SITE INFORMATION

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		Report	Type: Clos	ure Rep	port
General Site In	formation:	Sector and			
Site:		Muskegon 1	6 State Com #1 1	ank Batte	ry
Company:		COG Operat	ting LLC		
Section, Towns	ship and Range	Unit N - Sec	16 - T17S - R29E		
Lease Number:		30-015-2710	8		·
County:		Eddy Count	у		
GPS:		ļ	32.82888° N		104.08204° W
Surface Owner	• •	State			
Mineral Owner:	· · · ·	l			
Directions:					
			Alf seasons and season taxes in Marcine to an address of seasons and		
Helease Data:				taka dari dera	
Date Released:		10/28/2009			• • • • • • • • • • • • • • • • • • •
Type Helease:		IOII and Produ	uced Water		
Source of Conta	imination:	Tank Overilo	W		·
Fluide Released:		50 DDIS			•
Official Commu	ibication-				
Cincial Commu					
Name:					
Company:	COG Operating, LL	С			Tetra Tech
Address:	550 W. Texas Ave.	Ste. 1300	·		1910 N. Big Spring
P.O. Box					
City:	Midland Texas, 797	01			Midland, Texas
Phone number: (432) 686-3023					(432) 682-4559
Fax:	(432) 684-7137		· · · · · · · · · · · · · · · · · · ·		
Email:	pellis@conchoreso	urces.com		· · · · · · · · · · · · · · · · · · ·	ike.tavarez@tetratech.com
Ranking Criteri	at a second of				
Depth to Ground	wator:		Banking Score		Site Data
<50 ft	nator		20	· · · · · · · · · · · · · · · · · · ·	
50-99 ft	·····		10		10
>100 ft.	· · · · · · · · · · · · · · · · · · ·		0		
WellHead Protec	tion:		Ranking Score		Site Data
Water Source <1,	,000 ft., Private <200 ft		20		
Water Source >1	,000 ft., Private >200 ft	•	0		0
Surface Body of			Ranking Score	· · · ·	Site Data
<200 ft.			20		
200 ft - 1,000 ft.		· · · · · · · · · · · · · · · · · · ·	10		
>1,000 ft.		-	0		0
To To	tal Ranking Score:		10		
		Accepta	ble Soil RRAL (n	ng/kg)	1
		Benzene	Total BTEX	TPH	
		10 -	50	1,000	
		······································	······································		-



April 6, 2011

Mr. Mike Bratcher Environmental Engineer Specialist Oil Conservation Division, District 2 1301 West Grand Avenue Artesia, NM 88210 RECEIVED APR 2 2 2011 NMOCD ARTESIA

Re: Closure Report for the COG Operating LLC., Muskegon 16 State Com #1 Tank Battery, Unit N, Section 16, Township 17 South, Range 29 East, Eddy County, New Mexico.

Mr. Bratcher:

Tetra Tech Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill at the Muskegon 16 State Com #1 Tank Battery located in Unit N, Section 16, Township 17 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.82888°, W 104.08204°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on October 28, 2009. Approximately ten (10) barrels of crude oil and forty (40) barrels of produced water were released due to a pump malfunction and a tank overflowing. Vacuum trucks were utilized to recover five (5) barrels of crude oil and thirty (30) barrels of standing fluids. The initial and final C-141 forms are included in Appendix A.

Groundwater

A water well located in Section 22, Township 17 South, Range 29 East, was measured using a steel tape to gauge the depth to water. The water well was not in use at the time and the static depth to water was measured at approximately 82.0'. The United States Geological Survey (USGS) database did show a well in Section 22, Township 17 South, Range 29 East with reported depth to water of 80' below surface. The Geology and Groundwater Resources of Eddy County, New Mexico showed a well in Section 22, Township 17 South, Range 29 East to have been measured with a depth to water of 79.7' below surface. Copies of the well data are included 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 Results

On November 10, 2009, Tetra Tech personnel inspected the spill area. The spill originated from an open water tank and migrated north of the pad, at a width of approximately 5.0'. The spill then migrated off the pad along the southeast edge of the closed reserve pit and down the lease road (1.0' wide), which had been back dragged with a backhoe. A total of seven (7) auger holes (AH-1 through AH-7) were installed using a stainless steel hand auger to assess the impacted soils. Select samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. The auger hole locations are shown on Figure 3. The results of the sampling are summarized in Table 1.

Referring to Table 1, all submitted samples were below the RRAL for TPH and BTEX. On the pad, elevated chloride concentrations were detected in AH-4 and AH-5 and were not vertically defined at 7-7.5' and 4.0', respectively. The area of AH-7 (reserve pit) did show a chloride impact to the soils. However, this may be from the former reserve pit area.

On February 10, 2010, Tetra Tech personnel were onsite to install one (1) soil boring (SB-1) utilizing an air rotary rig. SB-1 was installed between the previous auger holes (AH-4 and AH-5), which were not vertically defined. The soil boring was extended to a maximum depth of 31' feet bgs, with samples collected at 2 to 3 foot intervals for the first 10 feet and 5 foot intervals thereafter. The samples were submitted to the laboratory for analysis of chlorides. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The soil boring results are summarized in Table 2. The soil boring location is shown on Figure 3.

Referring to Table 2, the chloride concentrations ranged from <200 mg/kg at 15.0' to 1,700 mg/kg at 0-1'. The chloride concentrations declined with depth to <200 mg/kg at 15' below surface.



Corrective Action

On October 12, 2010, Tetra Tech supervised the excavation of the impacted soils. As approved by the NMOCD, the areas of AH-2 and AH-6 were excavated to approximately 2.0' below surface and areas of AH-4 and AH-5 to a depth of 10.0' below surface on. Approximately 240 yds³ of soil were hauled to Controlled Recovery, Inc. for proper disposal. Once excavated to appropriate depths, the excavations were backfilled with clean soil. The excavated areas and depths are highlighted in Table 1 and shown on Figure 4.

Closure Request

Based upon the remediation performed at this site, COG Operating LLC respectfully requests closure of this site. A C-141 final is included in Appendix A. If you have any question or comments concerning the activities performed at the Site, please call me at (432) 682-4559.

Respectfully submitted, TETRATECH, ING.

Ike Tavarez Senior Project Manager

cc: Pat Ellis - COG

FIGURES

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Topo USA® 8







TABLES

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Table 1 COG Operating LLC. Muskegon 16 State #1 EDDY COUNTY, NEW MEXICO

Sample	Date	Sample	Depth	Soil	Status		H (mg/k	<u>(</u>	Benzene	Toluene	Ethlybenzene	Xylene	Chloride
Q	Sampled	Depth (ft)	(BEB)	In-Situ	Removed	GRO	DRO	Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
AH-1	11/10/2009	0-1'	N/A	×		<1.00	<50.0	<50.0	<0.0100	<0.0100	<0.0100	<0.0100	287
		1-1.5'	N/A	×		1	•	'		I	1	•	218
		2-2.5'	N/A	×				,	-	-	*	-	<200
AH-2	11/10/2009	0,1	N/A		×	4.76	<50.0	4.76	<0.0100	<0.0100	<0.0100	<0.0100	1.690
		· 1-1.5'	N/A		×		n		ب بر بر	-	•		2,910
		🏹 2-2.5',	Ň/A	*	×			и К. 1 У.		•	*	1,	1,190
		3-3.5'	N/A	×		1	1	,		1		ı	305
		4-4.5'	N/A	×			-	ı	1	1	3	-	424
AH-3	11/10/2009	0-1'	N/A	×		<1.00	<50.0	<50.0				-	<200
		1-1.5'	N/A	×				•			J.	1	<200
		2-2.5'	N/A	×		-	-	-	,	-		1	<200
AH-4	11/13/2009	0-1-	N/A	•	×	<1.00	<50.0	<50.0	<0.0100	<0.0100	<0.0100	<0.0100	9,520
-		* 1-1.5'	N/A		×	. '	•	4 1. 1.	34 .	-	•	1	7,130
		2-2.5	N/A		×	•	1	. 1 . 1.		-	F	، د	8,990
		3-3.5'	N/A		×	1	ł	•		•	\$	4	6,660
		4-4.5'	N/A		×	•		-	•	-	-	•	5,150
		5-5.5'	N/A		×	1		•	J	-	ر م	•	4,130
		6-6.5	N/A .		×	T	9		•.		-		3,460
		7-7.5	- N/A -		· X	I	ł		•	•		•	6,310
		7.5-8'	N/A		×	•	•	•	• 'i	•	1 '	۰ ۱	4,470

EDDY COUNTY, NEW MEXICO Muskegon 16 State #1 Table 1 COG Operating LLC.

Sample	Date	Sample	Depth	Soil	Status	Ē	H (mg/k	(j	Benzene	Toluene	Ethlybenzene	Xylene	Chloride
Q	Sampled	Depth (ft)	(BEB)	In-Situ	Removed	GRO	DRO	Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
AH-5	11/10/2009	0-1,	N/A		×	<1.00	254	254	· <0.0100	<0.0100	0.0259	0.021	5170
		1-1.5	N/A		×	,	•	ı				* **	4,140
		2-2.5	N/A		×		1	1	1	-	1	•	4,480
		3-3.5'	N/A		×		,	. 1			2		4,940
		4-4.5'	N/A		×	,		ı					4,310
AH-6	11/10/2009	0-1-	N/A		×	<1.00	<50.0	<50.0		•			4,480
		1-1.5'	N/A		×		•	1	•	1	,1 ,1		1,120
		2-2.5'	N/A	×		4		ı		•		-	440
AH-7	11/10/2009	0-1	N/A	×		<1.00	<50.0	<50.0	•	•	1	ł	3,060
Reserve	e pit area	1-1.5'	N/A	×		•	1	ı		•	-	•	3,310

Not Analyzed

Below Excavation Bottom Excavated Depths

APPENDIX A

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District 1 1625 N. French Dr., Hobbs, NM 88240 District II 1301 W. Grand Avenue, Artesia, NM 88210 District III 1000 Rio Brazos Road, Aztec, NM 87410 District IV 1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico Energy Minerals and Natural Resources

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

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

1220 S. St. Francis	s Dr., Santa Fe, N	IM 87505		Sa	inta F	Fe, NM 875	05					side of	form
			Rele	ase Notific	atio	n and Co	orrective A	ction					
						OPERA '	ΓOR		🗌 Initi:	al Report	\boxtimes	Final	Report
Name of Com	pany COG	Operati	ng LLC		T	Contact Pa	t Ellís					1 mar	report
Address 550	W. Texas, Su	nite 1300) Midlaı	nd, Texas 7970	1	Telephone I	No. (432) 685-4	1332					
Facility Name	e Muskegon	16 State	Com #	1		Facility Typ	e Tank Batte	ry					
Surface Owne	er: State		<u></u>	Mineral C	wner				Lease N	No. API # 3	30-015	-27108	
				LOCA	TTO	NOFRE	LEASE		•				
Unit Letter N	Section Tov 16 I	wnship 17S	Range 29E	Feet from the 660	Nort	h/South Line S	Feet from the 1980	East/W	/est Line W	County Eddy)
			I	Latitude N 32.8	32888	° Longitud	e W 104.08204	4°					
				NAT	URE	OF REL	EASE					,	
I ype of Release	e: Uil and Prod	uced Wat	er			Volume of	Release 50 bbls		Volume F	Recovered 3	5 bbls		
Source of Relea	ase. Fairs					10/28/09	1:16 p.m.	,c	10/28/09	1:16 p.m.	covery		
Was Immediate	e Notice Given?	? ⊠	Yes 🗌	No 📋 Not Re	equired	If YES, To	Whom?			*			
By Whom? Ric	k Wright					Date and H	lour 10/28/09 2:	:43 p.m.					
Was a Waterco	urse Reached?	-	V M	NL		If YES, Vo	olume Impacting t	he Water	course.				
				NO									
If a Watercours	e was Impacted	1, Describ	e Fully.*										
N/A													
Describe Cause	of Problem and	d Remedi	al Actior	Taken.*									
The tank overflo	owed due to a p	pump mal	function.										
Describe Area	Affected and Cl	leanup Ac	tion Tak	en.*									
The release stay prepared and in	yed on the pad a notemented. Re	and entrar emoved so	ice road. oil was h	Tetra Tech inspe auled away for pr	oner di	te and collecte isposal. Site w	d samples to define as then brought up	ne spills n to surfa	extent. An ice grade y	approved v with clean b	vork pla ackfill i	in was material.	
Tetra Tech prep	pared closure re	port and s	submittee	to NMOCD for	review			,	Bride .				
I hereby certify regulations all o public health or should their ope or the environm federal, state, or	that the inform operators are rea- the environme- erations have fa- tent. In addition r local lays and	ation give quired to nt. The a iled to ad n, NMOC	en above report an cceptanc equately D accept ations.	is true and compl d/or file certain re e of a C-141 repo investigate and re tance of a C-141 r	ete to t elease i rt by th emedia report c	the best of my notifications an ne NMOCD m te contaminati does not reliev	knowledge and us ad perform correct arked as "Final Re on that pose a thre e the operator of r	nderstand tive actic eport" do eat to gro responsib	that purs ons for rele es not reli ound water oility for co	uant to NM eases which eve the oper , surface wa ompliance w	OCD ru may en rator of tter, hur vith any	lles and danger liability nan hea other	ltb
	/N	γ		<u></u>	1		OIL CONS	SERVA	ATION	DIVISIC	<u>)N</u>		
Signature:	14		X										
Printed Name: I	lke Tavarez					Approved by	District Supervise	or:					
Title: Senior Pro	oject Manager					Approval Dat	e:	E	xpiration I	Date:			
E-mail Address:	: Ike.Tavarez@	TetraTeci	h.com			Conditions of	Approval:			Attached			
Date:			Phone:	(432) 682-4559									

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Attach Additional Sheets If Necessary

District I 1625 N. French Dr., Hobbs, NM 88240 District II 1301 W. Grand Avenue, Artesia, NM 88210 District III 1000 Rio Brazos Road, Aztec, NM 87410 District IV 1220 S. St. Francis Dr., Santa Fe, NM 87505

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State of New Mexico Energy Minerals and Natural Resources

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

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

				5	ania F	e, NM 875	05				
			Rel	ease Notifi	catio	n and Co	orrective A	ction			
						OPERA	FOR	🛛 Initi	al Report		Final Report
Name of Co	ompany C	OG OPERA	TING L	LC		Contact K	anicia Carrillo				
Address 55	0 W. Texa	s, Suite 100	Midland	I, TX 79701		Telephone 1	No. 432-685-43	32			
Facility Nat	me – Musk	egon 16 Sta	te Com #	1		Facility Typ	be- Battery				
Surface Ow	ner State			Mineral (Owner			Lease 1	No. 30-015	-2710	8
				LOC	4 TI O	N OF DEI	FASE				
Unit Letter	Section	Township	Range	Feet from the	Nort	h/South Line	Feet from the	East/West Line	County		
N	16	175	29E	660	Sout	h	1980	West	Eddy		
								<u> </u>			
				L	atitud	e Longitu	ude				
				NAT	TURF	C OF REL	EASE				
Type of Rele	ase-10 bbls	oil, 40 bbls p	roduced w	vater		Volume of	Release-50 bbls	Volume I	Recovered-	35 bbls	(5-oil,30wtr)
Source of Re	lease- Tank					Date and H	lour of Occurrenc	ce- Date and	Hour of Dis	covery	
Was Immedi	ate Notice (Jiven?				10/28/09	Approx. 1:16pm	10/28/09	Approx.	1:16рп	1
n us minicui			Yes 🗌	No 🗌 Not Re	equired	Mike Brate	cher				
By Whom?	Pat Eilis					Date and I	lour 10/28/09 2:4	13pm			
Was a Water	course Rea	ched?	1 V. 5	Z .N.		If YES, Vo	olume Impacting t	the Watercourse.			
		<u>ا</u> ـــ	j res k								
Describe Cat The tank ove	ise of Probl rflowed due	em and Reme to a pump m	dial Actio alfunction	n Taken.*						<u> </u>	
Describe Are	a Affected	and Cleanup	Action Tal	(en.*				,			
Tetra Tech w NMOCD for	tayed on the fill sample t your appro	e pad and entr he spill site an val prior to an	rea to delin rea significa	heate any possible ant remediation w	e contar /ork.	nination from (the release and we	e will present a rem	nediation wo	rk plan	to the
I hereby certi regulations a public health should their c or the environ federal, state,	fy that the i ll operators or the envi operations h nment. In a or local lav	nformation grare required to are required to ronment. The ave failed to ddition, NMC ws and/or regu	iven above o report and acceptance adequately OCD acceptations.	is true and comp nd/or file certain r ce of a C-141 report investigate and r stance of a C-141	elease i release i ort by th remedia report o	the best of my notifications ar ne NMOCD ma te contamination does not relieve	knowledge and un ad perform correct arked as "Final Ro on that pose a thre e the operator of r	nderstand that purs tive actions for rele eport" does not reli eat to ground water esponsibility for co	evant to NM eases which eve the oper , surface wa ompliance w	OCD ru may en ator of ter, hur rith any	iles and idanger liability nan health other
Signature:	10						OIL CONS	SERVATION	DIVISIC	<u>N</u>	
Printed Name	e: Kanicia (Carrillo	- 			Approved by	District Supervise	or:			
Title: Regula	atory Analy	st				Approval Date	e:	Expiration I	Date:		
E-mail Addre	ess: kearrill	o@conchores	ources.co	m		Conditions of	Approval:		Attached		
Date: 11/	11/09		Phone: 4	32-685-4332	1]		

Attach Additional Sheets If Necessary

APPENDIX B

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VES & MINERAL RESOURC	ES
Andres San Andres do. do. do. Quaternary (?)	
(r) Limestone do. do. Alluvium (?)	
ာစဥ္က စစ္တစ္လိုင္ရဲ့ ၊	
1 815 500	
1	
4,100 4,200 4,300 4,060	
kolnug Broad valley Rolling S, of Ruo Penasco Blackdom Terrare	
1915 1947 1946 1946 1941	
Andy Teel do. George Teel Couhape Bros. G. M. Phelps eginning of table.	
7.31.34.000 (8.21.18.310 27.440 32.430 18.25.6.140 18.25.23.111 18.25.23.111 explanation at b	

See explanation at beginning of table.

	ΠΛW	ER LEVEL				
LOCATION NUMBER	BELOW LAND SURFACE (feet)	DATE OF MEASUREMENT	чтага (в.р.ш.)	METHOD OF LIFT	USE OF WATER	REMARKS
17.28.2.240	27.6	Dec. 1, 1948	er,	3	S	Depth to water measured while pump-
14.220	80	t	61	W	S&D	Ing. Driller: Cy Hinshaw. See analysis, Table
19.200	224.3	Dec. 2, 1948	1.2	W	S	o. Depth to water measured while pump-
22.230 17.29.22.110	45.5 79.7	Dec. 1, 1948 Nov. 29, 1948	မျှ (က	Z3	Zv	urg. Abandoned stock well. Depth to water measured while pump-
29.400 17.31.34.000	210	Dec. 3, 1948 Dec. 6, 1948	1.1 9 K	X 3	6 5 0	ing. do. Son control: Tokio a
18.21.13.310 27.440	505		10 R.	· ^ ^	S & D	Formerly C.C.C. well. Cased to 30 ft.
32.430	800 (7)	I	12 R.	:3	S & D	Lowered cylinder 5 ft. in 1948 because
18.23.6.140 18.25.23.111	440 117.8	Jan. 12, 1950 Jan. 1950	1 1	M	S & D S	water level declined. Cased to 380 ft.
See explanation at b 1 Measured Dec. 3, 1	eginning of table. 948.					

and a series

S. Mannan -

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EDDY COUNTY

GROUND WATER

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APPENDIX C

Summary Report

Ike Tavarez Tetra Tech 1910 N. Big Spring Street Midland, TX 79705

Report Date: November 23, 2009

Work Order: 9111610

-

Project Location:	Eddy Co., NM
Project Name:	COG/Muskeegon 16 State Com. #1
Project Number:	114-6400354

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
214975	AH-1 0-1'	soil	2009-11-10	00:00	2009-11-13
214976	AH-1 1'-1.5'	soil	2009-11-10	00:00	2009-11-13
214977	AH-1 2'-2.5'	soil	2009-11-10	00:00	2009-11-13
214978	AH-2 0-1'	soil	2009-11-10	00:00	2009-11-13
214979	AH-2 1'-1.5'	soil	2009-11-10	00:00	2009-11-13
214980	AH-2 2'-2.5'	soil	2009-11-10	00:00	2009-11-13
214981	AH-2 3'-3.5'	soil	2009-11-10	00:00	2009-11-13
214982	AH-2 4'-4.5'	soil	2009-11-10	00:00	2009-11-13
214983	AH-3 0-1'	soil	2009-11-10	00:00	2009-11-13
214984	AH-3 1'-1.5'	soil	2009-11-10	00:00	2009-11-13
214985	AH-3 2'-2.5'	soil	2009-11-10	00:00	2009-11-13
214986	AH-4 0-1'	soil	2009-11-10	00:00	2009-11-13
214987	AH-4 1'-1.5'	soil	2009-11-10	00:00	2009-11-13
214988	AH-4 2'-2.5'	soil .	2009-11-10	00:00	2009-11-13
214989	AH-4 3'-3.5'	soil	2009-11-10	00:00	2009-11-13
214990	AH-4 4'-4.5'	soil	2009-11-10	00:00	2009-11-13
214991	AH-4 5'-5.5'	soil	2009-11-10	00:00	2009-11-13
214992	AH-4 6'-6.5'	soil	2009-11-10	00:00	2009-11-13
214993	AH-4 7'-7.5'	soil	2009-11-10	00:00	2009-11-13
214994	AH-4 7.5'-8'	soil	2009-11-10	00:00	2009-11-13
214995	AH-5 0-1'	soil	2009-11-10	00:00	2009-11-13
214996	AH-5 1'-1.5'	soil	2009-11-10	00:00	2009-11-13
214997	AH-5 2'-2.5'	soil	2009-11-10	00:00	2009-11-13
214998	AH-5 3'-3.5'	soil	2009-11-10	00:00	2009-11-13
214999	AH-5 4'-4.5'	soil	2009-11-10	00:00	2009 - 11 - 13
215000	AH-6 0-1'	soil	2009-11-10	00:00	2009-11-13
215001	AH-6 1'-1.5'	soil	2009-11-10	00:00	2009-11-13
215002	AH-6 2'-2.5'	soil	2009-11-10	00:00	2009-11-13
215003	AH-7 0-1'	soil	2009-11-10	00:00	2009-11-13
215004	AH-7 1'-1.5'	soil	2009-11-10	00:00	2009-11-13

TraceAnalysis, Inc. • 6701 Aberdeen Ave., Suite 9 • Lubbock, TX 79424-1515 • (806) 794-1296 This is only a summary. Please, refer to the complete report package for quality control data.

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Report Date: November 23, 2009

]	BTEX		TPH DRO - NEW	TPH GRO
	Benzene	Toluene	Ethylbenzene	Xylene	DRO	GRO
Sample - Field Code	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
214975 - AH-1 0-1'	<0.0100	< 0.0100	< 0.0100	< 0.0100	<50.0	< 1.00
214978 - AH-2 0-1'	< 0.0100	<0.0100	< 0.0100	<0.0100	<50.0	4.76
214983 - AH-3 0-1'	- 0100				<50.0	<1.00
214986 - AH-4 0-1'	<0.0100	< 0.0100	< 0.0100	<0.0100	<50.0	<1.00
214995 - AH-5 0-1'	< 0.0100	<0.0100	0.0259	0.0210	254	<1.00
215000 - AH-6 0-1'					<50.0	<1.00
215003 - AH-7 0-17					<50.0	<1.00
Sample: 214975 - Al	H-1 0-1'					
Param	Flag		Result		Units	\mathbf{RL}
Chloride			287		mg/Kg	4.00
		, <u>,</u>				
Sample: 214976 - AI	H-1 1'-1.5'					
Param	Flag		Result		Units	\mathbf{RL}
Chloride			218		mg/Kg	4.00
Sample: 214977 - AI	H-1 2'-2.5'					
Param	Flag		Result		Units	RL
Chloride	·		<200		mg/Kg	4.00
Sample: 21/1078 - AF	Ŧ_9 0_1'					
Daram	I-2 U-1		Recult		Unite	pr
Chloride	Tiag		1690		mg/Kg	<u>4 00</u>
Chioride			1000		iiig/itg	4.00
Sample: 214979 - AH	I-2 1'-1.5'					
Param	Flag		Result		Units	RL
Chloride			2910		mg/Kg	4.00
Sample: 214980 - AH	I-2 2'-2.5'					
Sample: 214980 - AF Param	I-2 2'-2.5' Flag		Result		Units	RL

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Report Date: Nove	ember 23, 2009	Work Order: 91116	10 Page	Number: 3 of 5
Sample: 214981	- AH-2 3'-3.5'			
Param	Flag	Result	Units	BL
Chloride	0	305	mg/Kg	4.00
Sample: 214982	- AH-2 4'-4.5'			
Param	Flag	Result	Units	RL
Chloride		423	mg/Kg	4.00
Sample: 214983	- AH-3 0-1'			
Param	Flag	Result	Units	\mathbf{RL}
Chloride	0	<200	mg/Kg	4.00
Sample: 214984	- AH-3 1'-1.5'			
Param	Flag	Result	Units	\mathbf{RL}
Chloride		<200	mg/Kg	4.00
Sample: 214985	- AH-3 2'-2.5'			
Param	Flag	Result	Units	\mathbf{RL}
Chloride		<200	mg/Kg	4.00
Sample: 214986	- AH-4 0-1'			
Param	Flag	Result	Units	RL
Chloride		9520	mg/Kg	4.00
Sample: 214987	- AH-4 1'-1.5'			
Param	Flag	Result	Units	RL
Chloride		7130	mg/Kg	4.00
Sample: 214988	- AH-4 2'-2.5'			
Param	Flag	Result	Units	RI.
Chloride	(0	8990	mg/Kg	4.00

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Report Date: Nove	ember 23, 2009	Work Order: 9111610	Page	Number: 4 of 5
Sample: 214989	- AH-4 3'-3.5'			
Param	Flag	Result	Units	RL
Chloride		6660	mg/Kg	4.00
Sample: 214990	- AH-4 4'-4.5'			
Param	Flag	\mathbf{Result}	Units	RL
Chloride		5150	mg/Kg	4.00
Sample: 214991	- AH-4 5'-5.5'			
Param	\mathbf{F} lag	Result	Units	\mathbf{RL}
Chloride		4130	mg/Kg	4.00
Sample: 214992	- AH-4 6'-6.5'			
Param	Flag	Result	Units	\mathbf{RL}
Chloride		3460	mg/Kg	4.00
Sample: 214993	- AH-4 7'-7.5'			
Param	Flag	Result	Units	RL
Chloride		6310	mg/Kg	4.00
Sample: 214994	- AH-4 7.5'-8'			
Param	Flag	Result	Units	RL
Chloride		4470	mg/Kg	4.00
Sample: 214995	- AH-5 0-1'			
Param	Flag	Result	Units	\mathbf{RL}
Chloride	······································	5170	mg/Kg	4.00
Sample: 214996	- AH-5 1'-1.5'			
Param	Flag	Result	Units	RL
Chloride		4140	mg/Kg	4.00

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Report Date: November 23, 2009		Work Order: 9111610	Page	Page Number: 5 of 5	
Sample: 214997	- AH-5 2'-2.5'				
Param	Flag	Besult	Units	RL	
Chloride		4480	mg/Kg	4.00	
Sample: 214998	- AH-5 3'-3.5'				
Param	\mathbf{Flag}	Result	Units	\mathbf{RL}	
Chloride		4940	mg/Kg	4.00	
				······································	
Sample: 214999	- AH-5 4'-4.5'				
Param	Flag	Result	Units	\mathbf{RL}	
Chloride		4310	mg/Kg	4.00	
Sample: 215000	- AH-6 0-1'				
Param	Flag	Result	Units	\mathbf{RL}	
Chloride		4480 ·	mg/Kg	4.00	
Sample: 215001	AH-6 11-1 5'				
Sample: 215001	- Aff-0 1 -1.5				
Param	Flag	Result	Units	RL	
Chloride	<u></u>	1120	mg/Kg	4.00	
Sample: 215002	- AH-6 2'-2.5'				
Param	Flag	Result	Units	\mathbf{RL}	
Chloride .		440	mg/Kg	4.00	
Sample: 215003	- AH-7 0-1'				
Param	Flag	Result	Units	RL	
Chloride	<u> </u>	3060	mg/Kg	4.00	
Sample: 215004	- AH-7 1'-1.5'				
Daram	El	Popult	finita	ŤĊŤ	
r aram Chloride	r iag		mg/Kg	<u>πL</u>	
Unioride		0010	<u> </u>	. 4.00	

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WBENC: 237019

HUB: 1752439743100-86536 NCTRCA WFWB38444Y0909

Certifications

DBE: VN 20657

NELAP Certifications

Lubbock: T104704219-08-TX LELAP-02003 Kansas E-10317

El Paso: T104704221-08-TX LELAP-02002

Midland: T104704392-08-TX

Analytical and Quality Control Report

Ike Tavarez Tetra Tech 1910 N. Big Spring Street Midland, TX, 79705

Report Date: November 23, 2009

Work Order: 9111610

Project Location: Eddy Co., NM COG/Muskeegon 16 State Com. #1 Project Name: 114-6400354 Project Number:

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
214975	AH-1 0-1'	soil	2009-11-10	00:00	2009-11-13
214976	AH-1 1'-1.5'	soil	2009-11-10	00:00	2009-11-13
214977	AH-1 2'-2.5'	soil	2009-11-10	00:00	2009-11-13
214978	AH-2 0-1'	soil	2009-11-10	00:00	2009-11-13
214979	AH-2 1'-1.5'	soil	2009-11-10	00:00	2009-11-13
214980	AH-2 2'-2.5'	soil	2009-11-10	00:00	2009-11-13
214981	AH-2 3'-3.5'	soil	2009-11-10	00:00	2009-11-13
214982	AH-2 4'-4.5'	soil	2009-11-10	00:00	2009-11-13
214983	AH-3 0-1'	soil	2009-11-10	00:00	2009-11-13
214984	AH-3 1'-1.5'	soil	2009-11-10	00:00	2009-11-13

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
214985	AH-3 2'-2.5'	soil	2009-11-10	00:00	2009-11-13
214986	AH-4 0-1'	soil	2009-11-10	00:00	2009-11-13
214987	AH-4 1'-1.5'	soil	2009-11-10	00:00	2009-11-13
214988	AH-4 2'-2.5'	soil	2009-11-10	00:00	2009-11-13
214989	AH-4 3'-3.5'	soil	2009-11-10	00:00	2009-11-13
214990	AH-4 4'-4.5'	soil	2009-11-10	00:00	2009-11-13
214991	AH-4 5'-5.5'	soil	2009-11-10	00:00	2009-11-13
214992	AH-4 6'-6.5'	soil	2009-11-10	00:00	2009-11-13
214993	AH-4 7'-7.5'	soil	2009-11-10	00:00	2009-11-13
214994	AH-4 7.5'-8'	soil	2009-11-10	00:00	2009-11-13
214995	AH-5 0-1'	soil	2009-11-10	00:00	2009-11-13
214996	AH-5 1'-1.5'	soil	2009-11-10	00:00	2009-11-13
214997	AH-5 2'-2.5'	soil	2009-11-10	00:00	2009-11-13
214998	AH-5 3'-3.5'	soil	2009-11-10	00:00	2009-11-13
214999	AH-5 4'-4.5'	soil	2009-11-10	00:00	2009-11-13
215000	AH-6 0-1'	soil	2009-11-10	00:00	2009-11-13
215001	AH-6 1'-1.5'	soil	2009-11-10	00:00	2009-11-13
215002	AH-6 2'-2.5'	soil	2009-11-10	00:00	2009-11-13
215003	AH-7 0-1'	soil	2009-11-10	00:00	2009-11-13
215004	AH-7 1'-1.5'	soil	2009-11-10	00:00	2009-11-13

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 30 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

Standard Flags

 ${\bf B}\,$ - The sample contains less than ten times the concentration found in the method blank.

Case Narrative

Samples for project COG/Muskeegon 16 State Com. #1 were received by TraceAnalysis, Inc. on 2009-11-13 and assigned to work order 9111610. Samples for work order 9111610 were received intact at a temperature of 8.2 deg. C.

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

		\mathbf{Prep}	Prep	\mathbf{QC}	Analysis
Test	Method	Batch	Date	Batch	Date
BTEX	S 8021B	55928	2009-11-19 at 11:00	65456	2009-11-19 at 23:56
Chloride (Titration)	SM 4500-Cl B	55855	2009-11-17 at 12:50	65389	2009-11-18 at 14:45
Chloride (Titration)	SM 4500-Cl B	55856	2009-11-17 at 12:50	65390	2009-11-18 at 14:46
Chloride (Titration)	SM 4500-Cl B	55857	2009-11-17 at 12:51	65391	2009-11-18 at 14:47
Chloride (Titration)	SM 4500-Cl B	55858	2009-11-17 at 12:52	65380	2009-11-18 at 11:03
TPH DRO - NEW	Mod. 8015B	55834	2009-11-16 at 15:56	65341	2009-11-16 at 15:56
TPH GRO	S 8015B	55928	2009-11-19 at 11:00	65457	2009-11-20 at 00:23

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

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 9111610 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.

Report Date: November 23, 2009 114-6400354

Analytical Report

Sample: 214975 - AH-1 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland BTEX 65456 55928			Analytical Date Anal Sample Pr	Method: yzed: eparation:	S 8021B 2009-11-19 2009-11-19		Prep Me Analyze Prepare	ethod: ed By: ed By:	S 5035 AG AG
				RI						
Parameter	F	lag		Resul	t	Units		Dilution		\mathbf{RL}
Benzene				< 0.010)	mg/Kg		1		0.0100
Toluene				< 0.010	0	mg/Kg		1		0.0100
Ethylbenzene	ļ			< 0.010)	mg/Kg		1		0.0100
Xylene				< 0.010)	mg/Kg		1		0.0100
							Spike	Percent	Re	covery
Surrogate			Flag	Result	Units	Dilution	Amount	Recovery	L	imits
Trifluorotolue	ene (TFT)			2.14	mg/Kg	1	2.00	107	64.4	- 111.2
4-Bromofluor	obenzene (4-BFI	3)		1.36	mg/Kg	1	2.00	68	43.1	- 128.4

Sample: 214975 - AH-1 0-1'

.

Chloride		287	mg/Kg	50	4.00
Parameter	Flag	RL Result	Units	Dilution	RL
Prep Batch:	55855	Sample Preparation:	2009-11-17	Prepared By:	\mathbf{AR}
QC Batch:	65389	Date Analyzed:	2009-11-18	Analyzed By:	AR
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Laboratory:	Midland				

Sample: 214975 - AH-1 0-1'

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Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	65341	Date Analyzed:	2009-11-16	Analyzed By:	kg
Prep Batch:	55834	Sample Preparation	n: 2009-11-16	Prepared By:	kg
		RL			
Parameter	Flag	Result	Units	Dilution	\mathbf{RL}
DRO		<50.0	mg/Kg	1	50.0

Report Date: November 23, 2009 114-6400354

Work Order: 9111610 COG/Muskeegon 16 State Com. #1

Surrogate	Flag	Result	Units	Dilı	ition	Spike Amount	Percent Recovery	Recover Limits
n-Tricosane		124	mg/Kg		1	100	124	70 - 13
			0,					
Sample: 2149	975 - AH-1 0-	1'						
Laboratory: 1	Midland							
Analysis: 7	ГРН GRO		Analytica	l Method:	S 8015B		Prep Me	ethod: S 503
QC Batch: 6	5457		Date Ana	lyzed:	2009-11-20)	Analyze	d By: AG
Prep Batch: 5	5928		Sample P	reparation:	2009-11-19)	Prepare	d By: AG
			RL					
Parameter	Fla	r.	Result		Units		Dilution	R
GRO		<u> </u>	<1.00		mg/Kg		1	1.(
						Spike	Percent	Recovery
Surrogate		Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluen	e (TFT)		2.14	mg/Kg	1	2.00	107	65.3 - 11
4-Bromofluorob	enzene (4-BFB)	1.84	mg/Kg	1	2.00	92	61.7 - 121
Sample: 2149	976 - AH-1 1'-	1.5'						
Laboratory: N	Aidland							
Analysis: (Chloride (Titrat	ion)	Analy	tical Metho	d: SM 45	00-Cl B	Prep I	Method: N/
QC Batch: 6	5389		Date	Analyzed:	2009-1	1-18	Analy	zed By: AR
Prep Batch: 5	5855		Sampl	le Preparati	ion: 2009-1	1-17	Prepa	red By: AR
			\mathbf{RL}					
Parameter	Flag	r 5	\mathbf{Result}		Units		Dilution	R
Chloride		-	218		mg/Kg		50	4.0

Sample: 214977 - AH-1 2'-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method	: SM 4500-Cl B	Prep Method:	N/A
QC Batch:	65389	Date Analyzed:	2009-11-18	Analyzed By:	AR
Prep Batch:	55855	Sample Preparatio	n: 2009-11-17	Prepared By:	AR
		\mathbf{RL}			
Parameter	Flag	Result	Units	Dilution	\mathbf{RL}
Chloride	· · ·	<200	mg/Kg	50	4.00

Sample: 214978 - AH-2 0-1'

Laboratory: Analysis: QC Batch:	Midland BTEX 65456			Analytical Date Anal	Method: yzed:	S 8021B 2009-11-19	,	Prep Me Analyze	ethod: d By:	S 5035 AG
Prep Batch:	55928			Sample Pr	eparation:	2009-11-19		Prepare	d By:	AG
				RI	- 					
Parameter		Flag		Resul	t	Units	. 1	Dilution		\mathbf{RL}
Benzene		·		< 0.010	<u>)</u>	mg/Kg		1		0.0100
Toluene				< 0.010)	mg/Kg		1		0.0100
Ethylbenzene				< 0.010	0	mg/Kg		1		0.0100
Xylene				< 0.010	00	mg/Kg		1		0.0100
							Spike	Percent	Re	covery
Surrogate			Flag	\mathbf{Result}	Units	Dilution	Amount	Recovery	\mathbf{L}	imits
Trifluorotolue	ne (TFT)			2.15	mg/Kg	1	2.00	108	64.4	- 111.2
4-Bromofluor	obenzene (4-E	3FB)		1.38	mg/Kg	1	2.00	69	43.1	- 128.4

Sample: 214978 - AH-2 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 65389 55855	Analytical Method: Date Analyzed: Sample Preparation:	SM 4500-Cl B 2009-11-18 2009-11-17	Prep Method: Analyzed By: Prepared By:	N/A AR AR
		RL			
Parameter	Flag	Result	Units	Dilution	\mathbf{RL}
Chloride		1690	ng/Kg	50	4.00

Sample: 214978 - AH-2 0-1'

Laboratory:	Midland						
Analysis:	TPH DRO - N	IEW	Analytic	al Method:	Mod. 8015B	Prep M	fethod: N/A
QC Batch:	65341		Date An	alyzed:	2009-11-16	Analyz	ed By: kg
Prep Batch:	55834		Sample I	Preparation:	2009-11-16	Prepar	ed By: kg
			\mathbf{RL}				
Parameter	\mathbf{F}	lag	\mathbf{Result}	esult Units		Dilution	RL
DRO			<50.0	n	ng/Kg	1	50.0
					Spike	Percent	Recovery
Surrogate	Flag	\mathbf{Result}	Units	Dilution	Amount	Recovery	Limits
n-Tricosane		130	mg/Kg	1	100	130	70 - 130

Sample: 214978 - AH-2 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH GRO 65457 55928		Analytica Date Ana Sample P	l Method: lyzed: reparation:	S 8015B 2009-11-20 2009-11-19		Prep Me Analyze Preparec	ethod: d By: d By:	S 5035 AG AG
			\mathbf{RL}						
Parameter	Flag		Result		Units		Dilution		RL
GRO			4.76		mg/Kg		1		1.00
Surrogate		Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Rec Li	overy mits
Trifluorotolu	ene (TFT)	0	2.14	mg/Kg	1	2.00	107	65.3	- 115
4-Bromofluor	robenzene (4-BFB)		1.86	mg/Kg	1	2.00	93	61.7	- 121.1
Sample: 21 Laboratory: Analysis: QC Batch: Prep Batch: Parameter Chloride	4979 - AH-2 1'-1.5' Midland Chloride (Titration) 65389 55855 Flag		Analy Date Samp RL Result 2910	tical Method Analyzed: le Preparatio	: SM 4500- 2009-11-1 n: 2009-11-1 Units mg/Kg	-Cl B 18 17	Prep M Analy: Prepar Dilution 100	Method: zed By: red By:	N/A AR AR <u>RL</u> 4.00
					0/0		-00	•	
Sample: 21 Laboratory: Analysis: QC Batch: Prep Batch:	4980 - AH-2 2'-2.5' Midland Chloride (Titration) 65390 55856		Analy Date J Sampl	tical Method Analyzed: le Preparatio	: SM 4500- 2009-11-1 n: 2009-11-1	Cl B 8 7	Prep M Analyz Prepar	Aethod: zed By: red By:	N/A AR AR
•			D.T.	•			.	v	
Parameter	Flag		кL Besult		Units		Dilution		BL

Sample: 214981 - AH-2 3'-3.5'

Chloride

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	65390	- Date Analyzed:	2009-11-18	Analyzed By:	AR
Prep Batch:	55856	Sample Preparation:	2009-11-17	Prepared By:	AR

mg/Kg

50

4.00

Report Date 114-6400354 	Report Date: November 23, 2009 114-6400354		W COG/Mu	Vork Order: 9 Iskeegon 16 9	Page Number: 8 of 3 Eddy Co., NN		
D (•	1	RL		¥T 14		DI
Parameter	F.	lag	Result		Units	Dilution	KL
Chloride			305]	mg/Kg		4.00
Sample: 21	4982 - AH-2	4'-4.5'					
Laboratory:	Midland						
Analysis:	Chloride (Titr	ation)	Analytic	al Method:	SM 4500-Cl B	Prep Method	l: N/A
QC Batch:	65390 [`]	,	Date An	alyzed:	2009-11-18	Analyzed By	· AR
Prep Batch:	55856		Sample I	Preparation:	2009-11-17	Prepared By	: AR
			\mathbf{RL}				
Parameter	F	lag	Result		Units	Dilution	RL
Chloride			423]	ng/Kg	50	4.00
Laboratory: Analysis: QC Batch: Prep Batch: Parameter	Midland Chloride (Titr 65390 55856 F	ation) lag	Analytic Date An Sample l RL Result	al Method: alyzed: Preparation:	SM 4500-Cl B 2009-11-18 2009-11-17 Units	Prep Method Analyzed By Prepared By Dilution	l: N/A : AR : AR RL
Chloride		0	<200		ng/Kg	50	4.00
Sample: 21	4983 - AH-3 ()-1'					
Laboratory:	Midland	17331/	A 1		M.J. 9015D	Deen Mathed	. NT / A
Analysis:	TPH DRO - N	NE W	Data An	al Method:	MOG. 8013D	A reluged By	l: IN/A.
QC Datch:	55924		Sampla l	Proparation:	2009-11-10	Propagod By	ka
r rep batch.	00004		Jampie	пераганоп.	2009-11-10	T tepated by.	кд
Paramotor	E)	lur	RL		Unite	Dilution	RI
	P .	ав			nø/Kø	1	50.0
			100.0			*	00.0
					Spike	Percent R	ecovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane		130	mg/Kg	1	100	130 7	0 - 130

Report Date: November 23, 2009 114-6400354			Work Order: 9111610 COG/Muskeegon 16 State Com. #1				Page Number: 9 o Eddy Co.,		
Sample: 21	4983 - AH-3 0-1'								
Laboratory:	Midland	,							
Analysis:	TPH GRO		Analytica	l Method:	S 8015B		Prep M	ethod:	S 5035
QC Batch:	65457		Date Ana	lyzed:	2009-11-20		Analyze	d By:	AG
Prep Batch:	55928		Sample P	reparation:	2009-11-19		Prepare	d By:	AG
			RL						
Parameter	Flag		Result		Units		Dilution		\mathbf{RL}
GRO			<1.00		mg/Kg		1		1.00
						Spike	Percent	Rec	overy
Surrogate		Flag	Result	Units	Dilution	Amount	Recovery	Li	mits
Trifluorotolu	ene (TFT)		2.12	mg/Kg	1	2.00	106	65.3	- 115
4-Bromofluo	robenzene (4-BFB)		1.82	mg/Kg	1	2.00	91	61.7	- 121.1
Analysis: QC Batch: Prep Batch:	Chloride (Titration) 65390 55856		Analy Date J Sampl	tical Method Analyzed: e Preparatio	: SM 4500 2009-11- n: 2009-11-	-Cl B 18 17	Prep I Analy Prepa	Method: zed By: red By:	N/A AR AR
ъ.			RL		TT r .				ъř
Parameter	Flag		Result		Units		Dilution		<u></u>
Chioride					ing/Kg	,,,	<u> </u>		4.00
Sample: 21	4985 - AH-3 2'-2.5'								
Laboratory:	Midland								
Analysis:	Chloride (Titration)		Analy	tical Method	: SM 4500	-Cl B	Prep 1	Method:	N/A
QC Batch:	65390		Date A	Analyzed:	2009-11-1	18	. Analy	zed By:	AR
Prep Batch:	55856		Sampl	e Preparatio	n: 2009-11-1	17	Prepa	red By:	AR
			RL						·
Parameter	Flag		Result		Units		Dilution		\mathbf{RL}
Chloride			<200		mg/Kg		50		4.00

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Sample: 214986 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	65456	Date Analyzed:	2009-11-19	Analyzed By:	AG
Prep Batch:	55928	Sample Preparation:	2009-11-19	Prepared By:	AG

Report Date: November 23, 2009 114-6400354			Work Order: 9111610 COG/Muskeegon 16 State Com. #1				Page Number: 10 of 30 Eddy Co., NM		
Dava	D 1		RI	Ĺ	TT			51	
Parameter	rlag		Resul	t	Units		Dilution	RL	
Benzene			< 0.010	0	mg/Kg		1	0.0100	
Toluene			< 0.010	0	mg/Kg		1	0.0100	
Ethylbenzene			< 0.010	0	mg/Kg		1	0.0100	
Xylene			< 0.010	0	mg/Kg		1	0.0100	
						Spike	Percent	Recovery	
Surrogate		\mathbf{Flag}	Result	Units	Dilution	Amount	Recovery	Limits	
Trifluorotoluene (TFT	')		2.14	mg/Kg	1	2.00	107	64.4 - 111.2	
4-Bromofluorobenzene	(4-BFB)		1.38	mg/Kg	1	2.00	69	43.1 - 128.4	

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Sample: 214986 - AH-4 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 65390 55856	Analytical Date Anal Sample Pr	Method: yzed: eparation:	SM 4500-Cl B 2009-11-18 2009-11-17	Prep Method: Analyzed By: Prepared By:	N/A AR AR
_		RL				
Parameter	Flag	\mathbf{Result}	•	Units	Dilution	\mathbf{RL}
Chloride		9520	1	ng/Kg	100	4.00

Sample: 214986 - AH-4 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - N 65341 55834	VEW	Analytic Date An Sample 1	al Method: alyzed: Preparation:	Mod. 8015B 2009-11-16 2009-11-16	Prep M Analyz Prepare	lethod: N/A ed By: kg ed By: kg
Parameter	ਸ	lao	RL Besult		Units	Dilution	BL
DRO	•	145	<50.0	n	ig/Kg	1	50.0
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		123	mg/Kg	1	100	123	70 - 130

Sample: 214986 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5035
QC Batch:	65457	Date Analyzed:	2009-11-20	Analyzed By:	AG
Prep Batch:	55928	Sample Preparation:	2009-11-19	Prepared By:	AG

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Report Date 114-6400354	Report Date: November 23, 2009 114-6400354			Work Order: 9111610 COG/Muskeegon 16 State Com. #1				Page Number: 11 of Eddy Co., I		
Parameter	Flag	R	RL esult		Units		Dilution		RL	
GRO		<	<1.00	•	mg/Kg		1		1.00	
Surrogate		Flag Re	sult	Units	Dilution	Spike Amount	Percent [°] Recovery	Rece Lir	overy nits	
Trifluorotolu	ene (TFT)		2.15 r	ng/Kg	1	2.00	108	65.3	- 115	
4-Bromofluo	robenzene (4-BFB)		l.87 r	ng/Kg	1	2.00	94	61.7 -	121.1	
Sample: 21	.4987 - AH-4 1'-1.5'									
Laboratory:	Midland Chlorida (Titration)		Analutio	Mathad	SM 4500	CI R	Prop 1	Inthad	NIA	
Analysis:	65300		Date An	al memou: alvzed	2000-11-	-OLD 18	rrep v Analw	ad Ry	AR	
Prep Batch:	55856		Sample I	reparation:	2009-11-	17	Prepar	red By:	AR	
D		D	RL		T T 14				DI	
Parameter	Flag	R	esult		Units		Dilution		$-\frac{\text{KL}}{4.00}$	
Sample: 21 Laboratory:	4988 - AH-4 2'-2.5' Midland Chloride (Titration)		Analytic	al Method	SM 4500	-Cl B	Pren M	lethod.	N/A	
QC Batch: Prep Batch:	65390 55856		Date An Sample F	alyzed: Preparation:	2009-11- 2009-11-	18 17	Analyz Prepar	ed By: ed By:	AR AR	
			\mathbf{RL}							
Parameter	Flag	R	esult		Units		Dilution		\mathbf{RL}	
Chloride		{	3990	1	mg/Kg		100		4.00	
Sample: 21	4989 - AH-4 3'-3.5'									
Laboratory:	Midland								_ + / ·	
Analysis:	Chloride (Titration)		Analytica	u Method:	SM 4500	-CIB	Prep M	lethod:	N/A	
QC Batch: Prep Batch:	65390 55856		Date Ana Sample F	uyzed: reparation:	2009-11-1 2009-11-1	lð 17	Analyz Prepar	ed By: ed By:	AR AR	
			RL							
Parameter	Flag	R	esult		Units		Dilution		RL	
Chloride		· · · · · · · · · · · · · · · · · · ·	660	1	ng/Kg		100		4.00	

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Sample: 214990 - AH-4 4'-4.5'

Chloride		5150	mg/Kg	100	4.00
Parameter	Flag	RL Result	Units	Dilution	\mathbf{RL}
Prep Batch:	55857	Sample Preparation:	2009-11-17	Prepared By:	AR
QC Batch:	65391	Date Analyzed:	2009-11-18	Analyzed By:	\mathbf{AR}
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Laboratory:	Midland				

Sample: 214991 - AH-4 5'-5.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 65391 55857	Analytical Method: Date Analyzed: Sample Preparation:	SM 4500-Cl B 2009-11-18 2009-11-17	Prep Method: Analyzed By: Prepared By:	N/A AR AR
		\mathbf{RL}			
Parameter	Flag	Result	Units	Dilution	\mathbf{RL}
Chloride		4130	mg/Kg	100	4.00

Sample: 214992 - AH-4 6'-6.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	65391	Date Analyzed:	2009-11-18	Analyzed By:	\mathbf{AR}
Prep Batch:	55857	Sample Preparation:	2009-11-17	Prepared By:	\mathbf{AR}
,	,	\mathbf{RL}			
Parameter	Flag	Result	Units	Dilution	\mathbf{RL}
Chloride		3460	mg/Kg	100	4.00

Sample: 214993 - AH-4 7'-7.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 65391 55857	Analytical Method: Date Analyzed: Sample Preparation:	SM 4500-Cl B 2009-11-18 2009-11-17	Prep Method: Analyzed By: Prepared By:	N/A AR AR
D	51	RL	T T 1.		DI
Parameter	Flag	Result	Units	Dilution	RL
Chloride		6310	mg/Kg	100	4.00

Sample: 214994 - AH-4 7.5'-8'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	65391	Date Analyzed:	2009-11-18	Analyzed By:	AR
Prep Batch:	55857	Sample Preparation:	2009-11-17	Prepared By:	AR
		RL			
Parameter	Flag	Result	Units	Dilution	\mathbf{RL}
Chloride		4470	mg/Kg	100	4.00

Sample: 214995 - AH-5 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland BTEX 65456 55928			Analytical Date Analy Sample Pre	Method: yzed: eparation:	S 8021B 2009-11-19 2009-11-19		Prep Me Analyze Prepare	ethod: d By: d By:	S 5035 AG AG
				RI	<u>.</u>					
Parameter	F	lag		Resul	t	Units		Dilution		\mathbf{RL}
Benzene				< 0.010	0	mg/Kg		1		0.0100
Toluene				< 0.010	0	mg/Kg		1		0.0100
Ethylbenzene	<u>;</u>			0.0259)	mg/Kg		1		0.0100
Xylene				0.0210)	mg/Kg		1		0.0100
Surrogata			Flag	Regult	Unite	Dilution	Spike	Percent	Re	covery
Juirogate	(DDD)		Flag	nesur	Units		Amount	100		
Triffuorotolue	ene (TFT)			2.16	mg/Kg	1	2.00	108	64.4	- 111.2
4-Bromofluor	obenzene (4-BFI	3)		1.38	mg/Kg	1	2.00	69	43.1	- 128.4

Sample: 214995 - AH-5 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	65391	Date Analyzed:	2009-11-18	Analyzed By:	AR
Prep Batch:	55857	Sample Preparation	: 2009-11-17	Prepared By:	AR
		RL			
Parameter	\mathbf{Flag}	Result	Units	Dilution ·	\mathbf{RL}
Chloride		5170	mg/Kg	100	4.00

Sample: 214995 - AH-5 0-1'

Laboratory:	Midland							
Analysis:	TPH DRO - NEW		Anal	ytical Metho	od: Mod.	8015B	Prep l	Method: N/A
QC Batch:	65341		Date	Analyzed:	2009-	11-16	Analy	zed By: kg
Prep Batch:	55834		Samp	ole Preparat	ion: 2009-	11-16	Prepa	red By: kg
			DI					
Danamatan	וכו		KL Darult		TT			זמ
Parameter	r I	ag	Result		Units			
DRO		1	294		mg/Kg		1	50.0
						Spike	Percent	Recoverv
Surrogate	Flag	Result	Units	Dilı	ition	Amount	Recovery	Limits
n-Tricosane	Y	128	mg/Kg		1	100	128	70 - 130
			0,					
Sample: 21	4995 - AH-5 0	-1'						
Sampior 21	1000 111100	-						
Laboratory:	Midland							
Analysis:	TPH GRO		Analytica	l Method:	S 8015B		Prep Me	ethod: S 5035
QC Batch:	65457		Date Ana	lyzed:	2009-11-2	0	Analyze	d By: AG
Prep Batch:	55928		Sample P	reparation:	2009-11-1	9	Prepare	d By: AG
			DI					
D	T ³ 1		KL Dowyli		TT . 14 -			זת
Parameter	Fl	ag	Kesuit		Units		Dilution	KL
GRO			<1.00		mg/Kg		1	1.00
						Spike	Percent	Recovery
Surrogate		Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotolu	ene (TFT)	0	2.14	mg/Kg	1	2.00	107	65.3 - 115
4-Bromofluor	obenzene (4-BF	B)	1.93	mg/Kg	1	2.00	96	61.7 - 121.1
		,					- · · · · · · · · · · · · · · · · · · ·	
Sample 21	4996 - AH-5 1	·-1 5'						
Sample, 21		-1.0	,					
Laboratory:	Midland							
Analysis:	Chloride (Titra	ation)	Analy	tical Metho	d: SM 43	500-Cl B	Prep l	Method: N/A

QC Batch: Prep Batch:	65391 55857	Date Analyzed: Sample Preparation:	2009-11-18 2009-11-17	Analyzed By: Prepared By:	AR AR
		\mathbf{RL}			
Parameter	Flag	\mathbf{Result}	\mathbf{Units}	Dilution	RL
Chloride		4140	mg/Kg	100	4.00

Sample: 214997 - AH-5 2'-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	65391	Date Analyzed:	2009-11-18	Analyzed By:	AR
Prep Batch:	55857	Sample Preparation:	2009-11-17	Prepared By:	AR
		זמ			
		nL			
Parameter	Flag	Result	Units	Dilution	RL
Chloride		4480 1	ng/Kg	100	4.00

Sample: 214998 - AH-5 3'-3.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 65391 55857	Analytical Method: Date Analyzed: Sample Preparation:	SM 4500-Cl B 2009-11-18 2009-11-17	Prep Method: Analyzed By: Prepared By:	N/A AR AR
*	-	RL	TT 1.		
Parameter	Flag	Result	Units	Dilution	RL
Chloride		4940	mg/Kg	100	4.00

Sample: 214999 - AH-5 4'-4.5'

Chloride		4310	ng/Kg	100	4.00
Parameter	Flag	RL Result	Units	Dilution	RL
Prep Batch:	55857	Sample Preparation:	2009-11-17	Prepared By:	\mathbf{AR}
QC Batch:	65391	Date Analyzed:	2009-11-18	Analyzed By:	AR
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Laboratory:	Midland				

Sample: 215000 - AH-6 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 65380 55858	Analytical Method: Date Analyzed: Sample Preparation:	SM 4500-Cl B 2009-11-18 2009-11-17	Prep Method: Analyzed By: Prepared By:	N/A AR AR
		RL			
Parameter	Flag	Result	Units	Dilution	\mathbf{RL}
Chloride		4480	mg/Kg	100	4.00

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Sample: 21	5000 - AH-6 (0-1'					
Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - 1 65341 55834	١EW	Analytic Date An Sample I	al Method: Ma alyzed: 20 Preparation: 20	od. 8015B 09-11-16 09-11-16	Prep M Analyz Prepare	lethod: N/A ed By: kg ed By: kg
Parameter	F	lag	RL Result	Un	its	Dilution	RL
DRO			<50.0	mg/l	Kg	1	50.0
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		124	mg/Kg	1	100	124	70 - 130
Sample: 21	5000 - AH-6 (0-1'					

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH GRO 65457 55928		Analytica Date Ana Sample P	l Method: lyzed: reparation:	S 8015B 2009-11-20 2009-11-19		Prep Method: Analyzed By: Prepared By:		
			RL						
Parameter	Flag		Result		Units		Dilution		RL
GRO			<1.00		mg/Kg	••	1		1.00
Surrogate		Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Re L	covery imits
Trifluorotolue	ene (TFT)		2.17	mg/Kg	1	2.00	108	65.	3 - 115
4-Bromofluor	obenzene (4-BFB)		1.86	mg/Kg	1	2.00	93	61.7	- 121.1

Sample: 215001 - AH-6 1'-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	65380	Date Analyzed:	2009-11-18	Analyzed By:	AR
Prep Batch:	55858	Sample Preparation	: 2009-11-17	Prepared By:	AR
		RL			
Parameter	Flag	Result	Units	Dilution	\mathbf{RL}
Chloride		1120	mg/Kg	50	4.00

Sample: 215002 - AH-6 2'-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	65380	Date Analyzed:	2009-11-18	Analyzed By:	\mathbf{AR}
Prep Batch:	55858	Sample Preparation:	2009-11-17	Prepared By:	\mathbf{AR}
,		•			
		\mathbf{RL}			
Parameter	Flag	Result	Units	Dilution	RL
Chloride		440	mg/Kg	50	4.00

Sample: 215003 - AH-7 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 65380 55858	Analytical Method: Date Analyzed: Sample Preparation:	SM 4500-Cl B 2009-11-18 2009-11-17	Prep Method: Analyzed By: Prepared By:	N/A AR AR
_		RL	TT 1.		DT
Parameter	Flag	Result	Units	Dilution	RL
Chloride		3060 1	ng/Kg	100	4.00

Sample: 215003 - AH-7 0-1'

Laboratory:	Midland						
Analysis:	TPH DRO - N	NEW	Analytic	al Method:	Mod. 8015B	$\operatorname{Prep} N$	fethod: N/A
QC Batch:	65341		Date An	alyzed:	2009-11-16	Analyz	ed By: kg
Prep Batch:	55834		Sample I	Preparation:	2009-11-16	Prepar	ed By: kg
			\mathbf{RL}				
Parameter	F	lag	Result		Units	Dilution	RL
DRO			<50.0	r	ng/Kg	1	50.0
					Spike	Percent	Recovery
Surrogate	Flag	\mathbf{Result}	Units	Dilution	Amount	Recovery	Limits
n-Tricosane		124	mg/Kg	1	100	124	70 - 130

Sample: 215003 - AH-7 0-1'

Laboratory: Analysis:	Midland TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5035
QC Batch:	65457	Date Analyzed:	2009-11-20	Analyzed By:	AG
Prep Batch:	55928	Sample Preparation:	2009-11-19	Prepared By:	AG

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_			RL						
Parameter	Flag		Result		Units		Dilution		RL
JRO	· · · · · ·		<1.00		mg/Kg		1		1.00
Surrogate		Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Reco Lim	very lits
Frifluorotolue	ne (TFT)		2.14	mg/Kg	1	2.00	107	65.3 -	115
l-Bromofluoro	obenzene (4-BFB)		1.86	mg/Kg	1	2.00	93	61.7 -	121.1
Sample: 215	5004 - AH-7 1'-1.	5'							-
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration 65380 55858	ı) ·	Analy Date A Sampl	tical Method: Analyzed: e Preparatior	SM 4500 2009-11- n: 2009-11-	0-Cl B -18 -17	Prep N Analyz Prepar	Aethod: zed By: zed By:	N/A AR AR
Daramatan	Flor		RL		Unita		Dilution		вт
⁻ arameter	r tag		2910		ma/Ka				<u>KL</u>
vlethod Bla QC Batch: Prep Batch:	nk (1) QC Ba 65341 55834	tch: 65341	Date Ana QC Prep	alyzed: 200 aration: 200	09-11-16 09-11-16		Anal Prep	yzed By: ared By:	kg kg
		Flag		MDL Result		Uni	its		RI.
arameter		LIGE							1.01.4
Parameter DRO		1 105		< 5.86		mg/	Kg		50
Parameter DRO	Flag	lesult	Units	<5.86 Dilutio	on A	mg/ Spike mount	Kg Percent Recovery	Reco	50 50 overy
Parameter DRO Jurrogate -Tricosane	Flag	Result 116	Units mg/Kg	<5.86 Dilutio	on A	mg/ Spike mount 100	Kg Percent Recovery 116	Reco Lir 70 -	50 overy nits 130
Parameter DRO Gurrogate I-Tricosane Method Blas (C Batch: 'rep Batch:	Flag 3 nk (1) QC Ba 65380 55858	Result 116 tch: 65380	Units mg/Kg Date Ana QC Prepa	<5.86 Dilutio	on A 9-11-18 9-11-17	mg/ Spike Imount 100	Kg Percent Recovery 116 Analyz Prepar	Reco Lir 70 - zed By: red By:	AR AR AR
Parameter DRO Gurrogate I-Tricosane Method Bla (C Batch: 'rep Batch:	Flag nk (1) QC Ba 65380 55858	Result 116 tch: 65380	Units mg/Kg Date Ana QC Prepa	<5.86 Dilutio 1 lyzed: 2009 tration: 2009 MDL Barult	on A 9-11-18 9-11-17	mg/ Spike mount 100	Kg Percent Recovery 116 Analyz Prepar	Reco Lir 70 - zed By: red By:	AR AR AR

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Method Blank (1)	QC Batch: 65389							
QC Batch: 65389 Prep Batch: 55855		Date Ana QC Prep	alyzed: aration:	2009-11-18 2009-11-17		Analy Prepa	zed By: red By:	AR AR
D	ורד		M	DL	TT			DI
Chloride	Flag	·	Kes	18	Units mg/Kg			
		· ·						
Method Blank (1)	QC Batch: 65390							
QC Batch: 65390		Date Ana	lyzed:	2009-11-18		Analy	zed By:	AR
Prep Batch: 55856		QC Prep	aration:	2009-11-17		Prepa	red By:	AR
			M	DL				
Parameter	Flag		Res	ult	Units			RL
Chloride	•		<2	.18	mg/Kg			4
Method Blank (1)	QC Batch: 65391							
QC Batch: 65391		Date Ana	lvzed:	2009-11-18		Analy	zed By:	AR
Prep Batch: 55857		QC Prepa	aration:	2009-11-17		Prepa	red By:	AR
			MI	DL .				
Parameter	Flag		Res	ult	Units			<u> </u>
Chloride			<2	.18	mg/Kg			4
Method Blank (1)	QC Batch: 65456							
QC Batch: 65456		Date Ana	lyzed:	2009-11-19		Analy	zed By:	AG
Prep Batch: 55928		QC Prepa	aration:	2009-11-19		Prepa	red By:	AG
			1	MDL				
Parameter	Flag		R	esult	Units			RL
Benzene			<0.0	0410	mg/Kg			0.01
romene Ethylhenzene			<0.U	0.0310	mg/Kg			0.01 0.01
Xylene			<0.0	0650	mg/Kg			0.01
v ·								
Surrogato	Elo a	Dooult	TI	Dilution	Spike	Percent	Reco	very
Trifluorotoluono (TFT)	r iag	2 15	Units mg/Kg	r 1	2 00	108	64 0	100 7
4-Bromofluorobenzene	4-BFB)	2.10	mg/Ke	5 I 7 1	2.00	66	439-	121.0
- 2. onion doi obonnone (*	1.01	···-5/ ···8	<u>, , , , , , , , , , , , , , , , , , , </u>	2.00		10.0 -	101.0

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Method Blank (1)	QC Bat	ch: 65457								
QC Batch: 65457			Date Ana	alyzed:	2009-11	-20		Anal	yzed By:	AG
Prep Batch: 55928			QC Prep	aration:	2009-11	-19		Prep	ared By:	\mathbf{AG}
				М	IDL					
Parameter	F	`lag		Re	sult		Units	- 1		RL
GRO		-		<0.	.396		mg/K	g		1
							Snike	Percent	Re	coverv
Surrogate		Flag	Result	Unit	ts D	ilution	Amount	Recovery	L	imits
Trifluorotoluene (TF)	Г)	0	2.21	mg/ł	Хg	1	2.00	110	66.5	2 - 125
4-Bromofluorobenzen	e (4-BFB)		1.82	mg/H	Χġ	1	2.00	91	62 ·	- 120.5
Prep Batch: 55834		LCS	QC Prep	paration:	: 2009-11	I-16 Spike	Matrix Besult	Prep	pared By R	: kg ec.
DRO		234		r/Kg	1	250	<5.86	94	57.4 -	133.4
			RPD is h	ased on	the spike	and spike d	uplicate res	ult.		
Percent recovery is ba	ased on the s	Dike result.	LUL 10 10 10			1	1	-		
Percent recovery is ba	ased on the s				Spile	Motrix		Roo		DDD
Percent recovery is ba	ased on the s	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Percent recovery is ba	ased on the s	LCSD Result 238	Units mg/Kg	Dil.	Spike Amount 250	Matrix Result <5.86	Rec. 95 57	Rec. Limit .4 - 133.4	RPD 2	RPD Limit 20
Percent recovery is ba Param DRO Percent recovery is ba	ased on the s	LCSD Result 238 pike result.	Units mg/Kg RPD is b	Dil. 1 ased on	Spike Amount 250 the spike	Matrix Result <5.86 and spike d	Rec. 95 57 uplicate res	Rec. Limit .4 - 133.4 sult.	RPD 2	RPD Limit 20
Percent recovery is ba	ased on the space on the space on the space on the space of the space	LCSD Result 238 pike result. LCSD Result	Units mg/Kg RPD is b	Dil. 1 ased on	Spike Amount 250 the spike	Matrix Result <5.86 and spike d Spike	Rec. 95 57 uplicate res LCS Bec	Rec. Limit .4 - 133.4 pult. LCSD Bec	RPD 2	RPD Limit 20 Rec.
Percent recovery is ba Param DRO Percent recovery is ba Surrogate n-Tricosane	ased on the space on the space on the space on the space of the space	LCSD Result 238 pike result. LCSD Result 115	Units mg/Kg RPD is b Un mg/	Dil. 1 ased on its /Kg	Spike Amount 250 the spike Dil. 1	Matrix Result <5.86 and spike d Spike Amount 100	Rec. 95 57 uplicate res LCS Rec. 112	Rec. Limit .4 - 133.4 ult. LCSD Rec. 115	RPD 2 1 70	RPD Limit 20 Rec. Limit) - 130
Percent recovery is ba Param DRO Percent recovery is ba Surrogate n-Tricosane Laboratory Contro QC Batch: 65380 Prep Batch: 55858	ased on the space of the space	LCSD Result 238 pike result. LCSD Result 115 2S-1)	Units mg/Kg RPD is b Un mg/ Date Ana QC Prep	Dil. 1 ased on its /Kg alyzed: aration:	Spike Amount 250 the spike Dil. 1 2009-11 2009-11	Matrix Result <5.86 and spike d Spike Amount 100 -18 -17	Rec. 95 57 uplicate res LCS Rec. 112	Rec. Limit .4 - 133.4 ult. LCSD Rec. 115 Analy Prepa	RPD 2 1 70 70 72ed By: ured By:	RPD Limit 20 Rec. Jimit - 130 AR AR AR
Percent recovery is ba Param DRO Percent recovery is ba Surrogate n-Tricosane Laboratory Contro QC Batch: 65380 Prep Batch: 55858 Param	ased on the space on the space on the space on the space of the space	LCSD Result 238 pike result. LCSD Result 115 SS-1)	Units mg/Kg RPD is b Un mg/ Date Ana QC Prep S	Dil. 1 ased on its /Kg alyzed: aration:	Spike Amount 250 the spike Dil. 1 2009-11 2009-11	Matrix Result <5.86 and spike d Spike Amount 100 -18 -17 Spike Amount	Rec. 95 57 uplicate res LCS Rec. 112	Rec. Limit 4 - 133.4 ult. LCSD Rec. 115 Analy Prepa ix	RPD 2 I 70 vzed By: ured By:	RPD Limit 20 Rec. Limit - 130 AR AR AR AR

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

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Report Date 114-6400354	e: November 23, 2009		COG	Work O /Muskeeg	rder: 911161 on 16 State (10 Com. #1		Page i	Page Number: 21 of 30 Eddy Co., NM		
Param Chloride		LCSD Result 103	Units mg/K	Dil.	Spike Amount 100	Matrix Result <2.18	Rec.	Rec. Limit 85 - 115	RPD 2	RPD Limit 20	
Percent reco	very is based on the sp	ike result.	RPD is	based on	the spike and	d spike du	plicate r	esult.			
Laboratory	v Control Spike (LC	S-1)									
QC Batch: Prep Batch:	65389 55835		Date A QC Pre	nalyzed: eparation:	2009-11-18 2009-11-17			An Pre	alyzed B pared B	y: AR y: AR	
Param		L(Res	CS sult	Units	Dil.	Spike Amount	Ma Re	itrix sult R	ec.	Rec. Limit	
Chloride		1()1	mg/Kg	1	100	<2	2.18 1	01	85 - 115	
Percent reco	very is based on the sp	ike result.	RPD is	based on 1	the spike and	i spike du	plicate r	esult.			
Param		LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit	
Chloride		100	mg/K	g 1	100	<2.18	100	85 - 115	1	20	
Laboratory QC Batch: Prep Batch:	⁷ Control Spike (LC 65390 55856	S-1)	Date A QC Pre	nalyzed: paration:	2009-11-18 2009-11-17			An: Pre	alyzed By pared By	y: AR 7: AR	
		LC	CS			Spike	Ma	trix		Rec.	
Param		Res	ult	Units	Dil.	Amount	Re	sult R	ec.	Limit	
Chloride		<u></u>		mg/Kg	1	100	<'2	2.18 1	00	85 - 115	
Percent recov	very is based on the sp	ike result.	RPD is	based on t	the spike and	i spike duj	olicate r	esult.			
-		LCSD	TT T	DU	Spike	Matrix		Rec.	DDD	RPD	
Param Chloride		98.8	Units	$\frac{D11}{7}$	Amount 100	$\frac{\text{Kesult}}{< 2.18}$	Rec.	$\frac{\text{Limit}}{85 - 115}$	<u> </u>	Limit 20	
Percent recov	very is based on the sp	ike result.	RPD is	based on t	he spike and	l spike dup	olicate r	esult.	<u> </u>	20	
Laboratory	Control Spike (LC:	5-1)									
QC Batch: Prep Batch:	65391 55857		Date Ar QC Pre	nalyzed: paration:	2009-11-18 2009-11-17			Ana Pre	alyzed By pared By	7: AR 7: AR	

continued ...

and and an iteration of the state of the sta											
ontrol spikes continued	т	CS		,		Spike	λ	Astriv			Rec
aram	Re	sult.	Unit	s Dil.		Amount	I	Result	Re	c. '	Limit.
			01110							···	Dinno
	\mathbf{L}	\mathbf{CS}				Spike	N	Aatrix			Rec.
aram	Re	sult	Unit	s Dil.		Amount	I	Result	Re	с.	Limit
Chloride	9	8.7	mg/K	(g 1		100		<2.18	99	}	85 - 115
ercent recovery is based on the s	pike result	. RPD is	s based	on the spik	e and	spike du	plicate	e resul	t.		
	LCSD			Spik	æ	Matrix			Rec.		RPD
aram	Result	Unit	s D	il. Amoi	int	Result	Rec	. I	Limit	RPD	Limit
Chloride	99.5	mg/K	g	1 100)	<2.18	100	85	5 - 115	1	20
ercent recovery is based on the s	pike result	. RPD is	based	on the spik	e and	spike du	plicate	e result	t.		
aboratory Control Spike (LC	CS-1)										
C Batch: 65456		Date A	nalvze	d∙ 2009-1	11_19				Anal	vzed B	v AG
rep Batch: 55928		OC Pr	enarati	ion: 2009-1	1-19				Pren	ared By	r: AG
		40	opului							area D	
	IC	q			C	ilea	Mat				Daa
aram	Roei	ם 11+	Unite	Ŀ	JC Am	ount	Reg	rix. .lt	Rec	1	nec. imit
enzene	10	2 n	ng/Kg	<u> </u>	2			410	96	75.4	- 115.7
oluene	1.9	2 1. 0 n	10/Kg	1	2.	00	< 0.00	310	95	78.4	- 113.6
thylbenzene	1.8	6. 6.	10/Kg	1	2	00	< 0.00	240	93	76	- 114.2
lvlene	5.5	7 n	1g/Kg	1	6.	00	<0.00	650	93	76.9	- 113.6
ercent recovery is based on the s	pike result	. RPD is	based	on the spik	e and	spike du	olicate	result			
u	t con			0.0			L			•	מתת
	LCSD	TT	D .1	Spike	M	atrix	D	r T	tec.	חחח	RPD L
aram	Result	Units	<u> </u>	Amount	R	esult	Kec.	125 A	115 7		
	1.94	mg/Kg	1	2.00	<0	.00410	97	70.4	- 110.7	1	20
oluene	1.93	mg/Kg	1	2.00	<0	00040	90 05	(0.4 76	- 113.0	2	20
vlene	5.60	mg/Kg	1	2.00	<0	00240	90 05	76.0	- 114.2	2	20
ercent recovery is based on the s	nike result	RPD is	hased	on the spik	<u></u> e and	spike du	alicate	result	- 115.0	2	20
				on the spin	c and	spine du	, include	- 00			_
		S LO	JSD	TT	D !!	Spike			LCSD	Ť	Kec.
urrogate	Kest	ut Re	sult	Units		Amou	nt .	104	Kec.	l	amit
muorotoiuene (TFT)	2.0	9, 2. 4	.13 97	mg/Kg	1	2.00		104 67	106	60 40 0	- 122.9 194.0
Bromonuorobenzene (4-BFB)	1.34	4 1	.37	mg/Kg	1	2.00		07	08	43.8	- 124.9
abanatany Control Spike (IC	10 1)										
aboratory Control Spike (LC											
C Batch: 65457		Date A	nalyze	d: 2009-1	1-20				Analy	yzed By	: AG
		OC Pr	eparati	on: 2009-1	1-19				Prepa	ared By	: AG
rep Batch: 55928											-

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ParamLCS ResultSpike mg/KgMatrix AmountRec. ResultLimit ResultRec. LimitLimit SpikeParamRec. ResultLimit Rec.Rec. SpikeRec. Rec. LimitRec. RPDRec. LimitRec. RPDRep LimitRec. RPDRec. LimitRec. RPDRec. LimitRec. RPDRec. LimitRec. RPDRec. LimitRec. RPDRec. LimitRec. RPDRec. LimitRec. RPDRec. LimitRec. RPDRec. LimitRec. Re	Report Date: November 23, 2009 114-6400354		Work COG/Muskee	Order: 91 egon 16 Sta	11610 ate Com. #1		Page Number: 23 of 3 Eddy Co., NM		
ParamResultUnitsDil.AmountResultRec.LimitGRO14.5mg/Kg120.0<0.396		LCS			Spike	Matrix		Rec.	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	GRO	14.5	mg/Kg	1	20.0	< 0.396	72	52.5 - 114.3	
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Percent recovery is based on the s	pike result. F	RPD is based or	n the spike	and spike d	uplicate resu	lt.		
ParamResultUnitsDil.ArnountResultRec.LimitRPDLimitGRO14.4mg/Kg120.0<0.396		LCSD		Spike	Matrix		Rec.	RPD	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Param	Result	Units Dil.	Amount	Result	Rec. I	Limit	RPD Limit	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	GRO	14.4 r	ng/Kg 1	20.0	< 0.396	72 52.5	5- 114.3	1 20	
LCSL	Percent recovery is based on the s	pike result. F	PD is based or	n the spike	and spike d	uplicate resu	lt.		
SurrogateResultResultCountsDit.AmountRec.Ref.LimitTrifluorotoluene (TFT)2.172.16 mg/Kg 12.0010866.2 - 128.74-Bromofluorobenzene (4-BFB)1.871.84 mg/Kg 12.00949264.1 - 127.4Matrix Spike (MS-1)Spiked Sample: 214975	Summerste	LCS	LCSD	T : 4	Spil	ke LCS	LCSD	Rec.	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Trifluorotoluono (TET)		nesuit	$\frac{0}{0}$ nits	$\frac{DII}{1} - \frac{Amot}{20}$	$\frac{100}{0}$	109 109	Limit	
The Holikardocelizatic (FEH D)1.611.611.641	4-Bromofluorobenzene (4-BEB)	2.17	2.10 H	ng/Kg	1 2.0	0 108	108	64.1 197.4	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Matrix Spike (MS-1) Spiked QC Batch: 65341 Prep Batch: 55834	l Sample: 214	975 ` Date Analyzed: QC Preparatior	2009-1 n: 2009-1	1-16 1-16		Ana Prej	lyzed By: kg pared By: kg	
ParamResultUnitsDil.AmountResultRec.LimitDRO135mg/Kg1250<5.86	D	MS	TT • .	Dil	Spike	Matrix		Rec.	
DRO135mg/Kg1250 < 3.86 54 $35.2 - 167.1$ Percent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.MSDSpikeMatrixRec.RPDParamResultUnitsDil.AmountResultRec.LimitDRO138mg/Kg1250 < 5.86 55 $35.2 - 167.1$ 2 20 Percent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.SurrogateResultResultUnitsDil.AmountRec.Rec.Limitn-Tricosane118116mg/Kg1100118116 $70 - 130$ Matrix Spike (MS-1)Spiked Sample: 215083Date Analyzed:2009-11-18Analyzed By:ARPrep Batch: 55858 QC Preparation:2009-11-17Prepared By:ARMSSpikeMatrixRec.ImitRec.MSLimitsDil.AmountResultRec.LimitChoride14300mg/Kg10010000396010385 - 115	Param	Result	Units	<u></u>	Amount	Result	Rec.	Limit	
Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.MSDSpikeMatrixRec.RPDParamResultUnitsDil.AmountResultRec.LimitDRO138mg/Kg1250 < 5.86 55 $35.2 - 167.1$ 2 20 Percent recovery is based on the spike result.RPD is based on the spike and spike duplicate result. 20 MSMSDSpikeMSMSDRec.SurrogateResultResultUnitsDil.AmountRec.Rec.ImitTricosane118116mg/Kg1 100 118 116 $70 - 130$ Matrix Spike (MS-1)Spiked Sample: 215083Date Analyzed:2009-11-18Analyzed By:ARPrep Batch: 55858 QC Preparation: $2009-11-17$ Prepared By:ARMSSpikeMatrixRec.ParamResultUnitsDil.AmountResultRec.LimitChloride14300mg/Kg10010000 3960 103 $85 - 115$	DRO	135	mg/Kg	1	250	< 5.80	54	35.2 - 167.1	
MSDSpikeMatrixRec.RPDParamResultUnitsDil.AmountResultRec.LimitRPDLimitDRO138mg/Kg1250<5.86	Percent recovery is based on the sp	pike result. R	LPD is based on	n the spike	and spike du	iplicate resul	lt.		
ParamResultUnitsDil.AmountResultRec.LimitRPDLimitDRO138mg/Kg1250 < 5.86 55 $35.2 - 167.1$ 220Percent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.MSMSDRec.SurrogateResultResultUnitsDil.AmountRec.Rec.In-Tricosane118116mg/Kg110011811670 - 130Matrix Spike (MS-1)Spiked Sample: 215083Date Analyzed:2009-11-18Analyzed By:ARPrep Batch: 55858 QC Preparation:2009-11-17Prepared By:ARMSResultUnitsDil.AmountResultRec.LimitChloride14300mg/Kg10010000396010385 - 115		MSD		Spike	Matrix]	Rec.	RPD	
DRO 138 mg/Kg 1 250 < 55 35 35.2 - 167.1 2 20 Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result. MS MSD Rec. Surrogate Result Result Units Dil. Amount Rec. Rec. Limit n-Tricosane 118 116 mg/Kg 1 100 118 116 70 - 130 Matrix Spike (MS-1) Spiked Sample: 215083 Date Analyzed: 2009-11-18 Analyzed By: AR Prep Batch: 65380 Date Analyzed: 2009-11-17 Prepared By: AR MS MS Spike Matrix Rec. Limit Prep Batch: 55858 QC Preparation: 2009-11-17 Prepared By: AR MS Spike Matrix Rec. Limit Chloride 14300 mg/Kg 100 10000 3960 103 85 - 115	Param	Result	Units Dil.	Amount	Result	Rec. L	Jimit	RPD Limit	
MS MSD Spike MS MSD Rec. Surrogate Result Result Units Dil. Amount Rec. Rec. Limit n-Tricosane 118 116 mg/Kg 1 100 118 116 70 - 130 Matrix Spike (MS-1) Spiked Sample: 215083 Date Analyzed: 2009-11-18 Analyzed By: AR Prep Batch: 55858 Date Analyzed: 2009-11-17 Prepared By: AR MS MS Spike Matrix Rec. Limit MS QC Preparation: 2009-11-17 Prepared By: AR Prep Batch: 55858 QC Preparation: 2009-11-17 Prepared By: AR MS Result Units Dil. Amount Result Rec. Limit Chloride 14300 mg/Kg 100 10000 3960 103 85 - 115		138 n	ng/Kg i	250	<0.80	55 35.2	- 107.1	2 20	
MSMSDSpikeMSMSDRec.SurrogateResultResultUnitsDil.AmountRec.Rec.Limitn-Tricosane118116mg/Kg110011811670 - 130Matrix Spike (MS-1)Spiked Sample: 215083Date Analyzed:2009-11-18Analyzed By:ARPrep Batch:65380Date Analyzed:2009-11-17Prepared By:ARPrep Batch:55858QC Preparation:2009-11-17Prepared By:ARParamResultUnitsDil.AmountResultRec.LimitChloride14300mg/Kg10010000396010385 - 115	Percent recovery is based on the sp	pike result. R	PD is based on	the spike	and spike dı	plicate resul	lt.		
SurrogateResultResultUnitsDil.AmountRec.Rec.Limitn-Tricosane118116mg/Kg110011811670 - 130Matrix Spike (MS-1)Spiked Sample: 215083Date Analyzed:2009-11-18Analyzed By:ARQC Batch:65380Date Analyzed:2009-11-18Analyzed By:ARPrep Batch:55858QC Preparation:2009-11-17Prepared By:ARMSSpikeMatrixRec.ParamResultUnitsDil.AmountResultRec.LimitChloride14300mg/Kg10010000396010385 - 115	MS	MSD			Spike	MS	MSD	Rec.	
n-Tricosane 118 116 mg/Kg 1 100 118 116 70 - 130 Matrix Spike (MS-1) Spiked Sample: 215083 Analyzed: 2009-11-18 Analyzed By: AR QC Batch: 65380 Date Analyzed: 2009-11-18 Analyzed By: AR Prep Batch: 55858 QC Preparation: 2009-11-17 Prepared By: AR MS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Chloride 14300 mg/Kg 100 10000 3960 103 85 - 115	Surrogate Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit	
Matrix Spike (MS-1)Spiked Sample: 215083QC Batch:65380Date Analyzed:2009-11-18Analyzed By:ARPrep Batch:55858QC Preparation:2009-11-17Prepared By:ARMSSpikeMatrixRec.ParamResultUnitsDil.AmountResultRec.Chloride14300mg/Kg10010000396010385 - 115	n-Tricosane 118	116	mg/Kg	1	100	118	116	70 - 130	
MSSpikeMatrixRec.ParamResultUnitsDil.AmountResultRec.Chloride14300mg/Kg10010000396010385 - 115	Matrix Spike (MS-1) Spiked QC Batch: 65380 Prep Batch: 55858	Sample: 215	083 Date Analyzed:	2009-11	-18		Analy	yzed By: AR	
MSSpikeMatrixRec.ParamResultUnitsDil.AmountResultRec.LimitChloride14300mg/Kg10010000396010385 - 115	T TOP Dation. 00000	ι. L	e^ i reparation	. 2003-11	. 1,		ттера	моц Бу. АЦ	
ParamResultUnitsDil.AmountResultRec.LimitChloride14300mg/Kg10010000396010385 - 115		MS			Spike	Matrix		Bec.	
Chloride 14300 mg/Kg 100 10000 3960 103 85 - 115	Param	Result	t Units	Dil.	Amount	Result	Rec	. Limit	
	Chloride	14300	mg/Kg	100	10000	3960	103	85 - 115	

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

Report Date 114-6400354	:: November 23, 2009		COG,	Work O Muskeeg/	order: 911161 on 16 State (10 Com. #1		Page	Number: Eddy	24 of 30 Co., NM
Param		MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		14400	mg/Kg	<u>g 100</u>	10000	3960	104	85 - 115	1	20
Percent recov	very is based on the sp	oike result	. RPD is	based on	the spike and	d spike du	plicate r	esult.		
Matrix Spil	ke (MS-1) Spiked	Sample: 2	214979							
QC Batch:	65389		Date Ar	nalvzed:	2009-11-18			Ar	nalvzed B	v: AR
Prep Batch:	55855		QC Pre	paration:	2009-11-17			Pr	epared B	y: AR
		Ŋ	10			en ilm	Ma	· · · · · ·		Dec
Param		Re	sult	Units	Dil	Amount	IVIA Re	urix sult F	?ec	Limit
Chloride	······································	129	900	mg/Kg	100	10000	29	$\frac{1}{10}$	100	85 - 115
Percent reco	worv is based on the sr	vike result	RPD is	hased on	tha spika and	d enike du		ocult		
r creent recov	very 13 other on and ap	ARC ICSUIG	. 161 () 13	oused on	uic spike air	i spike uuj	piicate i	cault.		
		MSD			Spike	Matrix		Rec.		RPD
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	•	13000	mg/Kg	<u>; 100</u>	10000	2910	101	85 - 115	1	20
Matrix Spi QC Batch: Prep Batch:	ke (MS-1) Spiked 65390 55856	Sample: 2	214989 Date Ar QC Prej	nalyzed: paration:	2009-11-18 2009-11-17			Ar Pr	alyzed B epared B	y: AR y: AR
		М	IS			Spike	Ma	trix		Rec.
Param		Res	sult	Units	Dil.	Amount	Re	sult F	lec.	Limit
Chloride		163	5 <u>00</u> 1	mg/Kg	100	10000	66	60	98	85 - 115
Percent recov	very is based on the sp	ike result.	RPD is l	based on t	the spike and	l spike dug	olicate r	esult.		
		MSD			Spike	Matrix		Rec.		RPD
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride		16700	mg/Kg	100	10000	6660	100	85 - 115	1	20
Percent recov	very is based on the sp	ike result.	RPD is l	based on t	the spike and	l spike dup	olicate r	esult.		
Matrix Spil	ke (MS-1) Spiked	Sample: 2	14999							
QC Batch:	65391		Date An	alyzed:	2009-11-18			An	alyzed B	y: AR
Prep Batch:	55857		QC Pre	paration:	2009-11-17			Pr	epared B	y: AR
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Report Date: November 23, 200 114-6400354	9	COG	Work /Muske	c Order: 91 eegon 16 St	1161(ate C) om. #1			Page N	lumber: Eddy	25 of 30 Co., NM
matrix spikes continued	_										
_	_M	IS .				Spike	N	Aatrix	_		Rec.
Param	Res	sult	Units	Dil.		Amount	I	lesult	Re	C.	Limit
	Ν	IS				Spike	٨	A atrix			Rec.
Param	Re	sult	Units	Dil.		Amount	I	Result	Re	c.	Limit
Chloride	14	700	mg/Kg	: 100		10000		4310	10	4	85 - 115
Percent recovery is based on the	spike result	. RPD is	based o	on the spik	e and	spike du	plicate	e resul	t.		
·	MCD			- 9:1.		- Mat-:	-		Dee		מממ
Param	Result	Unita	יים	Spik	e nt	Recult	Pag	т	nec. Timit	חקמ	Limit
Chloride	1/1800	mg/Kg	- 100	1000 A	<u>n.</u> 0	10000L	105	. 1 	. 11¤	$\frac{\operatorname{Rr} D}{1}$	
	14000	ing/itg	. 100	1000		4010	100	0.	- 115	1	20
C Batch: 65456 rep Batch: 55928		Date Ar QC Prej	nalyzed paratio	:: 2009-1 m: 2009-1	1-19 1-19				Ana. Prep	lyzed By oared By	v: AG v: AG
	MS				Sp	ike	Mat	rix	_		Rec.
aram	Resu	lt U	nits	Dil.	Amo	ount	Resu		Rec.	<u> </u>	<u>imit</u>
Senzene	2.10	o me	g/Kg	1	2.0	00	<0.00	410	108	57.7	- 140.7
loluene Navihanzana	2.10 0.00	s mg	g/ng /Va	1	2. 0.1		<0.00	310	109	ວວ.4 ຄາ 1	- 140.0
Culono	2.20 6.50) me	/Kg	1	2.0 6.1	00		240 650	110	02.1 61.9	- 141.0
Percent recovery is based on the	spike result.	, RPD is l	based o	on the spik	e and	spike du	<u>v</u> nlicate	result	110	01.2	- 1-12-1
or center receivery is based on the		101 10 100		a n			pilotte	- court	,, ,		
De no m	MSD	Unita	D:1	Spike	M	atrix	Dee	r T	lec.	ממת	RPD Limit
Taram		Units	DH. 1	Amount		esuit	Kec.	L 	140 7	<u>RPD</u>	
Selizene 2	1.29	mg/Kg	1	2.00	< 0.	00410	04 66	57.7 52.4	- 140.7 146.6	20 40	20
thylbenzene 3	1.32	mg/Kg	1	2.00	<0	00310	68	62.1	- 140.0	49 18	20 20
Viene 4	4.03	mg/Kg	1	6.00	<0.	.00210	67	61.2	- 142.7	48	20
Percent recovery is based on the	spike result.	RPD is t	based o	on the spike	e and	spike du	plicate	result			
·	MS	s MS	SD.			Snik	- 'A	MS	MSD	1	Rec
urrogate	Resu	ilt Res	ult	Units	Dil.	Amo	int	Rec	Rec	L T	imit
rifluorotoluene (TFT)	2.1	5 2.1	 15	mg/Kg	1	2		108	108	62.7	- 119.6
-Bromofluorobenzene (4-BFB)	1.39	9 1.3	39	mg/Kg	1	$\overline{\tilde{2}}$		70	70	49.6	- 136.7
¹ MS/MSD RPD out of RPD Limits ² MS/MSD RPD out of RPD Limits ³ MS/MSD RPD out of RPD Limits ⁴ MS/MSD RPD out of RPD Limits	Use LCS/LC Use LCS/LC Use LCS/LC Use LCS/LC	SD to dem SD to dem SD to dem SD to dem SD to dem	onstrate onstrate onstrate onstrate	mg/Kg analysis is i analysis is i analysis is i analysis is i	nder o inder o inder o inder o	control. control. control. control.		70		49.0	- 130.7

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Report Da 114-640033	te: November 54	23, 2009		V COG/M	Work uskee	Order: 911 egon 16 Sta	1610 ite Cor	n. #1		Pa	age Nı	ımber: Eddy (26 of 30 Co., NM
Matrix S _I	oike (MS-1)	Spiked S	Sample: 2149	63									
QC Batch: Prep Batch	65457 a: 55928		Da Q	ate Anal C Prepai	yzėd: ratior	2009-11 n: 2009-11	-20 -19				Analy Prepa	yzed By ared By	r: AG : AG
Param			MS Result	' Un	lits	Dil.	Sp Am	oike ount	Ma Re	atrix esult	Rec.		Rec. Limit
GRO			13.9	mg/	/Kg	1	2	0.0	<0	.396	70	10	- 198.3
Percent rec	overy is based	on the spi	ke result. RI	PD is bas	sed or	n the spike	and sp	oike d	uplicate	result.	-		
Param			MSD Result U	Jnits	Dil.	Spike Amount	Ma Re	atrix sult	Rec.	Rec. Limi	t	RPD	RPD Limit
GRO			15.0 m	g/Kg	1	20.0	<0	.396	75	10 - 19	8.3	8	20
Percent rec	overy is based	on the spi	ke result. RF	PD is bas	sed or	n the spike	and sp	oike da	uplicate	result.			
			MS	MSD	`			c.	ailea	MC	MGL	\ \	Dee
Surrogate			Result	Besul	, It	Units	Dil	Am Am	ount	Rec	Rec	,	Limit
Trifluoroto	luene (TFT)		2.04	2.12		mg/Kg	1		2	102	106	65	5 - 123
4-Bromoflu	orobenzene (4	-BFB)	1.91	1.93		mg/Kg	1		2	96	96	58 58	.6 - 140
Standard QC Batch:	(CCV-2) 65341		D	ate Anal	yzed:	2009-11-	16	~		_	Anal	lyzed B	y: kg
			CC ~~~	Vs	C E	CVs wind		JVs		Percent		-	Data
Param	Flag	Linite		ue ac	rt C	onc	Rec	overv		Limite	y	۵n	Jate alweed
DRO	Tiug	mg/Kg	25	0	2	255	1	$\frac{0.01}{02}$		80 - 120	}	200	9-11-16
Standard QC Batch:	(CCV-3) 65341		D	ate Anal	yzed:	2009-11-	16				Anal	yzed B	y: kg
			CC	Vs	C	CVs	CC	Vs		Percent			
			Tri	ie	Fo	ound	Per	cent		Recovery	,]	Date
Param	Flag	Units	Cor	nc.	C	onc.	Reco	overy		Limits		An	alyzed
DRO	•••	mg/Kg	25	0	2	260	1	04		80 - 120		200	9-11-16
Standard QC Batch:	(CCV-4) 65341		D	ate Anal	yzed:	2009-11-	16				Anal	yzed B	y: kg

Report Dat 114-640035	te: November 4	23, 2009	COG/N	Work Order: 9 Muskeegon 16 S	111610 tate Com. #1	Page N	umber: 27 of 30 Eddy Co., NM
Param DRO	Flag	Units mg/Kg	CCVs True Conc. 250	CCVs Found Conc. 245	CCVs Percent Recovery 98	Percent Recovery Limits 80 - 120	Date Analyzed 2009-11-16
Standard	(ICV-1)						
QC Batch:	65380		Date Ana	lyzed: 2009-1	1-18	Ana	lyzed By: AR
Param Chloride	Flag	Units mg/Kg	ICVs True Conc. 100	ICVs Found Conc. 100	ICVs Percent Recovery 100	Percent Recovery Limits 85 - 115	Date Analyzed 2009-11-18
Standard	(CCV-1)						
QC Batch:	65380		Date Ana	lyzed: 2009-1	L-18	Anal	yzed By: AR
Param Chloride	Flag	Units mg/Kg	CCVs True Conc. 100	CCVs Found Conc. 100	CCVs Percent Recovery 100	Percent Recovery Limits 85 - 115	Date Analyzed 2009-11-18
Standard	(ICV-1)						
QC Batch:	65389		Date Ana	lyzed: 2009-11	l-18	Anal	yzed By: AR
Param Chloride	Flag	Units mg/Kg	ICVs True Conc. 100	ICVs Found Conc. 99.2	ICVs Percent Recovery 99	Percent Recovery Limits 85 - 115	Date Analyzed 2009-11-18
Standard	(CCV-1)						
QC Batch:	65389		Date Ana	lyzed: 2009-11	-18	Anal	yzed By: AR
Param Chloride	Flag	Units mg/Kg	CCVs True Conc. 100	CCVs Found Conc. 101	CCVs Percent Recovery 101	Percent Recovery Limits 85 - 115	Date Analyzed 2009-11-18
Standard ((ICV-1)						
QC Batch:	65390		Date Anal	lyzed: 2009-11	-18	Anal	yzed By: AR

Report Da 114-640035	te: November 23 54	s, 2009	V COG/M	Vork Order: 91 uskeegon 16 St	11610 ate Com. #1	Page N	umber: 28 of 30 Eddy Co., NM
Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	100	100	85 - 115	2009-11-18
Standard	(CCV-1)						
QC Batch:	65390		Date Analy	yzed: 2009-11	-18	Anal	lyzed By: AR
Damana	Flog	Unito	CCVs True Cono	CCVs Found	CCVs Percent	Percent Recovery	Date
Chloride	F lag	mg/Kg	100		100	85 - 115	2009-11-18
QC Batch:	65391		Date Analy	yzed: 2009-11	-18	Anal	yzed By: AR
			ICVs	ICVs Found	ICVs Democrat	Percent	Data
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Date Analyzed
Chloride		mg/Kg	100	100	100	85 - 115	2009-11-18
Standard QC Batch:	(CCV-1) 65391		Date Analy	vzed: 2009-11-	-18	Anal	yzed By: AR
			CCVs	CCVs	CCVs	Percent	
~		TT	True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery		Analyzed
Standard	(CCV-1)	<u></u>	100				2003-11-10
QC Batch:	65456		Date Analy	rzed: 2009-11-	19	Anal	yzed By: AG
			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/Kg	0.100	0.0923	92	80 - 120	2009-11-19
Loluene		mg/Kg	0.100	0.0906	91	80 - 120	2009-11-19
Dunyidenzer Yulong	ie	mg/Kg	0.100	0.0090	00 90	00 - 120 80 - 120	2003-11-19
Thene		mg/ng	0.000	0.209	30	00 - 120	2003-11-19

		COG/M	Vork Order: 91 uskeegon 16 Sta	11610 ate Com. #1	Page N	umber: 29 of 30 Eddy Co., NM
Standard (CCV-2)						
QC Batch: 65456		Date Anal	yzed: 2009-11-	.19	Anal	yzed By: AG
		CCVs	CCVs	CCVs	Percent	
		True	Found	Percent	Recovery	Date
Param Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene	mg/Kg	0.100	0.0961	96	80 - 120	2009-11-19
Toluene	mg/Kg	0.100	0.0945	94	80 - 120	2009-11-19
Ethylbenzene	mg/Kg	0.100	0.0925	92	80 - 120	2009-11-19
Xylene	mg/Kg	0.300	0.274	91	80 - 120	2009-11-19
Standard (CCV-3)						
QC Batch: 65456		Date Analy	yzed: 2009-11-	19	Anal	yzed By: AG
		CCVe	CCVe	CCVe	Percent	
			Found	Percent	Recovery	Doto
Param Flag	Unite	Conc	Conc	Recovery	Limite	Analyzad
Renzene	mg/Kg	0 100	0.0072	07	80 - 120	2000-11-10
Toluene	mg/Kg	0.100	0.0912	97	80 - 120	2009-11-10
	···6/ ··6	0.100	0.0300	31	00 - 120	2003-11-10
Ethylhenzene	mg/Kg	0 100	0.0940	04	80 - 120	2000-11-10
Ethylbenzene Xylene	mg/Kg mg/Kg	0.100 0.300	0.0940 0.280	94 93	80 - 120 80 - 120	2009-11-19 2009-11-19
Ethylbenzene Xylene Standard (CCV-1) QC Batch: 65457	mg/Kg mg/Kg	0.100 0.300 Date Analy	0.0940 0.280 //zed: 2009-11-	94 93 20	80 - 120 80 - 120 Anal	2009-11-19 2009-11-19 vzed By: AG
Ethylbenzene Xylene Standard (CCV-1) QC Batch: 65457	mg/Kg mg/Kg	0.100 0.300 Date Analy	0.0940 0.280 vzed: 2009-11-	94 93 20	80 - 120 80 - 120 Anal	2009-11-19 2009-11-19 yzed By: AG
Ethylbenzene Xylene Standard (CCV-1) QC Batch: 65457	mg/Kg mg/Kg	0.100 0.300 Date Analy CCVs	0.0940 0.280 vzed: 2009-11- CCVs	94 93 20 CCVs	80 - 120 80 - 120 Analy Percent	2009-11-19 2009-11-19 yzed By: AG
Ethylbenzene Xylene Standard (CCV-1) QC Batch: 65457	mg/Kg mg/Kg	0.100 0.300 Date Analy CCVs True	0.0940 0.280 vzed: 2009-11- CCVs Found	94 93 20 CCVs Percent	80 - 120 80 - 120 Analy Percent Recovery	2009-11-19 2009-11-19 yzed By: AG Date
Ethylbenzene Xylene Standard (CCV-1) QC Batch: 65457 Param Flag	mg/Kg mg/Kg Units	0.100 0.300 Date Analy CCVs True Conc.	0.0940 0.280 vzed: 2009-11- CCVs Found Conc.	94 93 20 CCVs Percent Recovery	80 - 120 80 - 120 Analy Percent Recovery Limits	2009-11-19 2009-11-19 yzed By: AG Date Analyzed
Ethylbenzene Xylene Standard (CCV-1) QC Batch: 65457 Param Flag GRO	mg/Kg mg/Kg Units mg/Kg	0.100 0.300 Date Analy CCVs True Conc. 1.00	0.0940 0.280 vzed: 2009-11- CCVs Found Conc. 0.955	94 93 20 CCVs Percent Recovery 96	80 - 120 80 - 120 Analy Percent Recovery Limits 80 - 120	2009-11-19 2009-11-19 yzed By: AG Date Analyzed 2009-11-20
Ethylbenzene Xylene Standard (CCV-1) QC Batch: 65457 Param Flag GRO Standard (CCV-2)	mg/Kg mg/Kg Units mg/Kg	0.100 0.300 Date Analy CCVs True Conc. 1.00	0.0940 0.280 //zed: 2009-11- CCVs Found Conc. 0.955	94 93 20 CCVs Percent Recovery 96	80 - 120 80 - 120 Analy Percent Recovery Limits 80 - 120	2009-11-19 2009-11-19 yzed By: AG Date Analyzed 2009-11-20
Ethylbenzene Xylene Standard (CCV-1) QC Batch: 65457 Param Flag GRO Standard (CCV-2) QC Batch: 65457	mg/Kg mg/Kg Units mg/Kg	0.100 0.300 Date Analy CCVs True Conc. 1.00 Date Analy	0.0940 0.280 vzed: 2009-11- CCVs Found Conc. 0.955	94 93 20 20 CCVs Percent Recovery 96 20	80 - 120 80 - 120 Analy Percent Recovery Limits 80 - 120 Analy	2009-11-19 2009-11-19 yzed By: AG Date Analyzed 2009-11-20 yzed By: AG
Ethylbenzene Xylene Standard (CCV-1) QC Batch: 65457 Param Flag GRO Standard (CCV-2) QC Batch: 65457	mg/Kg mg/Kg Units mg/Kg	0.100 0.300 Date Analy CCVs True Conc. 1.00 Date Analy CCVs	0.0940 0.280 //zed: 2009-11- CCVs Found Conc. 0.955 //zed: 2009-11- CCVs	94 93 20 20 CCVs Percent Recovery 96 20 20 CCVs	80 - 120 80 - 120 Analy Percent Recovery Limits 80 - 120 Analy Percent	2009-11-19 2009-11-19 yzed By: AG Date Analyzed 2009-11-20 yzed By: AG
Ethylbenzene Xylene Standard (CCV-1) QC Batch: 65457 Param Flag GRO Standard (CCV-2) QC Batch: 65457	mg/Kg mg/Kg Units mg/Kg	0.100 0.300 Date Analy CCVs True Conc. 1.00 Date Analy CCVs True	0.0940 0.280 //zed: 2009-11- CCVs Found Conc. 0.955 //zed: 2009-11- CCVs Found	94 93 20 20 20 20 20 20 20 20 20 20 20 20 20	80 - 120 80 - 120 Analy Percent Recovery Limits 80 - 120 Analy Percent Recovery	2009-11-19 2009-11-19 yzed By: AG Date <u>Analyzed</u> 2009-11-20 yzed By: AG Date
Ethylbenzene Xylene Standard (CCV-1) QC Batch: 65457 Param Flag GRO Standard (CCV-2) QC Batch: 65457 Param Flag	mg/Kg mg/Kg Units mg/Kg Units	0.100 0.300 Date Analy CCVs True Conc. 1.00 Date Analy CCVs True Corc.	0.0940 0.280 vzed: 2009-11- CCVs Found Conc. 0.955 vzed: 2009-11- CCVs Found COVs Found Conc.	94 93 20 20 20 20 20 20 20 20 20 20 20 20 20	80 - 120 80 - 120 Analy Percent Recovery Limits 80 - 120 Analy Percent Recovery Limits	2009-11-19 2009-11-19 yzed By: AG Date Analyzed 2009-11-20 yzed By: AG Date Analyzed

Report Da 114-64003	te: November 54	· 23, 2009	COG/I	Work Order: 9 Muskeegon 16 S	111610 tate Com. #1	Page N	umber: 30 of 30 Eddy Co., NM
			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	0.987	99	80 - 120	2009-11-20

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PAGE: / OF: 3	ANALYSIS REQUEST (Circle or Specify Method No.)	SO SO SO SO SO SO SO SO SO SO SO SO SO S	550/624 550/624 550/624 550/624 550/624 550/624 550/624 550/624 550/624 550/624 550/624 550/624 550/624 550/624 550/625 500/625 500/600/625 50	A PA el al participation A PA el al participation A PA el al participation A PA el al participation A PA el al participation B PAOVE A PA el al participation B PAOVE B PAOVE B PAOVE A PA el al participation B PAOVE B PAOVE	ВТЕХ 80271 Рен 8016 Рен 8270 НСЕР Мета ТСЕР Уојаці НСЕ Реат. 608/6 Реат. 608/6 Селм5 Semi Реат. 608/6 Селм5 Semi Реат. 608/6 Селм5 Semi Реат. 608/6 Реат. 608/6	X						5	y.			SAMPLED BY: (Print & Initial) 07/1267 Dete: 11/10/02	FEDEX HIPPED BY: (Circle) AIRBIL F:	TETRA TECH CONTACT PERSON: Results by:	TL. T. J.T.	L Kt / avarter Authorizad: No	weeeds 1,000 mailing.	ratains Pink copy - Accounting receives Gold copy.
in of Custody Bacord		TECH Spring St. as 79705 Fax (432) 682-3946	R. PRESERVATIVE	Smite live +1 Bill		× 1	-1·S'	z,5'	- · ·	۲ ⁻ ۱,5'	۲ ⁻² ۲	<u>-</u> 3,5, ⁻	1-4.S'			ARCENED BY (Signeran) Date: 11/13/37	ABOCEIVED BY: (SINTAUNA)	RECEIVED BY: (Signature) Cate: Time: Time:	acceived BY: (Signature)	ATE: TIME	acque Amples 17 TVH &	copy - Return Orginal copy to Tetra Tech - Project Manager r
is Bourest of Cha		HETRA 1910 N. Big S Midland, Tex (432) 682-4559 •	SITE MANAGE	PROJECT NAME: COGI Maskrecon AL	TIME FARE SAMPL	5 X AH-1 0-	1 1-44 // //	;2 1-++		1 2-HV)	2 2-HP-Z 2	2-# 4 [] []	μ 2-μθ)		A AH 2 HU 2 HU	MARY TIME L'AR	Date:	a) Date:	1	STATE: T.K. ZIP: D	TECENED: REMARKS. NUM.	il out all copies - Laboratory retainy Yellow
Analysi	Allalys		CLIENT NAME:	PROJECT NO .: 114-C40-0354	LAB I.D. NUMBER	01/1 × 646	977.	tt b	67.8	979	980	684	982	983 /	A hab	AELINQUISHED BY: (Signature)	AELNOUISHED BY, (Signature,	RELINDUISHED BY: (Signature)	RECEIVING LABORATORY	CITY: Widland	R.2 C 1/4 C	Please fil

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quest of Chain of Custody Record	TETRA TECH 1910 N. Big Spring St. Midland, Texas 79705 (432) 682-4559 • Fax (432) 682-3946	SITE MANAGER:	NECT NAME: / Maskerson 16 State Con #1 8 2 1 1 2 20		X 0H-3 2'-2'S'		/ дн -4 // // // // // // // // //	,527,2 H-HU	 	AH-4 5'-5'5'	(AH-4 6'- 6'5'	1 AH-4 7'- 25'	AH-4, , 7, 2, -8, 4	Date: 11/2/02 RECEIVED BY(Signation Date: +11/2/03	Date:	Date: RECEIVED BY: (Signature) Date: Time: Time:	RECEIVED BY: (Sugnature)	PHONE ZIP: DATE DATE
PAGE: Z OF: ANALYSIS REQUEST (Circle or Specify Method No.)	аль аль аль аль аль аль аль аль	8510/652 8510/652 13 13 13 13 13 13	A BA also estication intervention 20608 20608 2088 2088 2088 2088 2088 20	PLAR 8270 PCRP Meta FCLP Meta FCLP Meta FCLP Semi FCLP Semi RCI Peat. 908/6 Chiloride Pat. 908/6 Comma-6p Peat. 908/6 Poat.		×.	.9	×	>	S	<u>y</u>	9		SAMPLED BY: [Print & Initial] J/RG Date: -	SAMPLE SHEPPED BY: (Circle) AIRBILL #: FEDEX BUS OTHER	TETHAT TECHTONTACT PERSON:	The Tavares and	

Analysis CLIENT NAME: COG PROJECT NO.: 114-LUD0354 114-LUD0354 114-LUD0354 114-LUD0354 RMMBER TN NUMBER DATE TN ROAT TOOT AGA GQL GQP GQG GQA	HILL COLUTION BIG HILL COLUTION BIG Midland, Tex Midland, Tex Midlan	ain of Custoc TECH Spring St. as 79705 Fax (432) 682-3946 as 79705 as 79705 Fax (432) 682-3946 at (432) 682-3946 at (10m #1 at (10m #1)) at (10m #1 at (10m #1)) at (10m #1 at (10m #1)) at (10m #1) at (10m #1)) at (10m #1))				Hotel and State Active All and	TCLP Metals Ag As Ba Cd Vr Pd Hg Sa TCLP Volatiles	4 3	best 8080/808	الك المراجعة المراجع	Ö Price Vasues (v) Ö Najor Anlona/ Galora, pH, TD Ö Najor Anlona/ Galora, pH, TD	
APDOLO OUI 003 003 003 004	AH-C AH-C AH-7 AH-7	0-1 1-1.5' 2'-2.5' 2'-2.5' 1'-1.5' 1'-1.5'						2 8 httmad				
RELINGUISHED BY: (Signature) HELINGUISHED BY: (Signature) HECENNIG LABORATORY: ADDRESS: 74/24 LANA ST CONTACT: SAMPLE CONDITION WHEN RECEN	Time TRAC	ALCEIVED BY: (Signature) RECEIVED BY: (Signature) RECEIVED BY: (Signature) ARE: ARE: CODY - Refurn Orginial copy to	Tetra Tech -	Time: Date: Date: Date: Time: Project V	15125			BY: (Circle) BY: (1/RG		e. 	S B

Summary Report

Ike Tavarez Tetra Tech 1910 N. Big Spring Street Midland, TX 79705

Report Date: February 19, 2010

Work Order: 10021125

Project Location:	Eddy Co., NM	
Project Name:	COG/Muskeegon 16 State Com. #	1
Project Number:	114-6400354	

		١	Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
222098	SB-1 1'-2'	soil	2010-02-10	00:00	2010-02-11
222099	SB-1 3'-4'	soil	2010-02-10	00:00	2010-02-11
222100	SB-1 5'-6'	soil	2010-02-10	00:00	2010-02-11
222101	SB-1 7'-8'	soil	2010-02-10	00:00	2010-02-11
222102	SB-1 10'-11'	soil	2010-02-10	00:00	2010-02-11
222103	SB-1 15'-16'	soil	2010-02-10	00:00	2010-02-11
222104	SB-1 20'-21'	soil	2010-02-10	00:00	2010-02-11
222105	SB-1 25'-26'	soil	2010-02-10	00:00	2010-02-11
222106	SB-1 30'-31'	soil	2010-02-10	00:00	2010-02-11

Sample: 222098 - SB-1 1'-2'

Param	\mathbf{F} lag	Result	Units	\mathbf{RL}
Chloride		1700	mg/Kg	4.00

Sample: 222099 - SB-1 3'-4'

Param	. Flag	Result	Units	RL
Chloride		1040	mg/Kg	4.00

Sample: 222100 - SB-1 5'-6'

continued ...

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sample 222100 continued ...

Param	Flag	Result	Units	RL
Param	Flag	Result	Units	RL
Chloride		787	mg/Kg	4.00
Sample: 222101	- SB-1 7'-8'			
Param	Flag	Result	Units	\mathbf{RL}
Chloride	- 	401	mg/Kg	4.00
Sample: 222102	- SB-1 10'-11'			
Param	Flag	Result	Units	\mathbf{RL}
Chloride		495	mg/Kg	4.00
Sample: 222103	- SB-1 15'-16'			
Param	Flag	Result	Units	\mathbf{RL}
Chloride		<200	mg/Kg	4.00
Sample: 222104	- SB-1 20'-21'			
Param	Flag	Result	Units	\mathbf{RL}
Chloride	~	<200	mg/Kg	4.00

Sample: 222105 - SB-1 25'-26'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4.00

Sample: 222106 - SB-1 30'-31'

Param	\mathbf{Flag}	\mathbf{Result}	Units	\mathbf{RL}
Chloride		<200	mg/Kg	4.00

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6701 Aberdeen Avenue, Suite 9 200 East Sunset Road, Suite E 5002 Basin Street, Suite A1 6015 Harris Parkway, Suite 110

Lubbock, Texas 79424 800 • 378 • 1296 El Paso, Texas 79922 888 • 588 • 3443 Midland, Texas 79703 Ft. Worth, Texas 76132 E-Mail: Tab@traceanalysis.com

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WBENC: 237019

HUB:1752439743100-86536NCTRCAWFWB38444Y0909

Certifications

DBE: VN 20657

NELAP Certifications

Lubbock: T104704219-08-TX LELAP-02003 Kansas E-10317 El Paso: T104704221-08-TX LELAP-02002 Midland: T104704392-08-TX

Analytical and Quality Control Report

Ike Tavarez Tetra Tech 1910 N. Big Spring Street Midland, TX, 79705

Report Date: February 19, 2010

Work Order: 10021125

Project Location:Eddy Co., NMProject Name:COG/Muskeegon 16 State Com. #1Project Number:114-6400354

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
222098	SB-1 1'-2'	soil	2010-02-10	00:00	2010-02-11
222099	SB-1 3'-4'	soil	2010-02-10	00:00	2010-02-11
222100	SB-1 5'-6'	soil	2010-02-10	00:00	2010-02-11
222101	SB-1 7'-8'	soil	2010-02-10	00:00	2010-02-11
222102	SB-1 10'-11'	soil	2010-02-10	00:00	2010-02-11
222103	SB-1 15'-16'	soil	2010-02-10	00:00	2010-02-11
222104	SB-1 20'-21'	soil	2010-02-10	00:00	2010-02-11
222105	SB-1 25'-26'	soil	2010-02-10	00:00	2010-02-11
222106	SB-1 30'-31'	soil	2010-02-10	00:00	2010-02-11

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

Michael abert

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

Standard Flags

 ${\bf B}\,$ - The sample contains less than ten times the concentration found in the method blank.

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Case Narrative

Samples for project COG/Muskeegon 16 State Com. #1 were received by TraceAnalysis, Inc. on 2010-02-11 and assigned to work order 10021125. Samples for work order 10021125 were received intact at a temperature of 4.0 C.

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

·		Prep	Prep	QC	Analysis
Test	Method	Batch	Date	Batch	Date
Chloride (Titration)	SM 4500-Cl B	57778	2010-02-16 at 09:22	67597	2010-02-17 at 15:22
Chloride (Titration)	SM 4500-Cl B	57779	2010-02-16 at 09:23	67598	2010-02-17 at 15:24

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

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 10021125 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.

Report Date: February 19, 2010 114-6400354 Work Order: 10021125 COG/Muskeegon 16 State Com. #1

Analytical Report

Sample: 222098 - SB-1 1'-2'

Chloride		1700	mg/Kg	50	4.00
Parameter	Flag	RL Result	Units	Dilution	\mathbf{RL}
Prep Batch:	57778	Sample Preparation:	2010-02-16	Prepared By:	AR
QC Batch:	67597	Date Analyzed:	2010-02-17	Analyzed By:	\mathbf{AR}
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Laboratory:	Midland				

Sample: 222099 - SB-1 3'-4'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	67597	Date Analyzed:	2010-02-17	Analyzed By:	AR
Prep Batch:	57778	Sample Preparation:	2010-02-16	Prepared By:	\mathbf{AR}
		RL			
Parameter	Flag	Result	Units	Dilution	\mathbf{RL}
Chloride		1040	mg/Kg	50	4.00

Sample: 222100 - SB-1 5'-6'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 67597 57778	Analytical Method: Date Analyzed: Sample Preparation	SM 4500-Cl 2010-02-17 a: 2010-02-16	В	Prep Method: Analyzed By: Prepared By:	N/A AR AR
		RL				
Parameter	Flag	Result	\mathbf{Units}	•	Dilution	\mathbf{RL}
Chloride		787	mg/Kg		50	4.00
	· · · · · · · · · · · · · · · · · · ·					

Sample: 222101 - SB-1 7'-8'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	67597	Date Analyzed:	2010-02-17	Analyzed By:	AR
Prep Batch:	57778	Sample Preparation:	2010-02-16	Prepared By:	AR

continued ...

Report Date: February 19, 2010	Work Order: 10021125	Page Number: 5 of 9
114-6400354	COG/Muskeegon 16 State Com. #1	Eddy Co., NM

sample 222101 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Parameter	Flag	RL Besult	Units	Dilution	RL
Chloride		401	mg/Kg	50	4.00

Sample: 222102 - SB-1 10'-11'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 67597 57778	Analytical Method: Date Analyzed: Sample Preparation:	SM 4500-Cl B 2010-02-17 2010-02-16	Prep Method: Analyzed By: Prepared By:	N/A AR AR
		RL			
Parameter	\mathbf{Flag}	Result	Units	Dilution	\mathbf{RL}
Chloride		495	mg/Kg	50	4.00

Sample: 222103 - SB-1 15'-16'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 67597 57778	Analytical Method: Date Analyzed: Sample Preparation:	SM 4500-Cl B 2010-02-17 2010-02-16	Prep Method: Analyzed By: Prepared By:	N/A AR AR
		RL			
Parameter	Flag	Result	Units	Dilution	RL
Chloride		<200	mg/Kg	50	4.00

Sample: 222104 - SB-1 20'-21'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	67597	Date Analyzed:	2010-02-17	Analyzed By:	\mathbf{AR}
Prep Batch:	57778	Sample Preparation:	2010-02-16	Prepared By:	AR
		RL			
Parameter	Flag	Result	Units	Dilution	\mathbf{RL}
Chloride		<200	mg/Kg	50	4.00

Work Order: 10021125 . COG/Muskeegon 16 State Com. #1 .

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Sample: 222105 - SB-1 25'-26'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	67597	Date Analyzed:	2010-02-17	Analyzed By:	AR
Prep Batch:	57778	Sample Preparation:	2010-02-16	Prepared By:	\mathbf{AR}
		RL			
Parameter	Flag	\mathbf{Result}	Units	Dilution	RL
Chloride		<200	mg/Kg	50	4.00

Sample: 222106 - SB-1 30'-31'

Laboratory: Analysis:	Midland Chloride	(Titration)	Analytical Me	thod	SM 4500-Cl B		Prep Method:	N/A
QC Batch:	67598	(Initiation)	Date Analyze	d:	2010-02-17		Analyzed By	AR
Prep Batch:	57779		Sample Prepa	ration:	2010-02-16		Prepared By:	AR
•			1 1				-r	
			RL					
Parameter		Flag	\mathbf{Result}		Units	Dilut	ion	RL
Chloride		·····	<200	r	ng/Kg		50	4.00
Method Bla	ank (1)	QC Batch: 67597						
QC Batch:	67597		Date Analyzed:	2010-0	02-17		Analyzed By:	AR
Prep Batch:	57778		QC Preparation:	2010-	02-16		Prepared By:	AR
			M	DL				
Parameter		Flag	Res	ult		Units		\mathbf{RL}
Chloride		<u> </u>	<2	.18		mg/Kg		4
	·							
Method Bla	ank (1)	QC Batch: 67598						
QC Batch:	67598		Date Analyzed:	2010-6	02-17		Analyzed By:	AR.
Prep Batch:	57779		QC Preparation:	2010-0	02-16		Prepared By:	AR
							i v	
			M	DL				
Parameter		Flag	Res	ult		Units		\mathbf{RL}
Chloride			<2	.18		mg/Kg		4

114-6400354		COC	Work O J/Muskeeg	rder: 10021 ;on 16 State	125 Com. #1		Pa	ige Numb Eddy	er: 7 of 9 Co., NM
Laboratory Control Spike (L	CS-1)								
QC Batch: 67597 Prep Batch: 57778		Date A QC Pre	nalyzed: paration:	2010-02-1 2010-02-1	7 6		Ai Pi	nalyzed E repared B	9y: AR 9y: AR
Donom	L()S	TInita	1:01	Spike	Ma	utrix	Don	Rec.
Chloride	98	<u>.0</u>	mg/Kg	<u> </u>	100		$\frac{1}{2.18}$	<u>98</u>	85 - 115
ercent recovery is based on the	snike result	RPD is	<u>8/8</u> based on (the spike ar	d spike du	nlicate r	esult		
creens recovery is claster on the		101 15 10	based on t	one opine un	a spine au	pricate i			
lonom	LCSD	Unita	נים	Spike	Matrix	Dee	Rec.	מסמ	RPD
bloride		mg/K	σ 1	Amount 100	~ 2.18	100	85 - 115	2	20
ercent recovery is based on the	spike result.	RPD is	based on t	the spike an	d spike du	olicate r	esult.	2	20
aboratory Control Spike (Le	CS-1)								
) (1 Bataba 67508		Data A	nolyzoch	2010 02 17	7		4.	anluged B	W AR
Pren Batch: 57779		OC Pre	naryzeu.	2010-02-16	י ה		Pr	enared B	v AR
		Q O 110	-paradion.	2010 02 10				opured D	<i>J.</i> 1110
	LC	g			Spike	Ma	triv		Rec
aram	Res	ult	Ùnits	Dil.	Amount	Re	sult I	Rec.	Limit
hloride	99	.7	mg/Kg	1	100	<2	2.18	100	85 - 115
ercent recovery is based on the s	spike result.	RPD is	based on t	the spike an	d spike du	olicate r	esult.		
	LCSD			Snike	Matrix		Rec		RPD
aram	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	102	mg/K	g 1	100	<2.18	102	85 - 115	2	20
	spike result.	RPD is	based on t	the spike an	d spike dur	olicate r	esult.		
ercent recovery is based on the s									
Percent recovery is based on the s Aatrix Spike (MS-1) Spike	d Sample: 22	2105							
ercent recovery is based on the s Aatrix Spike (MS-1) Spiked C Batch: 67597	d Sample: 22	2105 Date Ar	nalyzed:	2010-02-17	7		Ar	nalyzed B	y: AR
ercent recovery is based on the s Aatrix Spike (MS-1) Spikes C Batch: 67597 rep Batch: 57778	d Sample: 22	22105 Date Ar QC Pre	nalyzed: paration:	2010-02-17 2010-02-16	7		Ar Pr	nalyzed B repared B	y: AR y: AR
Percent recovery is based on the solution of t	d Sample: 2: Mf	22105 Date An QC Pre	nalyzed: paration:	2010-02-17 2010-02-16	7 5 Spike	Ма	Ar Pr trix	nalyzed B repared B	y: AR y: AR Rec.
ercent recovery is based on the s Aatrix Spike (MS-1) Spike C Batch: 67597 rep Batch: 57778 aram	d Sample: 21 Mf Resu	22105 Date An QC Pre } ilt	nalyzed: paration: Units	2010-02-17 2010-02-16 Dil.	7 5 Spike Amount	Ma Re:	Ar Pr trix sult F	nalyzed B repared B Rec.	y: AR y: AR Rec. Limit
ercent recovery is based on the s fatrix Spike (MS-1) Spikes C Batch: 67597 rep Batch: 57778 aram hloride	d Sample: 22 MS Resu	22105 Date An QC Pre 3 ilt 10	nalyzed: paration: Units mg/Kg	2010-02-17 2010-02-16 Dil. 100	7 Spike Amount 10000	Ma Res <2	Ar Pr trix sult F 218	nalyzed B repared B Rec. 101	y: AR y: AR Rec. Limit 85 - 115
ercent recovery is based on the solution of th	d Sample: 22 MS Resu 1010 pike result.	22105 Date An QC Pre ilt RPD is	nalyzed: paration: Units mg/Kg based on t	2010-02-17 2010-02-16 Dil. 100 he spike an	7 5 Spike Amount 10000 d spike dup	Ma Res 22	Ar Pr trix sult F 218 esult.	halyzed B repared B Rec. 101	y: AR y: AR Rec. Limit 85 - 115
Percent recovery is based on the solution of t	d Sample: 22 MS Rest 1010 pike result. MSD	22105 Date An QC Pre ilt RPD is	nalyzed: paration: Units mg/Kg based on t	2010-02-17 2010-02-16 Dil. 100 he spike an Spike	7 Spike Amount 10000 d spike dup Matrix	Ma Res <2 blicate r	Ar Pr trix sult H 218 esult. Rec.	nalyzed B repared B Rec. 101	y: AR y: AR Rec. Limit 85 - 115 RPD
Percent recovery is based on the solution of t	d Sample: 2: MS Resu 1010 pike result. MSD Result	22105 Date An QC Pre ilt RPD is Units	nalyzed: paration: Units mg/Kg based on t Dil.	2010-02-17 2010-02-16 Dil. 100 he spike an Spike Amount	Spike Amount 10000 d spike dup Matrix Result	Ma Res 2 Dlicate r Rec.	Ar Pr sult F 218 esult. Rec. Limit	alyzed B epared B Rec. 101 RPD	y: AR y: AR Rec. Limit 85 - 115 RPD Limit

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Report Da 114-640035	te: February 19 54), 2010	COG	Work O /Muskeeg	rder: 1002 on 16 Stat	1125 e Com. #1		Pa	ge Numbe Eddy	er: 8 of 9 Co., NM
Matrix Sp	oike (MS-1)	Spiked Sample: 2	22115							
QC Batch: Prep Batch	67598 : 57779		Date Ar QC Pre	nalyzed: paration:	2010-02-1 2010-02-1	.7 .6		Aı Pı	nalyzed B repared B	y: AR y: AR
Param		M Res	IS sult	Units	Dil.	Spike Amount	Ma Res	trix sult I	Rec.	Rec. Limit
Percent rece	overv is based o	III on the spike result	RPD is	mg/Kg based on 1	100 the spike a	10000 nd spike du	9. olicate n	10 esult	101	85 - 115
1 010010 100	overy is based o	MSD		based on	Spileo	Motriy	phenot r	Dee		חסס
Param Chloride		Result 11100	Units mg/Kg	Dil. 5 100	Amount 10000	Result 910	Rec. 102	Limit 85 - 115	RPD 1	Limit 20
Percent reco	overy is based o	on the spike result.	RPD is	based on (the spike a	nd spike duj	olicate r	esult.		
Standard	(ICV-1)									
QC Batch:	67597		Date Ar	nalyzed:	2010-02-17			Ar	nalyzed By	: AR
Param	Floo	Unite	ICVs True	IC Fou	Vs ind	ICVs Percent	1	Percent Recovery	A -	Date
Chloride	I lag	mg/Kg	100	99	nc. 0.7	100		85 - 115	201	0-02-17
Standard QC Batch:	(CCV-1) 67597		Date Ar	nalyzed:	2010-02-17			An	alyzed By	': AR
			CCVs True	CC Foi	Vs Ind	CCVs Percent	I	Percent Recovery		Date
Param Chlorida	Flag	Units	Conc.	Co	nc.	Recovery		Limits	Ar	alyzed
Standard	(ICV 1)	шу/ку	100	1		100		50 - 115	201	.0-02-17
QC Batch:	67598		Date An	alyzed:	2010-02-17			An	alyzed By	·: AR
Param	Flag	Unite	ICVs True Conc	IC Fou	Vs ind	ICVs Percent Becovery	F	Percent lecovery]	Date
Chloride	I Jag	mg/Kg	100	98	.4	98		<u>85 - 115</u>	201	0-02-17
Standard (QC Batch:	(CCV-1) 67598		Date An	alyzed:	2010-02-17			An	alyzed By	: AR

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Report Date 114-6400354	: February 1	9, 2010	COG/N	Work Order: 10 Auskeegon 16 S	0021125 tate Com. #1	Page	Number: 9 of 9 Eddy Co., NM
Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	102	102	85 - 115	2010-02-17

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