354 00966 00790 00667	96 120 Analyzed Prepared Rec. 86 88 100 101	70 70 By: By: Ei 70 70 70 70 70
Surrogate Triffuorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spiked S QC Batch: 107855 Prep Batch: 91258 Param Benzene Toluene Ethylbenzene Xylene Percent recovery is based on the spil	ampl F	e: 3493 I C $\frac{C}{1}$ i sult. R	1.95 2.38 304 Date Analy QC Prepara MS Result 1.71 1.75 2.00 6.05 PD is base	1.91 2.41 zed: 20 ation: 20 <u>Units</u> mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg	mg/Kg mg/Kg 013-12-24 013-12-23 Dil. 1 1 1 1 1 5 1 1 5 1 5 1 5 1 5 1 5 1 5	1 1 2.00 2.00 2.00 6:00 spike duplic	$\begin{array}{c} 2\\ 2\\ \end{array}$ $\begin{array}{c} Ma\\ Re\\ <0.\\ <0.\\ <0.\\ <0.\\ <0.\\ \end{array}$ $\begin{array}{c} ate res \end{array}$	98 119 A F atrix esult 00354 00966 00790 00667 sult.	96 120 Analyzed Prepared Rec. 86 88 100 101	70 70 By: By: E Li 70 70 70 70 70
Surrogate Triffuorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spiked S QC Batch: 107855 Prep Batch: 91258 Param Benzene Toluene Ethylbenzene Xylene Percent recovery is based on the spil	ampl F ce res	e: 3493 I C · · · · · · · ·	1.95 2.38 304 Date Analy QC Prepara MS Result 1.71 1.75 2.00 (6:05 PD is base D	1.91 2.41 zed: 20 ation: 20 Units mg/Kg mg/Kg mg/Kg mg/Kg d on the	mg/Kg mg/Kg 013-12-24 013-12-23 Dil. 1 1 1 1 5 1 5 1 5 1 5 1 5 5 1 5 1 5 5 1 5 5 1 5 5 1 5 5 1 5 5 5 8 5 5 8 5 5 5 5	1 1 Spike Amount 2.00 2.00 2.00 6:00 spike duplic Matrix	2 2 3 4 8 4 8 4 8 4 9 1 4 9 1 4 9 1 4 9 1 4 9 1 4 9 1 2 1 4 1 4 1 4 1 4 1 4 1 4 1 4 1 4 1 4	98 119 A B atrix esult 00354 00966 00790 00667 sult. Real	96 120 Analyzed Prepared <u>Rec.</u> 86 88 100 101 c.	70 70 By: By: R Li 70 70 70 70 70
Surrogate Triffuorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spiked S QC Batch: 107855 Prep Batch: 91258 Param Benzene Toluene Ethylbenzene Xylene Percent recovery is based on the spil Param F	ampl F ce res	e: 3493 I C I sult. R MSI Resu	1.95 2.38 304 Date Analy QC Prepara MS Result 1.71 1.75 2.00 6.05 PD is base D alt Units	1.91 2.41 zed: 20 ation: 20 <u>Units</u> mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg	mg/Kg mg/Kg 013-12-24 013-12-23 Dil. 1 1 1 1 1 spike and a Spike Amount	1 1 2.00 2.00 2.00 6:00 spike duplic Matrix Result	2 2 3 4 8 4 8 4 8 4 9 1 4 9 1 4 9 1 4 9 1 4 9 1 4 9 1 4 9 1 4 9 1 4 1 4	98 119 A F atrix esult 00354 00966 00790 00667 sult. Reg Lim	96 120 Analyzed Prepared <u>Rec.</u> 86 88 100 101 c. nit RI	70 70 By: By: Li 70 70 70 70 70 70
Surrogate Triffuorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spiked S QC Batch: 107855 Prep Batch: 91258 Param Benzene Toluene Ethylbenzene Xylene Percent recovery is based on the spil Param F Benzene Toluene Ethylbenzene Xylene Percent recovery is based on the spil Param F Benzene The second se	amp) F Ke res	e: 3493 I C I sult. R MSJ Resu 1.66	1.95 2.38 304 Date Analy QC Prepara MS Result 1.71 1.75 2.00 6:05 PD is base D alt Units 5 mg/K	1.91 2.41 zed: 20 ation: 20 <u>Units</u> mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg d on the <u>s Dil.</u> g 1	mg/Kg mg/Kg 013-12-24 013-12-23 Dil. 1 1 1 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5	1 1 2.00 2.00 2.00 6:00 spike duplic Matrix Result <0.00354	$\frac{M}{2}$ $\frac{M}{2}$ $\frac{M}{2}$ $\frac{R}{2}$ \frac{R}	98 119 A F atrix esult 00354 00966 00790 00667 sult. Rea Lim 70 -	96 120 Analyzed Prepared Rec. 86 88 100 101 c. nit RI 130 ;	70 70 By: By: Ei 70 70 70 70 70 70 70
Surrogate Triffuorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spiked S QC Batch: 107855 Prep Batch: 91258 Param Benzene Toluene Ethylbenzene Xylene Percent recovery is based on the spil Param F Benzene Toluene Ethylbenzene Toluene Ethylbenzene Sylene Percent recovery is based on the spil Param F Benzene Toluene Ethylbenzene Toluene Ethylbenzene Sylene Percent recovery is based on the spil	F F C 1	e: 3493 I C V sult. R MSI Resu 1.66 1.63	1.95 2.38 304 Date Analy QC Prepara MS Result 1.71 1.75 2.00 6:05 PD is base D alt Units amg/K MK	1.91 2.41 2.41 2.41 2.41 2.41 2.41 2.41 2.4	mg/Kg mg/Kg 013-12-24 013-12-23 Dil. 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1	1 1 1 2.00 2.00 2.00 6:00 spike duplic Matrix Result <0.00354 <0.00966	$\frac{2}{2}$ $\frac{Ma}{C}$ $\frac{Rec}{<0.1}$ $\frac{Rec.}{83}$ $\frac{Rec.}{84}$	98 119 A F atrix esult 00354 00966 00790 00667 sult. Rea Lim 70 - 70 -	96 120 Analyzed Prepared Rec. 86 88 100 101 c. hit RI 130 3 130 4	70 70 8y: By: Ei 70 70 70 70 70 70 70 70 70 70 70
Surrogate Triffuorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spiked S QC Batch: 107855 Prep Batch: 91258 Param Benzene Toluene Ethylbenzene Xylene Percent recovery is based on the spil Param F Benzene Toluene Ethylbenzene Yelne Percent recovery is based on the spil Param F Benzene Toluene Ethylbenzene Yelne	E F F C I I I I I I I I I I I I I I I I I	e: 3493 I C C sult. R MSI Resu 1.66 1.63 1.9	1.95 2.38 304 Date Analy QC Prepara MS Result 1.71 1.75 2.00 6:05 PD is base D ilt Units 5 mg/K 8 mg/K 1 mg/K	1.91 2.41 zed: 20 ation: 20 Units mg/Kg mg/Kg mg/Kg mg/Kg d on the s Dil. g 1 g 1 g 1	mg/Kg mg/Kg 013-12-24 013-12-23 Dil. 1 1 1 1 1 1 5 1 5 1 5 1 5 1 5 1 5 1 5	1 1 2.00 2.00 2.00 2.00 6:00 spike duplic Matrix Result <0.00354 <0.00966 <0.00790	$ \begin{array}{c} 2\\2\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$	98 119 A F atrix esult 00354 00966 00790 00667 sult. Rea Lim 70 - 70 - 70 - 70 - 70 -	96 120 Analyzed Prepared Rec. 86 88 100 101 c. nit RI 130 130 130	70 70 70 By: By: By: 70 70 70 70 70 70 70 70 70 70 70

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matrix spikes continued		MS Besult	MSD Besult	Units	Dil A	Spike mount	MS Rec.	MSD Rec.	Rec. Limit
Sunogaac		MS	MSD			Spike	MS	MSD	Rec.
Surrogate		Result	Result	Units	Dil. A	mount	Rec.	Rec.	Limit
Triffuorotoluene (TFT)		1.92	1.92	mg/Kg	1	2	96	96	70 - 130
4-Bromofluorobenzene (4-BFB)	2.10	2.11	mg/Kg	1	2	105	106	70 - 130
Matrix Spike (MS-1) Sp QC Batch: 107859	iked Sample	:: 349560 Date A	nalyzed:	2013-12-27			A	nalyzed E	By: KC
Prep Batch: 91289		QC Pre	eparation:	2013-12-27	,		Pı	repared E	sy: KC
Param	F	MS C Resu	lt Uni	ts Dil.	Spike Amount	Mat: Resu	rix 1lt Re	ec.	Rec. Limit
DRO		1 265	mg/I	Kg 1	250	9.8	3 10	02 64	.8 - 149.9
Percent recovery is based on th	ne spike resu	ılt. RPD is	based on t	he spike and	l spike dup	licate res	sult.		
		MCD		C:::l-a	Mataia		Dec		מממ
Param	FC	Result I	nits Dil	Amount	Result	Rec	Limit	BPI) Limit
DRO	1 0	$\frac{1000}{269}$ m	$\frac{1105}{g/Kg}$ 1	250	9.83	104 (<u>54.8 - 149</u>	$\frac{1011}{0.9}$	20
Percent recovery is based on th	ne snike resi	ilt RPD is	based on t	he spike and	l snike dun	licate res	sult		
	io spiko rose		500500 011 U.	no spino ano	i opino dap	10000 10		_	_
a	MS	MSD	TT •4	D'1	Spike	MS	MSI	D	Rec.
Surrogate	Result		Units		Amount			2. 7	$\frac{\text{Limit}}{4 147.7}$
Matrix Spike (MS-1) Sp	iked Sample	: 349560							
QC Batch: 107889 Prep Batch: 91286		Date A QC Pre	nalyzed: eparation:	2013-12-30 2013-12-24			Aı Pı	nalyzed F repared E	By: AK By: AK
_	-	M	S		Spik	e M	latrix		Rec.
Param CPO	<u> </u>	C Res	ult Ui	$\frac{\text{Dil}}{\sqrt{K_{\pi}}}$. Amou	$\frac{1}{1}$	$\frac{\text{cesult}}{2.84}$	<u>Kec.</u>	Limit 70 120
GnU	.,	1 17	.∠ mg	/ng = 1	20.0	,	2.84	12	10 - 130
Percent recovery is based on the	ne spike resu	ut. RPD is	based on t	he spike and	i spike dup	iicate res	sult.		
		MSD		Spike	e Matrix	ĸ	Rec.		RPD
Param	F C	Result	Units I	Dil. Amour	nt Result	t Rec.	Limit	RPI) Limit
GRO	1	17.8 1	ng/Kg	1 20.0	2.84	75	70 - 13	30 3	20

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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.	Limit
Trifluorotoluene (TFT)	2.20	1.76	mg/Kg	1	2	110	88	70 - 130
4-Bromofluorobenzene (4-BFB)	2.48	1.99	$\mathrm{mg/Kg}$	1	2	124	100	70 - 130

Matrix Spike (MS-1) Spiked Sample: 350228

QC Batch:	107900	Date Analyzed:	2013-12-30	Analyzed By:	AK
Prep Batch:	91310	QC Preparation:	2013-12-30	Prepared By:	AK

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	1.57	mg/Kg	1	2.00	< 0.00354	78	70 - 130
Toluene		1	1.58	m mg/Kg	1	2.00	< 0.00966	79	70 - 130
Ethylbenzene		1	1.76	m mg/Kg	1	2.00	< 0.00790	88	70 - 130
Xylene		1	5.32	mg/Kg	1	6.00	< 0.00667	89	70 - 130

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.	Limit	RPD	Limit
Benzene		1	1.58	mg/Kg	1	2.00	< 0.00354	79	70 - 130	1	20
Toluene		1	1.59	mg/Kg	1	2.00	< 0.00966	80	70 - 130	1	20
Ethylbenzene		1	1.78	mg/Kg	1	2.00	< 0.00790	89	70 - 130	1	20
Xylene		1	5.39	mg/Kg	1	6.00	< 0.00667	90	70 - 130	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.	Limit
Trifluorotoluene (TFT)	2.06	1.99	mg/Kg	1	2	103	100	70 - 130
4-Bromofluorobenzene (4-BFB)	2.22	2.19	mg/Kg	1	2	111	110	70 - 130

Matrix Spike (MS-1) Spiked Sample: 350260

QC Batch:	107962			Date Analy	yzed: 201	14-01-02			Analy	zed By: KC
Prep Batch:	91365			QC Prepai	ration: 201	14-01-02			Prepa	red By: KC
				MS			Spike	Matrix		Rec.
Param		F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO			1	250	mg/Kg	1	250	7.67	97	64.8 - 149.9

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

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Param	F	С	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec Lim	;. it	RPD	RPD Limit
DRO		1	263	mg/Kg	1	250	7.67	105	64.8 - 1	149.9	9	
Percent recovery is based on the	spike	e resu	ilt. RPD	is based	on th	e spike and	spike dupl	icate 1	esult.			
	Μ	S	MSE)			Spike	Μ	S M	ISD	F	lec.
Surrogate	Res	sult	Resu	lt U	nits	Dil.	Amount	Re	c. R	Rec.	Li	imit
n-Tricosane	10)5	112	mg	g/Kg	1	100	10	5 1	12	85.4	- 147.7
Matrix Spike (MS-1) Spike QC Batch: 108061 Prep Batch: 91411	ed Sa	mple	: 349557 Dat QC	e Analyz Preparat MS	ed: Jion:	2014-01-06 2014-01-03	Spike	١	fatriv	Analy: Prepa	zed By red By:	AR AR
Param		F	C I	Result	Unit	s Dil.	Amount	t F	Result	Rec.	I	Limit
Chloride				2450	mg/ł	Kg 5	2500	<	<19.2	98	78.	9 - 121
Percent recovery is based on the	spike	e rest	lt. RPD	is based	on th	e spike and	spike dupl	icate 1	esult.			
Param	F	С	MSD Result	Units	Dil	Spike . Amount	Matrix Result	Rec.	Rec Lim	c. nit	RPD	RPD Limit
Chloride			2580	mg/Kg	; 5	2500	<19.2	103	78.9 -	121	5	20
Percent recovery is based on the Matrix Spike (MS-1) Spike QC Batch: 108134 Prep Batch: 91411	spike ed Sa	e resu mple	lt. RPD : 349567 Dat QC) is based e Analyz Preparat	on th ed: .ion:	e spike and 2014-01-09 2014-01-03	spike dupl	icate 1	result.	Analy: Prepa	zed By: red By:	: AR AR
Param		F	C I	MS Result	Unit	ts Dil.	Spike Amount	h t F	Aatrix Result	Rec.] I	Rec. Limit
Chloride				2580	mg/ł	Ag 5	2500		25.1	102	78.	9 - 121
Percent recovery is based on the	spike	e rest	ılt. RPD	is based	on th	e spike and	spike dupl	icate 1	result.			
Param	F	С	MSD Result	Units	Dil	Spike . Amount	Matrix Result	Rec.	Rec Lim	c. nit	RPD	RPD Limit
			2010	ng/ ng	<u>, u</u>	2000	20.1	100	10.9 -	141	<u> </u>	20

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

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Matrix Spike (MS-1) Spik	ed Sa	mple	: 34957	7							
QC Batch: 108136 Prep Batch: 91411			Da QQ	ate Analyz C Prepara	ed: 20 tion: 20)14-01-09)14-01-03			${ m An}_{ m Pre}$	alyzed By pared By	: AR : AR
				MS			Spike	Ma	atrix		Rec.
Param		F	С	Result	Units	Dil.	Amount	Re	esult R	ec.	Limit
Chloride				5540	mg/Kg	10	2500	3	050 1	00 78	.9 - 121
Percent recovery is based on the	spike	e rest	ilt. RP	D is based	l on the s	spike and s	spike dupli	cate re	sult.		
			MSD			Spike	Matrix		Rec.		RPD
Param	F	C	Resul	t Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride			5700	mg/K	g 10	2500	3050	106	78.9 - 12	1 3	20
Matrix Spike (MS-1) Spik	ed Sa	mple	: 34958	7				·			
OC Batch: 108137			Da	te Analyz	ved · 20)14-01-09			An	alvzed By	·· AR
Prep Batch: 91411			Q	C Prepara	tion: 20)14-01-03			Pre	pared By	: AR
Param		F	С	MS Result	Units	Dil.	Spike Amount	Ma Re	atrix esult R	ec.	Rec. Limit
Chloride				5310	mg/Kg	10	2500	2	900 9	06 78	.9 - 121
Percent recovery is based on the	spike	e rest	ılt. RP	D is based	l on the s	spike and s	spike dupli	cate re	sult.		
			MSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Resul	t Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride			5500	mg/K	g 10	2500	2900	104	78.9 - 12	1 4	20
	-1		U DD		1 (1	•1 1	•1 3 1.		1,		

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

| |

Calibration Standards

Standard (CCV-1)

		Date	Analyzed:	2013-12-23		Analyzed By: KC		
			CCVs	CCVs	CCVs	Percent		
			True	Found	Percent	Recovery	Date	
Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
	1	mg/Kg	.250	254	102	80 - 120	2013-12-23	
-	Flag	Flag Cert	Flag Cert Units 1 mg/Kg	CCVs True Flag Cert Units Conc. 1 mg/Kg 250	CCVs CCVs True Found Flag Cert Units Conc. Conc. 1 mg/Kg 250 254	CCVsCCVsCCVsTrueFoundPercentFlagCertUnitsConc.Conc.1mg/Kg250254102	CCVs CCVs CCVs Percent True Found Percent Recovery Flag Cert Units Conc. Conc. Recovery Limits 1 mg/Kg 250 254 102 80 - 120	

Standard (CCV-2)

QC Batch:	107808		Date	Analyzed:	2013-12-23		Analy	zed By: KC
				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	mg/Kg	250	284	114	80 - 120	2013-12-23

Standard (CCV-3)

QC Batch:	107808		Date	Analyzed:	2013-12-23		Analyzed By: KC		
				CCVs	CCVs	CCVs	Percent		
				True	Found	Percent	Recovery	Date	
Paranı	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
DRO		:1.	mg/Kg	250	273	109	80~ 120	2013-12-23	

Standard (CCV-1)

QC Batch:	107810			Analyzed By: AK					
					CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene			1	mg/kg	0.100	0.0860	86	80 - 120	2013-12-23
Toluene			1	mg/kg	0.100	0.0847	85	80 - 120	2013-12-23

continued ...

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standard continued				CCVs	CCVs	CCVs	Percent	
				True	Found	$\operatorname{Percent}$	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Ethylbenzene		1	mg/kg	0.100	0.0814	81	80 - 120	2013-12-23
Xylene		1	mg/kg	0.300	0.246	82	80 - 120	2013-12-23

Standard (CCV-2)

QC Batch: 107810			Date An	Analy	Analyzed By: AK			
				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		i	mg/kg	0.100	0.0852	85	80 - 120	2013-12-23
Toluene		1	m mg/kg	0.100	0.0832	83	80 - 120	2013-12-23
Ethylbenzene		i i	m mg/kg	0.100	0.0797	80	80 - 120	2013-12-23
Xylene		1	mg/kg	0.300	0.240	80	80 - 120	2013-12-23

Standard (CCV-3)

QC Batch: 107810			Analyzed By: AK						
				CCVs	CCVs	CCVs	Percent		
				True	Found	Percent	Recovery	Date	
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
Benzene		1	mg/kg	0.100	0.0864	86	80 - 120	2013-12-23	
Toluene		1	mg/kg	0.100	0.0842	84	80 - 120	2013-12-23	
Ethylbenzene		1	mg/kg	0.100	0.0796	80	80 - 120	2013-12-23	
Xylene		:1	mg/kg	:0.300	0.240	80	80 - 120	2013 - 12 - 23	

Standard (CCV-1)

QC Batch:	107811		Date	Analyzed:	2013-12-23		Analy	Analyzed By: AK		
				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date		
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed		
GRO	· ·	1	mg/Kg	1.00	0.906	91	80 - 120	2013-12-23		

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Standard (C	standard (CCV-2)													
QC Batch: 1	07811		Date	Analyzed:	Analyzed By: AK									
Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed						
GRO		1	mg/Kg	1.00	0.812	81	80 - 120	2013-12-23						
Standard (C	CV-3)													

QC Batch:	107811		Date	Analyzed:	2013-12-23		Analy	Analyzed By: AK		
				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date		
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed		
GRO		1	mg/Kg	1.00	0.837	84	80 - 120	2013-12-23		

Standard (CCV-1)

QC Batch: 10	07855			Analyzed By: AK					
					CCVs	CCVs	CCVs	Percent	
					True	Found	Percent	Recovery	Date
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene			1	mg/kg	0.100	0.0955	96	80 - 120	2013-12-24
Toluene			1	mg/kg	0.100	0.0931	93	80 - 120	2013 - 12 - 24
Ethylbenzene			1	mg/kg	0.100	0.100	100	80 - 120	2013 - 12 - 24
Xylene			1	mg/kg	0.300	0.304	101	80 - 120	2013 - 12 - 24

Standard (CCV-2)

QC Batch:	107855			Date An	Analyzed By: AK					
					CCVs	CCVs	CCVs	Percent		
					True	Found	Percent	Recovery	Date	
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
Benzene		• •	1	mg/kg	0.100	0.0909	91	80 - 120	2013-12-24	
Toluene			1	mg/kg	0.100	0.0891	89	80 - 120	2013 - 12 - 24	
Ethylbenzer	ie		1	mg/kg	0.100	0.0962	96	80 - 120	2013-12-24	
Xylene			1	mg/kg	0.300	0.291	97	80 - 120	2013-12-24	

TBD	BD				SME/Osage	Eddy Co, NM			
Standard (CCV-3)								
QC Batch:	107855			Date A	nalyzed: 2	2013-12-24		Analy	zed By: AK
					CCVs	CCVs	CCVs	Percent	
					True	Found	Percent	Recovery	Date
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene			1	mg/kg	0.100	0.0942	94	80 - 120	2013-12-24
Toluene			1	mg/kg	0.100	0.0918	92	80 - 120	2013-12-24
Ethylbenzen	е		1	mg/kg	0.100	0.0975	98	80 - 120	2013-12-24
Xylene			1	mg/kg	0.300	0.295	98	80 - 120	2013-12-24
Standard (OC Batch:	CCV-1) 107859			Date A	nalvzed: 2	2013-12-27		Analy	zed Bv: KC
·					U				0
					CCVs	CCVs	CCVs	Percent	
_					True	Found	Percent	Recovery	Date
Param	Flag	C	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
						200	100	00 120	2010 12 21
Standard (CCV-2)								
QC Batch:	107859			Date A	analyzed: 2	2013-12-27		Analy	zed By: KC
					CCVs	CCVs	CCVs	Percent	
					True	Found	Percent	Recovery	Date
Param	Flag	C	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO			1	mg/Kg	250	277	111	80 - 120	2013-12-27
Standard (CCV-1)								
QC Batch:	107889			Date A	nalyzed: 2	2013-12-30		Analy	zed By: AK
					CCVs	CCVs	CCVs	Percent	
					True	Found	Percent	Recovery	Date
Param	Flag	C	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO			1	mg/Kg	1.00	1.13	113	80 - 120	2013-12-30

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Standard	(CCV-2)							
QC Batch:	107889		Date	Analyzed:	Analyzed By: AK			
				CCVs True	CCVs Found	CCVs	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	0.812	81	80 - 120	2013-12-30

Standard (CCV-3)

QC Batch:	107889		Date	Analyzed:	2013-12-30		Analy	Analyzed By: AK		
				CCVs True	m CCVs Found	CCVs Percent	Percent Recovery	Date		
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed		
GRO		1	mg/Kg	1.00	1.02	102	80 - 120	2013-12-30		

Standard (CCV-1)

QC Batch: 1079	900		Date An	alyzed: 20	13-12-30		Analy	zed By: AK
				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/kg	0.100	0.0933	93	80 - 120	2013-12-30
Toluene		1	mg/kg	0.100	0.0908	91	80 - 120	2013 - 12 - 30
Ethylbenzene		1	m mg/kg	0.100	0.0971	97	80 - 120	2013 - 12 - 30
Xylene		1	mg/kg	0.300	0.293	98	80 - 120	2013-12-30

Standard (CCV-2)

QC Batch: 10790	00		Date An	alyzed: 20	13-12-30		Analyz	zed By: AK
				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/kg	0.100	0.0909	91	80 - 120	2013-12-30
Toluene		1	mg/kg	0.100	0.0876	88	80 - 120	2013-12-30
Ethylbenzene		1	mg/kg	0.100	0.0932	93	80 - 120	2013-12-30
Xylene		1	mg/kg	0.300	0.285	95	80 - 120	2013 - 12 - 30

TBD	e: January 13, 20	014		Work Ore SME/Osa		Page Number: 55 of 59 Eddy Co, NM						
Standard ((CCV-1)											
QC Batch:	107962		Date	Analyzed:	2014-01-02		Analy	zed By: KC				
				CCVs	CCVs	CCVs	Percent					
				True	Found	Percent	Recovery	Date				
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed				
DRO		1	mg/Kg	250	283	113	80 - 120	2014-01-02				
Standard ((CCV-2)											
QC Batch:	107962		Date	Analyzed:	2014-01-02		Analy	zed By: KC				
				CCVs	CCVs	CCVs	Percent					
				True	Found	Percent	Recovery	Date				
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed				
DRO	-0	1	mg/Kg	250	283	113	80 - 120	2014-01-02				
Standard (QC Batch:	(CCV-1) 108061		Date	Analyzed:	2014-01-06		Analy	zed By: AR				
Standard (QC Batch:	(CCV-1) 108061		Date	Analyzed:	2014-01-06 CCVs	CCVs	Analy	zed By: AR				
Standard (QC Batch:	(CCV-1) 108061		Date	Analyzed: CCVs True	2014-01-06 CCVs Found	CCVs Percent	Analy Percent Becovery	zed By: AR Date				
Standard (QC Batch: Param	(CCV-1) 108061 Flag	Cert	Date Units	Analyzed: CCVs True Conc.	2014-01-06 CCVs Found Conc.	CCVs Percent Recovery	Analy Percent Recovery Limits	zed By: AR Date Analyzed				
Standard (QC Batch: Param Chloride	(CCV-1) 108061 Flag	Cert	Date Units mg/Kg	Analyzed: CCVs True Conc. 100	2014-01-06 CCVs Found Conc. 102	CCVs Percent Recovery 102	Analy Percent Recovery Limits 85 - 115	zed By: AR Date Analyzed 2014-01-06				
Standard (QC Batch: Param Chloride Standard ((CCV-1) 108061 Flag	Cert	Date Units mg/Kg	Analyzed: CCVs True Conc. 100	2014-01-06 CCVs Found Conc. 102	CCVs Percent Recovery 102	Analy Percent Recovery Limits 85 - 115	zed By: AR Date Analyzed 2014-01-06				
Standard (QC Batch: Param Chloride Standard (QC Batch:	(CCV-1) 108061 Flag (CCV-2) 108061	Cert	Date <u>Units</u> mg/Kg Date	Analyzed: CCVs True Conc. 100 Analyzed:	2014-01-06 CCVs Found Conc. 102 2014-01-06	CCVs Percent Recovery 102	Analy Percent Recovery Limits 85 - 115 Analy	zed By: AR Date Analyzed 2014-01-06 zed By: AR				
Standard (QC Batch: Param Chloride Standard (QC Batch:	(CCV-1) 108061 Flag (CCV-2) 108061	Cert	Date <u>Units</u> mg/Kg Date	Analyzed: CCVs True Conc. 100 Analyzed: CCVs	2014-01-06 CCVs Found Conc. 102 2014-01-06 CCVs	CCVs Percent Recovery 102 CCVs	Analy Percent Recovery Limits 85 - 115 Analy Percent	zed By: AR Date Analyzed 2014-01-06 zed By: AR				
Standard (QC Batch: Param Chloride Standard (QC Batch:	(CCV-1) 108061 Flag (CCV-2) 108061	Cert	Date <u>Units</u> mg/Kg Date	Analyzed: CCVs True Conc. 100 Analyzed: CCVs True	2014-01-06 CCVs Found Conc. 102 2014-01-06 CCVs Found	CCVs Percent Recovery 102 CCVs Percent	Analy Percent Recovery Limits 85 - 115 Analy Percent Recovery	zed By: AR Date Analyzed 2014-01-06 zed By: AR Date				
Standard (QC Batch: Param Chloride Standard (QC Batch: Param	(CCV-1) 108061 Flag (CCV-2) 108061 Flag	Cert	Date Units mg/Kg Date Units	Analyzed: CCVs True Conc. 100 Analyzed: CCVs True Conc.	2014-01-06 CCVs Found Conc. 102 2014-01-06 CCVs Found Conc.	CCVs Percent Recovery 102 CCVs Percent Recovery	Analy Percent Recovery Limits 85 - 115 Analy Percent Recovery Limits	zed By: AR Date Analyzed 2014-01-06 zed By: AR Date Analyzed				

Standard (CCV-1)

QC Batch: 108134

Date Analyzed: 2014-01-09

Analyzed By: AR

Report Date: Ja TBD	muary 13, 20)14		Work Or SME/Osa	der: 13121935 age Fed 34 1H		Page Nu	mber: 56 of 59 Eddy Co, NM
Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		· · · · · · · · · · · · · · · · · · ·	mg/Kg	100	98.3	98	85 - 115	2014-01-09
Standard (CC)	V-2)							
QC Batch: 1081	134		Date A	Analyzed:	2014-01-09		Analy	zed By: AR
Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	102	102	85 - 115	2014-01-09
Standard (CC	V-1)							
QC Batch: 108	136		Date A	Analyzed:	2014-01-09		Analy	zed By: AR
Param	Flag	Cert	Units	CCVs True Conc	CCVs Found Conc	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride	1 100		mg/Kg	100	100	100	85 - 115	2014-01-09

Standard (CCV-2)

Unioride	-			mg/Kg	100	100	100	89 - 119	2014-01-09
Chlorido				mar/Kas	100	100	100	05 115	2014 01 00
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
					True	Found	Percent	Recovery	Date
					CCVs	CCVs	\mathbf{CCVs}	Percent	
QC Batch:	108136			Date A	Analyzed:	2014-01-09		Analy	zed By: AR

Standard (CCV-1)

QC Batch: 108137

Date Analyzed: 2014-01-09

Analyzed By: AR

Report Date: TBD	January 13, 20			Work Orc SME/Osa	Page Number: 57 of Eddy Co, N								
Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed					
Chloride			mg/Kg	100	101	101	85 - 115	2014-01-09					
Standard (C	CCV-2)												
QC Batch: 1	108137		Date A	Analyzed:	2014-01-09		Analy	zed By: AR					
				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date					
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed					
Chloride			mg/Kg	100	98.6	99	85 - 115	2014-01-09					

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	T104704392-13-7	Midland

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: January 13, 2014 TBD Work Order: 13121935 SME/Osage Fed 34 1H Page Number: 59 of 59 Eddy Co, NM

- 1 Surrogate low due to possible dilution out of sample.
- 2 Surrogate low due to possible dilution out of sample.
- 3 Surrogate low due to possible dilution out of sample.
- 4 Surrogate low due to possible dilution out of sample.
- 5 Surrogate low due to possible dilution out of sample.
- 6 Surrogate low due to possible dilution out of sample.
- 7 Surrogate low due to possible dilution out of sample.

Attachments

The scanned attachments will follow this page.

Please note, each attachment may consist of more than one page.

Analysis R	equest of Chain of Custody	Record		PAGE	: OF: 4
			-	ANALYSIS R (Circle or Specify	EQUEST / Method No.)
· · ·	TETRATECH 1910 N. Big Spring St. Midland, Texas 79705 (432) 682-4559 • Fax (432) 682-3946		5 (Ext. to C35) C Pb Ha Se		SC SC
CLIENT NAME:	SITE MANAGER:	PRESERVATIVE	Ba C	0/625	Ηd
PROJECT NO.:	PROJECT NAME:			As 	tions
	SM Enorgy = Osage Fed 34-1H		W WO	8 Ag les 11. Volat 1608	08 85/Ca
LAB I.D. NUMBER DATE TIME	Eddy Co. NM Eddy Co. NM SAMPLE IDENTIFICATION	NUMBER OF FILTERED (HCL HNO3 ICE NONE	EVTEX 80211 (TPH 8015 PAH 8270 RCRA Meta	TCLP Meta TCLP Volati TCLP Semi RCI GC.MS Vol. GC.MS Sem PCB's 8080	Pest. 808/60 Chloride Gamma Spo Alpha Beta PLM (Asbee Major Anior
249548 12/18	5 X AH 1 (0-6")	IN X	XX		X
549	(AH 2 (0-6")	5 5	XX		5
550 \) AH 3 (0-6")		χх		
551	/ / AH 4 (0-1')		XX		
552	AH5 (0-1')		XХ		
553	() AH 6 (0-1')		XX		
554 ((1-1,5')				
555 ((2-2,5')				
556	(3-3,5')				
557	14-4.5	NY DY.	3		
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ELINQUISHED BY: (Signature)	Date: RECEIVED &Y: (Signature)	Date:	SAMP	LE SHIPPED BY: (Circle) EXBUS	
ELINQUISHED BY: (Signature)	Date: RECEIVED BY: (Signature)	Date: Time:	TETRA	A TECH CONTACT PERSON:	Results by:
ACCEIVING LABORATORY:IABORATORY:IABORATORY:IABORATORY:STATE:	ZIP: Date:	TIME	74	terravaree/	RUSH Charges Authorized: Yes No
	REMARKS: RUN O-1 for TPH and BTEX, run deeper	sample of Benzena	excends 10	or Total BTEX exc	eds 50, run deeper

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						SITE MANAG			SH I	Τ	PRE	SER\		E	TX100		Ва С	Č R)/624	929/0					H		
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Analysis F	Request of Cha	in of Custoc	dy F	le	co	rd		╞		. <u></u> ,			AN	P/ ALYS	AGE:	QUES	<u>अ</u> ज	0	F:	4
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CLIENT NAME: SM Energy	SITE MANAGER	a: Elliott	INERS		PRES	ERVA			TX100	s Ba Cd	s Ba Co	ß	100/000	250/624					ns, pH, T	
PROJECT NO.:	PROJECT NAME: SM Energy Dé	Eddy Co. NM Eddy Co. NM	ABER OF CONTA	TERED (Y/N)	03		Ш,	X 8021	1 8015 MOD.	1 8270 RA Metals Ag A	P Metals Ag A	P Semi Volatile	140 Viel 0010/04	MS Vol. 8240/8 MS Semi. Vol. 8	3's 8080/608 + 808/608	oride	nma Spec. na Beta (Air)	1 (Asbestos)	or Anions/Catio	
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SAMPLE CONDITION WHEN RECEIVED:	REMARKS: RUN 0-1 for TP run deposit	if TPH exceeds	per sai 100	npli c m	e if glKc	Ber	ter	و ک	xæ	eds	10	57	<u> </u>	ta la	3727	en	and!	: ड	0,	

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			PAGE: 4 OF: 4
Analysis I	request of Chain of Custoc	ay Record	ANALYSIS REQUEST
	TETRATECH 1910 N. Big Spring St. Midland, Texas 79705 (432) 682-4559 • Fax (432) 682-3946		(Circle or Specify Method No.)
CLIENT NAME: SM Engrav	SITE MANAGER:	PRESERVATIVE	TX100 TX100 60/824 50/625
LAB I.D. NUMBER DATE TIME	PROJECT NAME: SM ENORGY - Oscope feel 34-1H Eddy Co. NM SAMPLE IDENTIFICATION	NUMBER OF CONTAIL FILTERED (Y/N) HCL HNO3 HNO3 ICE NONE	BTEX 80218 ARH 8015 MOD PAH 8270 FCLP Metals Ag As TCLP Volatiles TCLP Volatiles TCLP Volatiles TCLP Volatiles TCLP Volatiles CLMS Semi Vol 82 GC.MS Vol. 8240/82 GC.MS Semi Vol. 82 GC.MS Semi Vol. 82 Alpha Beta (Air) PLM (Asbestos) Major Anions/Catior
578 12/18	5 XAH9 (2-2,5)	INX	X
579	(3-3,5)		
28 V	V V (4-4.5 [°])		
		11/13	
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CEIVING LABORATORY:7	Time: RECEIVED BY: (Signature)	Time:	TETRA TECH CONTACT PERSON: Results by:
TY: Midland STATE:	ZIP: DATE: DATE:	TIME:	Tom Elliott Authorized: Yes N
MPLE CONDITION WHEN RECEIVED:	HEMATIKS: KUN O-1 for BTEX and TPH, Num deeper samples if TPH exi	code 1000 mg/kg.	II DEALERE EXCLUDES IN ON IDIAL DIEX EXCERT

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VC



February 12, 2014

TOM ELLIOT TETRA TECH 1910 N. BIG SPRING STREET MIDLAND, TX 79705

RE: OSAGE 34 - 1H

Enclosed are the results of analyses for samples received by the laboratory on 02/11/14 13:45.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. 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/ga/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.

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,

Whe Sugar



TETRA TECH TOM ELLIOT 1910 N. BIG SPRING STREET MIDLAND TX, 79705 Fax To: (432) 682-3946

Received:	02/11/2014	Sampling Date:	02/11/2014
Reported:	02/12/2014	Sampling Type:	Soil
Project Name:	OSAGE 34 - 1H	Sampling Condition:	Cool & Intact
Project Number:	112MC05823	Sample Received By:	Jodi Henson
Project Location:	EDDY CO., NM		

Sample ID: T1 (AH1) 1' (H400415-02)

BTEX 8021B	mg/	'kg	Analyze	d By: MS			×		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/12/2014	ND	2.38	119	2.00	5.12	
Toluene*	<0.050	0.050	02/12/2014	ND	2.36	118	2.00	4.91	
Ethylbenzene*	<0.050	0.050	02/12/2014	ND	2.35	118	2.00	4.78	
Total Xylenes*	<0.150	0.150	02/12/2014	ND	6.91	115	6.00	4.13	
Total BTEX	<0.300	0.300	02/12/2014	ND					
Surrogate: 4-Bromofluorobenzene (PIL	119 9	% 89.4-12	6						
TPH 8015M	mg/	'kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	02/12/2014	ND	180	90.0	200	12.6	
DRO >C10-C28	<10.0	10.0	02/12/2014	ND	174	87.0	200	7.24	
EXT DRO >C28-C35	<10.0	10.0	02/12/2014	ND					
Surrogate: 1-Chlorooctane	98.0	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	98.9	% 63.6-15	4						

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*=Accredited Analyte

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TETRA TECH TOM ELLIOT 1910 N. BIG SPRING STREET MIDLAND TX, 79705 Fax To: (432) 682-3946

Received:	02/11/2014	Sampling Date:	02/11/2014
Reported:	02/12/2014	Sampling Type:	Soil
Project Name:	OSAGE 34 - 1H	Sampling Condition:	Cool & Intact
Project Number:	112MC05823	Sample Received By:	Jodi Henson
Project Location:	EDDY CO., NM		

Sample ID: T1 (AH1) 2' (H400415-03)

BTEX 8021B	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/12/2014	ND	2.38	119	2.00	5.12	
Toluene*	<0.050	0.050	02/12/2014	ND	2.36	118	2.00	4.91	
Ethylbenzene*	<0.050	0.050	02/12/2014	ND	2.35	118	2.00	4.78	
Total Xylenes*	<0.150	0.150	02/12/2014	ND	6.91	115	6.00	4.13	
Total BTEX	<0.300	0.300	02/12/2014	ND					
Surrogate: 4-Bromofluorobenzene (PIL	119 %	6 89.4-120	5						
TPH 8015M	mg/	kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	02/12/2014	ND	180	90.0	200	12.6	
DRO >C10-C28	<10.0	10.0	02/12/2014	ND	174	87.0	200	7.24	
EXT DRO >C28-C35	<10.0	10.0	02/12/2014	ND					
Surrogate: 1-Chlorooctane	100 %	65.2-140)						
Surrogate: 1-Chlorooctadecane	102 %	63.6-15-	1						

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Mike Snyder, Organic Supervisor



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Received:	02/11/2014	Sampling Date:	02/11/2014
Reported:	02/12/2014	Sampling Type:	Soil
Project Name:	OSAGE 34 - 1H	Sampling Condition:	Cool & Intact
Project Number:	112MC05823	Sample Received By:	Jodi Henson
Project Location:	EDDY CO., NM		

Sample ID: T1 (AH1) 3' (H400415-04)

BTEX 8021B	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/12/2014	ND	2.38	119	2.00	5.12	
Toluene*	<0.050	0.050	02/12/2014	ND	2.36	118	2.00	4.91	
Ethylbenzene*	<0.050	0.050	02/12/2014	ND	2.35	118	2.00	4.78	
Totał Xylenes*	<0.150	0.150	02/12/2014	ND	6.91	115	6.00	4.13	
Total BTEX	<0.300	0.300	02/12/2014	ND					
Surrogate: 4-Bromofluorobenzene (PIL	1199	6 89.4-12	6						
трн 8015м	mg/	kg	Analyze	d By: ms					-
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	02/12/2014	ND	180	90.0	200	12.6	
DRO >C10-C28	<10.0	10.0	02/12/2014	ND	174	87.0	200	7.24	
EXT DRO >C28-C35	<10.0	10.0	02/12/2014	ND					
Surrogate: 1-Chlorooctane	104 %	65.2-14	0						
Surrogate: 1-Chlorooctadecane	104%	63.6-15	4						

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TETRA TECH TOM ELLIOT 1910 N. BIG SPRING STREET MIDLAND TX, 79705 Fax To: (432) 682-3946

Received:	02/11/2014	Sampling Date:	02/11/2014
Reported:	02/12/2014	Sampling Type:	Soil
Project Name:	OSAGE 34 - 1H	Sampling Condition:	Cool & Intact
Project Number:	112MC05823	Sample Received By:	Jodi Henson
Project Location:	EDDY CO., NM		

Sample ID: T2 (AH2) 1' (H400415-13)

BTEX 8021B	mg/	kg	Analyze	ed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/12/2014	ND	2.38	119	2.00	5.12	
Toluene*	<0.050	0.050	02/12/2014	ND	2.36	118	2.00	4.91	
Ethylbenzene*	<0.050	0.050	02/12/2014	ND	2.35	118	2.00	4.78	
Total Xylenes*	<0.150	0.150	02/12/2014	ND	6.91	115	6.00	4.13	
Total BTEX	<0.300	0.300	02/12/2014	ND					
Surrogate: 4-Bromofluorobenzene (PIL	119 %	6 89.4-12	6						
TPH 8015M	mg/	kg	Analyze	ed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	02/12/2014	ND	180	90.0	200	12.6	
DRO >C10-C28	<10.0	10.0	02/12/2014	ND	174	87.0	200	7.24	
EXT DRO >C28-C35	<10.0	10.0	02/12/2014	ND					
Surrogate: 1-Chlorooctane	68.7	65.2-14	0						
Surrogate: 1-Chlorooctadecane	68.3	63.6-15	4						

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Received:	02/11/2014	Sampling Date:	02/11/2014
Reported:	02/12/2014	Sampling Type:	Soil
Project Name:	OSAGE 34 - 1H	Sampling Condition:	Cool & Intact
Project Number:	112MC05823	Sample Received By:	Jodi Henson
Project Location:	EDDY CO., NM		

Sample ID: T2 (AH2) 2' (H400415-14)

BTEX 8021B	mg,	'kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/12/2014	ND	2.38	119	2.00	5.12	
Toluene*	<0.050	0.050	02/12/2014	ND	2.36	118	2.00	4.91	
Ethylbenzene*	<0.050	0.050	02/12/2014	ND	2.35	118	2.00	4.78	
Total Xylenes*	<0.150	0.150	02/12/2014	ND	6.91	115	6.00	4.13	
Total BTEX	<0.300	0.300	02/12/2014	ND					
Surrogate: 4-Bromofluorobenzene (PIL	119 9	% 89.4-12	6						
TPH 8015M	mg/	kg	Analyze	d By: ms		. <u></u>			
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	02/12/2014	ND	180	90.0	200	12.6	
DRO >C10-C28	<10.0	10.0	02/12/2014	ND	174	87.0	200	7.24	
EXT DRO >C28-C35	<10.0	10.0	02/12/2014	ND					
Surrogate: 1-Chlorooctane	73.1	65.2-14	0						
Surrogate: 1-Chlorooctadecane	71.9	63.6-15	4						

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Received:	02/11/2014	Sampling Date:	02/11/2014
Reported:	02/12/2014	Sampling Type:	Soil
Project Name:	OSAGE 34 - 1H	Sampling Condition:	Cool & Intact
Project Number:	112MC05823	Sample Received By:	Jodi Henson
Project Location:	EDDY CO., NM		

Sample ID: T2 (AH2) 3' (H400415-15)

BTEX 8021B	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/12/2014	ND	2.38	119	2.00	5.12	
Toluene*	<0.050	0.050	02/12/2014	ND	2.36	118	2.00	4.91	
Ethylbenzene*	<0.050	0.050	02/12/2014	ND	2.35	118	2.00	4.78	
Total Xylenes*	<0.150	0.150	02/12/2014	ND	6.91	115	6.00	4.13	
Total BTEX	<0.300	0.300	02/12/2014	ND					
Surrogate: 4-Bromofluorobenzene (PIL	120 %	6 89.4-12	6						
TPH 8015M	mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	02/12/2014	ND	180	90.0	200	12.6	
DRO >C10-C28	<10.0	10.0	02/12/2014	ND	174	87.0	200	7.24	
EXT DRO >C28-C35	<10.0	10.0	02/12/2014	ND					
Surrogate: 1-Chlorooctane	90.4 %	65.2-14	0						
Surrogate: 1-Chlorooctadecane	90.8 %	63.6-15	4						

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Mike Snyder, Organic Supervisor



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Received:	02/11/2014	Sampling Date:	02/11/2014
Reported:	02/12/2014	Sampling Type:	Soil
Project Name:	OSAGE 34 - 1H	Sampling Condition:	Cool & Intact
Project Number:	112MC05823	Sample Received By:	Jodi Henson
Project Location:	EDDY CO., NM		

Sample ID: T3 (AH4) 1' (H400415-24)

BTEX 8021B	mg/	kg	Analyze	d By: MS					
· Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/12/2014	ND	2.38	119	2.00	5.12	
Toluene*	<0.050	0.050	02/12/2014	ND	2.36	118	2.00	4.91	
Ethylbenzene*	<0.050	0.050	02/12/2014	ND	2.35	118	2.00	4.78	
Total Xylenes*	<0.150	0.150	02/12/2014	ND	6.91	115	6.00	4.13	
Total BTEX	<0.300	0.300	02/12/2014	ND					
Surrogate: 4-Bromofluorobenzene (PIL	120 9	% 89.4-12	6						
Chloride, SM4500Cl-B	mg/	g/kg Analyzed By: AP					<u> </u>		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	608	16.0	02/12/2014	ND	400	100	400	3.92	
TPH 8015M	mg/	kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	02/12/2014	ND	180	90.0	200	12.6	
DRO >C10-C28	<10.0	10.0	02/12/2014	ND	174	87.0	200	7.24	
EXT DRO >C28-C35	<10.0	10.0	02/12/2014	ND					
Surrogate: 1-Chlorooctane	67.5 \$	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	68.1 9	63.6-15	4						

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Mike Snyder, Organic Supervisor



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Received:	02/11/2014	Sampling Date:	02/11/2014
Reported:	02/12/2014	Sampling Type:	Soil
Project Name:	OSAGE 34 - 1H	Sampling Condition:	Cool & Intact
Project Number:	112MC05823	Sample Received By:	Jodi Henson
Project Location:	EDDY CO., NM		

Sample ID: T3 (AH4) 2' (H400415-25)

BTEX 8021B	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/12/2014	ND	2.38	119	2.00	5.12	
Toluene*	<0.050	0.050	02/12/2014	ND	2.36	118	2.00	4.91	
Ethylbenzene*	<0.050	0.050	02/12/2014	ND	2.35	118	2.00	4.78	
Total Xylenes*	<0.150	0.150	02/12/2014	ND	6.91	115	6.00	4.13	
Total BTEX	<0.300	0.300	02/12/2014	ND					
Surrogate: 4-Bromofluorobenzene (PIE	120 9	89.4-120	5						
Chloride, SM4500Cl-B	mg/	kg	Analyzed By:						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	544	16.0	02/12/2014	ND	400	100	400	3.92	
трн 8015м	mg/	kg	Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	02/12/2014	ND	180	90.0	200	12.6	
DRO >C10-C28	<10.0	10.0	02/12/2014	ND	174	87.0	200	7.24	
EXT DRO >C28-C35	<10.0	10.0	02/12/2014	ND					
Surrogate: 1-Chlorooctane	74.3	% 65.2-140)						
Surrogate: T-Chlorooctadecane	75.5	63.6-15-	4						

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Analytical Results For:

TETRA TECH TOM ELLIOT 1910 N. BIG SPRING STREET MIDLAND TX, 79705 Fax To: (432) 682-3946

Received:	02/11/2014	Sampling Date:	02/11/2014
Reported:	02/12/2014	Sampling Type:	Soil
Project Name:	OSAGE 34 - 1H	Sampling Condition:	Cool & Intact
Project Number:	112MC05823	Sample Received By:	Jodi Henson
Project Location:	EDDY CO., NM		

Sample ID: T3 (AH4) 3' (H400415-26)

BTEX 8021B	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/12/2014	ND	2.38	119	2.00	5.12	
Toluene*	<0.050	0.050	02/12/2014	ND	2.36	118	2.00	4.91	
Ethylbenzene*	<0.050	0.050	02/12/2014	ND	2.35	118	2.00	4.78	
Total Xylenes*	<0.150	0.150	02/12/2014	ND	6.91	115	6.00	4.13	
Total BTEX	<0.300	0.300	02/12/2014	ND					
Surrogate: 4-Bromofluorobenzene (PIL	120 \$	89.4-12	6						
Chloride, SM4500CI-B	mg/	mg/kg Analyzed By: Al							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	496	16.0	02/12/2014	ND	400	100	400	3.92	
ТРН 8015М	mg/	kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	02/12/2014	ND	180	90.0	200	12.6	
DRO >C10-C28	<10.0	10.0	02/12/2014	ND	174	87.0	200	7.24	
EXT DRO >C28-C35	<10.0	10.0	02/12/2014	ND					
Surrogate: 1-Chlorooctane	79.6	% 65.2-14	0						
Surrogate: 1-Chlorooctadecane	79.8	63.6-15	4						

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Mike Snyder, Organic Supervisor



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Received:	02/11/2014	Sampling Date:	02/11/2014
Reported:	02/12/2014	Sampling Type:	Soil
Project Name:	OSAGE 34 - 1H	Sampling Condition:	Cool & Intact
Project Number:	112MC05823	Sample Received By:	Jodi Henson
Project Location:	EDDY CO., NM		

Sample ID: T3 (AH4) 4' (H400415-27)

Chloride, SM4500CI-B mg/kg		<g< th=""><th colspan="3">Analyzed By: AP</th><th></th><th></th><th></th><th></th></g<>	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	560	16.0	02/12/2014	ND	400	100	400	3.92	

Sample ID: T3 (AH4) 4' (H400415-28)

Chloride, SM4500Cl-B	mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	8S	% Recovery	True Value QC	RPD	Qualifier
Chloride	144	16.0	02/12/2014	ND	400	100	400	3.92	

Sample ID: T3 (AH4) 6' (H400415-29)

Chloride, SM4500CI-B	mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	720	16.0	02/12/2014	ND	400	100	400	3.92	

Sample ID: T3 (AH4) 7' (H400415-30)

Chloride, SM4500CI-B	mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	784	16.0	02/12/2014	ND	400	100	400	3.92	

Sample ID: T3 (AH4) 8' (H400415-31)

Chloride, SM4500CI-B	mg/kg Analyzed By: AP								
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	02/12/2014	ND	400	100	400	3.92	

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Received:	02/11/2014	Sampling Date:	02/11/2014
Reported:	02/12/2014	Sampling Type:	Soil
Project Name:	OSAGE 34 - 1H	Sampling Condition:	Cool & Intact
Project Number:	112MC05823	Sample Received By:	Jodi Henson
Project Location:	EDDY CO., NM		

Sample ID: T3 (AH4) 9' (H400415-32)

Chloride, SM4500Cl-B	mg/	kg	Analyzed	l By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1060	16.0	02/12/2014	ND	400	100	400	3.92	

Sample ID: T3 (AH4) 10' (H400415-33)

Chloride, SM4500Cl-B	mg	/kg	Analyze	Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	02/12/2014	ND	400	100	400	3.92	

Sample ID: T3 (AH4) 11' (H400415-34)

Chloride, SM4500Cl-B	mg/kg		Analyzed By: AP					<u> </u>	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	02/12/2014	ND	400	100	400	3.92	

Sample ID: T3 (AH4) 12' (H400415-35)

Chloride, SM4500Cl-B	mg/l	«g	Analyzed	By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	02/12/2014	ND	400	100	400	3.92	

Sample ID: T4 (AH5) 0' (H400415-36)

Chloride, SM4500Cl-B	mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	240	16.0	02/12/2014	ND	400	100	400	3.92	

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Mike Snyder, Organic Supervisor



TETRA TECH TOM ELLIOT 1910 N. BIG SPRING STREET MIDLAND TX, 79705 Fax To: (432) 682-3946

Received:	02/11/2014	Sampling Date:	02/11/2014
Reported:	02/12/2014	Sampling Type:	Soil
Project Name:	OSAGE 34 - 1H	Sampling Condition:	Cool & Intact
Project Number:	112MC05823	Sample Received By:	Jodi Henson
Project Location:	EDDY CO., NM		

Sample ID: T4 (AH5) 1' (H400415-37)

BTEX 8021B	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/12/2014	ND	2.38	119	2.00	5.12	
Toluene*	<0.050	0.050	02/12/2014	ND	2.36	118	2.00	4.91	
Ethylbenzene*	<0.050	0.050	02/12/2014	ND	2.35	118	2.00	4.78	
Total Xylenes*	<0.150	0.150	02/12/2014	ND	6.91	115	6.00	4.13	
Total BTEX	<0.300	0.300	02/12/2014	ND					
Surrogate: 4-Bromofluorobenzene (PIE	120 9	% 89.4-12	6				•		
Chloride, SM4500CI-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	768	16.0	02/12/2014	ND	400	100	400	3.92	
TPH 8015M	mg/	kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	02/12/2014	ND	180	90.0	200	12.6	
DRO >C10-C28	<10.0	10.0	02/12/2014	ND	174	87.0	200	7.24	
EXT DRO >C28-C35	<10.0	10.0	02/12/2014	ND					
Surrogate: 1-Chlorooctane	82.8 9	65.2-14	0						
Surrogate: I-Chlorooctadecane	81.43	63.6-15	4						

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TETRA TECH TOM ELLIOT 1910 N. BIG SPRING STREET MIDLAND TX, 79705 Fax To: (432) 682-3946

Received:	02/11/2014	Sampling Date:	02/11/2014
Reported:	02/12/2014	Sampling Type:	Soil
Project Name:	OSAGE 34 - 1H	Sampling Condition:	Cool & Intact
Project Number:	112MC05823	Sample Received By:	Jodi Henson
Project Location:	EDDY CO., NM		

Sample ID: T4 (AH5) 2' (H400415-38)

BTEX 8021B	mg,	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/12/2014	ND	2.38	119	2.00	5.12	
Toluene*	<0.050	0.050	02/12/2014	ND	2.36	118	2.00	4.91	
Ethylbenzene*	<0.050	0.050	02/12/2014	ND	2.35	118	2.00	4.78	
Total Xylenes*	<0.150	0.150	02/12/2014	ND	6.91	115	6.00	4.13	
Total BTEX	<0.300	0.300	02/12/2014	ND					
Surrogate: 4-Bromofluorobenzene (PIE	120 9	% 89.4-12	6						
Chloride, SM4500CI-B	mg/	'kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	02/12/2014	ND	400	100	400	3.92	
TPH 8015M	mg/	'kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	02/12/2014	ND	180	90.0	200	12.6	
DRO >C10-C28	<10.0	10.0	02/12/2014	ND	174	87.0	200	7.24	
EXT DRO >C28-C35	<10.0	10.0	02/12/2014	ND					
Surrogate: 1-Chlorooctane	71.8	% 65.2-14	0						
Surrogate: T-Chlorooctadecane	74.0	% 63.6-154	4						

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Mike Snyder, Organic Supervisor



TETRA TECH TOM ELLIOT 1910 N. BIG SPRING STREET MIDLAND TX, 79705 Fax To: (432) 682-3946

Received:	02/11/2014	Sampling Date:	02/11/2014
Reported:	02/12/2014	Sampling Type:	Soil
Project Name:	OSAGE 34 - 1H	Sampling Condition:	Cool & Intact
Project Number:	112MC05823	Sample Received By:	Jodi Henson
Project Location:	EDDY CO., NM		

Sample ID: T4 (AH5) 3' (H400415-39)

BTEX 8021B	mg,	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/12/2014	ND	2.38	119	2.00	5.12	
Toluene*	<0.050	0.050	02/12/2014	ND	2.36	118	2.00	4.91	
Ethylbenzene*	<0.050	0.050	02/12/2014	ND	2.35	118	2.00	4.78	
Total Xylenes*	<0.150	0.150	02/12/2014	ND	6.91	115	6.00	4.13	
Total BTEX	<0.300	0.300	02/12/2014	ND					
Surrogate: 4-Bromofluorobenzene (PIE	119	% 89.4-12	5						
Chloride, SM4500CI-B	mg,	/kg	Analyze	d By: AP	_				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	02/12/2014	ND	400	100	400	3.92	
TPH 8015M	mg,	/kg	Analyze	ed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	02/12/2014	ND	180	90.0	200	12.6	
DRO >C10-C28	<10.0	10.0	02/12/2014	ND	174	87.0	200	7.24	
EXT DRO >C28-C35	<10.0	10.0	02/12/2014	ND					
Surrogate: 1-Chlorooctane	69.8	% 65.2-140)						
Surrogate: T-Chlorooctadecane	70.9	% 63.6-15-	1						

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TETRA TECH TOM ELLIOT 1910 N. BIG SPRING STREET MIDLAND TX, 79705 Fax To: (432) 682-3946

Received:	02/11/2014	Sampling Date:	02/11/2014
Reported:	02/12/2014	Sampling Type:	Soil
Project Name:	OSAGE 34 - 1H	Sampling Condition:	Cool & Intact
Project Number:	112MC05823	Sample Received By:	Jodi Henson
Project Location:	EDDY CO., NM		

Sample ID: T4 (AH5) 4' (H400415-40)

Chloride, SM4500Cl-B mg/kg		Analyzed	Ву: АР						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	02/12/2014	ND	400	100	400	0.00	

Sample ID: T4 (AH5) 5' (H400415-41)

Chloride, SM4500CI-B	mg/kg		Analyzed By: AP					w	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	02/12/2014	ND	400	100	400	0.00	

Sample ID: T4 (AH5) 6' (H400415-42)

Chloride, SM4500CI-B	mg/kg		Analyzed By: AP			······	······································		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	02/12/2014	ND	400	100	400	0.00	

Sample ID: T4 (AH5) 7' (H400415-43)

Chloride, SM4500Cl-B mg/kg			Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	02/12/2014	ND	400	100	400	0.00	

Sample ID: T4 (AH5) 8' (H400415-44)

Chloride, SM4500CI-B	mg	/kg	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	02/12/2014	ND	400	100	400	0.00	

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Mike Snyder, Organic Supervisor



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Received:	02/11/2014	Sampling Date:	02/11/2014
Reported:	02/12/2014	Sampling Type:	Soil
Project Name:	OSAGE 34 - 1H	Sampling Condition:	Cool & Intact
Project Number:	112MC05823	Sample Received By:	Jodi Henson
Project Location:	EDDY CO., NM		

Sample ID: T4 (AH5) 9' (H400415-45)

Noride, SM4500CI-B mg/kg			Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	02/12/2014	ND	400	100	400	0.00	

Sample ID: T4 (AH5) 10' (H400415-46)

Chloride, SM4500Cl-B	mg/	mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	02/12/2014	ND	400	100	400	0.00	

Sample ID: T4 (AH5) 11' (H400415-47)

Chloride, SM4500Cl-B	mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	02/12/2014	ND	400	100	400	0.00	

Sample ID: T4 (AH5) 12' (H400415-48)

Chloride, SM4500CI-B mg/kg		/kg	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	02/12/2014	ND	400	100	400	0.00	

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Mike Snyder, Organic Supervisor



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 SM4500CI-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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Analysis Request of Chain of Custody Record											AGE: UF: 5 C ANALYSIS REQUEST 5 (Circle or Specify Method No.)																
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RECEIVING LABORATORY: <u>Conding</u> RECEIVED BY: (Signature) ADDRESS: CITY: <u>Habbs</u> STATE: <u>NM</u> ZIP: CONTACT: PHONE DATE						TIALE: 5.2%					Tom Ellipt RUSH Charges Authorized:																
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Please fill out all copies - Laboratory retains Yellow copy - Return Orginal copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.

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LAB I.D. NUMBER 2014 TIME XI HUNOS SAMPLE	Eddy 10, NM IDENTIFICATION	NUMBER OF	HOL	HN03	ICE	NONE	RTEX 8021R	TPH 8015	PAH 8270	TCI P Metal	TCLP Volatile	TCLP Semi V RCI	GC.MS Vol. 8	GC.MS Semi	PCB's 8080/6 Pest. 808/60	Chloride	Gamma Spec	Alpha Beta (/ PLM (Asbest	Major Anions			
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22 1 5 × 10'	· · ·	$\left \right $																				
23 S K T3(AH4) 0'	(Hold)	i					9															
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30 5 Date: 7'				Dete	إر		ije,						1-24-0			7			Ц			Ţ
ELINQUISHED BY: (Signature)	REVED BY: (Signature)	bh		Time: Date:	4	<u>y</u> !	Ľ.	5	SAM	PLE	SRIPP	ED BY:	(Circle	e)	· · ·		AI	Time:	<u>-144</u> #:	<u>g</u>	~ <u> </u>	_
Time: ELINQUISHED BY: (Signature) Date: Time:	RECEIVED BY: (Signature)			Time: Date: Time:					FE H/	ANK D	ELVE	RED	BU: UP: T PER	S S ISON:			. O.	THER:	su <u>lt</u> s b			
ECEIVING LABORATORY:RE DDRESS:RE ITY:BBBCSTATE:ZIP:	ECEIVED BY: (Signature)									T	2-		F	1/1		,		RL Au	Kug ISH Cr thorize	harges	·	
ONTACT: PHONE: D/ AMPLE CONDITION WHEN RECEIVED: REMARKS:	NTE:	TIME	<u> </u>		ź.	20			<u> </u>	10									Ø		No	

maivs	sis Re	ea	u	est of Chain of Custody	' P	le	CC	or	d								P/	AGE		4		0	F: 5			53
		-	tenetite											•	(Circ	ANA le or	LYS Spe	IS F ecify	REQU V Me	JEST thoc	Г <mark>Ј No</mark> ,	.				22 of
H4004	15		ľ.	TETRA TECH 1910 N. Big Spring St. Midland, Texas 79705 (432) 682-4559 • Fax (432) 682-3946		•					15 (Ext. to C35)		d Cr Pb Hg Se	0									SQ			Page
LIENT NAME:	Energ	4		SITE MANAGER: TON FILIOF	NERS		PRE:	SER IETH	VATIN	/E .	TX100		S Ba			60/624	270/625						R, pH, T			
ROJECT NO.: 112_MCOS	- <u>823</u>	ROJE	ECT	NAME: 1 Dsege 34-14	F CONTA	Î							lls Ag A	les	Volatiles	8240/82	ni. Vol. 8	/608	88	ģ	(Air)	stos)	ns/Cation			
LAB I.D. IUMBER DATE	TIME XIATEW	COMP	GRAB	Eddy (6, NM SAMPLE IDENTIFICATION	NUMBER O	FILTERED	HN03	ICE	NONE		BTEX 8021 TPH 801	PAH 8270	RCRA:Mete	TCLP Volat	TCLP Semi	RCI GC.MS Vol.	GC.MS Sen	PCB's 8080	Pest. 808/6	Chloride) Gamma Sp	Alpha Beta	PLM (Asbe	Major Anio			
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36	4	>	X	Ty(AH5) 0'	1						\$									K.						
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		J	\star	Data: 2/11/200 (BEADERIED FOR (Schnatura)	1		Dator	ول	ų,,		2									廾						
ELINQUISHED BY: (Signati	CH CH	/		Time: 1445 Fig. CEIVED BY: (Signature)	04	1	Time: Date:	+	<u>ŀ'L</u>	15		SAN	APLE		PINT O	Y: (Circ	n) cle)					ime: BILL	<u>144</u> #:	<u>¥</u> 4		
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Analysis	Reau	lest of Chain of Custod	dv.	Re	eco	ord			····			· .		PA	GE:	Ŵ	5	(DF:	1	
												l (Circi	ANAI e or	_YSI Spe	S REC	QUE: 1eth	ST od N	lo.)			•
1400415		TETRATECH 1910 N. Big Spring St. Midland, Texas 79705 (432) 682-4559 • Fax (432) 682-3946			•	•			05 (Ext. to C35)	d Cr. Pb Hg Se	d Vr Pd Hg Se								TDS	r	
JENT NAME: SM EN	2554	SITE MANAGER: Jon Ellis 1		INEHS	PRE	SERV	ATIVE DD	·	Е Т С	s Ba C	S Ba C	6	260/624	270/625					ns, pH,		
ROJECT NO.: 112m105823	PROJEC SME	TNAME: / Osage 34 - 14 Eddy (o. A)m		D (V/N)				21B)	015 MOD. 0	etals Ag A	etals Ag A latiles	mi Volatile	ol. 8240/8	semi. Vol. 8	3/608		Spec.	sta (Air) bestos)	ions/Catio		
AB I.D. DATE TIME フェレー	MATRIX COMP. GRAB	SAMPLE IDENTIFICATION		FILTERE	HCL HN03	Э	NONE	BTEX 80	PAH 827	RCRA M	TCLP M	TCLP Se	GC.MS V	GC.MS	PCB's 8(Pest. 80	Chloride	Gamma	PLM (As	Major Ar		
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LINQUISHED BY: (Signature)		Time: U Date: RECEIVED BY: (Signature) Time:			Time: Date:				-	FEDEX	DELIVE	RED	BU: UP:	S S			0	THER:			
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