SITE INFORMATION

		Report	t Type: Clo	sure Re	eport		
General Site Info	prmation:						
Site:		Moose Fede	ral 23 Tank Bat	tery	COLUTION COLUMNIAN		
Company:		COG Operat	ting LLC				
Section, Townsl	hip and Range	Unit L	Sec 23	T16S	R28E		
Lease Number:		API-30-015-2					
County:		Eddy Count	у				
GPS:			32.905833° N			10	04.152166° W
Surface Owner:		Federal					
Mineral Owner:							
and travel 2.				d travel 2.3 r	niles, turn le		vy 82 for 9.3 miles, turn right vel 2.3 miles, turn right and
where a state where the set of the state of		 02/21/2011				المنصور بالبكر فانوار المالات	
Date Released:				02/26/2	011		
	<i>Type Release:</i> Oil				Oil		
Source of Contamination: Swedge in Ta			ank Battery		Stock T		
Fluid Released:65 bblsFluids Recovered:63 bbls					40 bbl		
	and a second of the second	63 bbls	17 1.Masau, 20173-11.10 10-928-121-	ALANSA VIL MILLON C HA	35 bbl		1997 March 1998 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 19
	nication:		and The Star			an a	anan ang tarang tarakan ang tarakan kara
Name:	Pat Ellis	······			Ike Tava	rez	
Company:	COG Operating, L	LC			Tetra Te	ch	
Address:	550 W. Texas Ave	. Ste. 1300		1910 N. Big Spring			9
P.O. Box							
City:	Midland Texas, 79	701			Midland,	Texas	
Phone number:	(432) 686-3023			432-682-4559			
Fax:	(432) 684-7137				102 002		
Email:	pellis@conchores				iko tava	roz@totr	atech.com
1		ources.com			<u>Incontava</u>	02.6101	
Ranking Criteria							
Depth to Groundw	/ater:		Ranking Score			Site	Data
<50 ft			20	_			
50-99 ft			10				
>100 ft.	- <u></u>		0	<u> </u>			0
WellHead Protecti	on:		Ranking Score			Site	Data
	000 ft., Private <200	ft.	20				
	000 ft., Private >200		0		0		
Surface Body of W	Vater:		Ranking Score			Site	Data
<200 ft.			20				
200 ft - 1,000 ft. >1,000 ft.		<u></u>	10)
<u>~1,000 II.</u>			1	·			
Tot	al Ranking Score	. Disk (d) Type Byr (d) i si i a s Si de regels (d) an si i si i a s		494 98 6		REC	EIVED

Accepta	ble Soil RRAL (n	ng/kg)
Benzene	Total BTEX	ТРН
10	50	5,000

MAY **21** 2012 NMOCD ARTESIA



March 30, 2012

Mr. Mike Bratcher Environmental Engineer Specialist Oil Conservation Division, District 2 1301 West Grand Avenue Artesia, New Mexico 88210

Re: Closure Report for the COG Operating LLC., Moose Federal 23 Tank Battery, Unit L, Section 23, Township 16 South, Range 28 East, Eddy County, New Mexico.

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the Moose Federal 23 Tank Battery located in Unit L, Section 23, Township 16 South, Range 28 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.905833°, W 104.152166°. The site location is shown on Figures 1 and 2.

Background (Spill #1 and #2)

According to the State of New Mexico C-141 Initial Reports, COG had two reportable leaks at the facility. On February 21, 2011, a spill occurred when a swedge failed on a circulating line, releasing approximately sixty five (65) barrels of oil, which was contained inside the facility firewalls. Sixty three (63) barrels of standing fluids were recovered. The spill area measured approximately 10' x 100'.

On February 26, 2011, the second spill was discovered when a hole developed on an oil tank and released approximately forty (40) barrels. Thirty five (35) barrels of fluid were recovered. The release was contained inside the facility firewall and measured approximately 20' x 50'. The initial C-141 forms are enclosed in Appendix A.



Groundwater

No water wells were listed within Section 23. According to the NMOCD groundwater map, the average depth to groundwater in this area is less than 50' below surface. A well located in Section 24, T16S, R23E showed a depth to groundwater of 24', with an elevation of approximately 3,570'. In addition, a well located in Section 2, T17S, R28E showed a depth to water of 34' with a surface elevation of 3,574'. The Moose Federal 23 Tank Battery is located on top of the Pavo Mesa, with a surface elevation of 3750', approximately 175' high in elevation. Based on the site relative elevations, the groundwater depth at the Moose Federal Tank Battery should be greater than 100' below surface. The well report data and topographic maps 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 5,000 mg/kg.

Soil Assessment and Analytical Results

On March 24, 2010, Tetra Tech personnel inspected and sampled the spill area. Nine (9) auger holes (AH-1 and AH-9) were installed using a stainless steel hand auger to assess the impacted soils. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The sampling results are summarized in Table 1. The spill area and auger hole locations are shown on Figure 3.

Referring to Table 1, the areas of auger holes (AH-6 and AH-7) did not show TPH and BTEX concentrations above the RRAL. However, AH-1, AH-3, AH-5 and AH-8 samples were above the RRAL for TPH at 0-1' and only

2



the area of AH-3 was vertically defined at 2.5' below surface. In addition, either the total BTEX or benzene concentrations exceeded the RRAL at 0-1' in the areas of AH-1, AH-2, AH-3, AH-4, AH-5, AH-8 and AH-9. Auger holes (AH-2, AH-3 and AH-4) were vertically defined at 1.0', 2.0' and 1.0', respectively.

Elevated chloride concentrations were detected at 0-1' in the areas of AH-5 and AH-8 with concentrations of 1,570 mg/kg and 2,270 mg/kg, respectively. Due to the dense caliche formation, these areas were not defined using a hand auger.

Closure Activities

Based on the approved work plan, Tetra Tech personnel supervised the excavation of the site. The final excavation depths of the soil remediation were met and exceeded as stated in the approved work plan. The spill area inside the tank battery was excavated to approximately 1.0' to 3.0' below surface. A total of 80 cubic yards of soil were excavated and hauled to proper disposal. The excavation depths are highlighted in Table 1 and shown on Figure 4.

As requested by the BLM, confirmation samples were collected from the excavation bottom holes and sidewalls. The confirmation samples results are shown in Table 1. Once excavated to the appropriate depths, the excavation was backfilled with clean soil to grade.

Based on the remedial activities performed, COG request closure of the site. Copies of the C-141's (Finals) are included in Appendix A. If you have any questions or comments concerning the remedial activities, please call at (432) 682-4559

Respectfully submitted, TETRA TECH

Ike Tavarez Project Manager

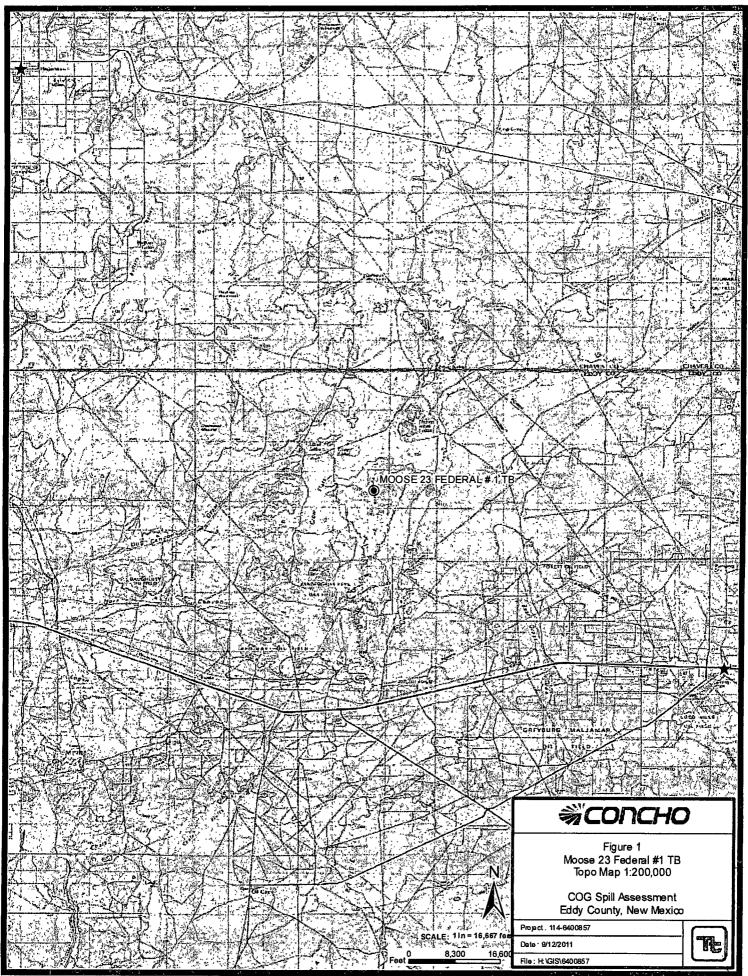
cc: Pat Ellis – COG cc: Terry Gregston – BLM

Figures

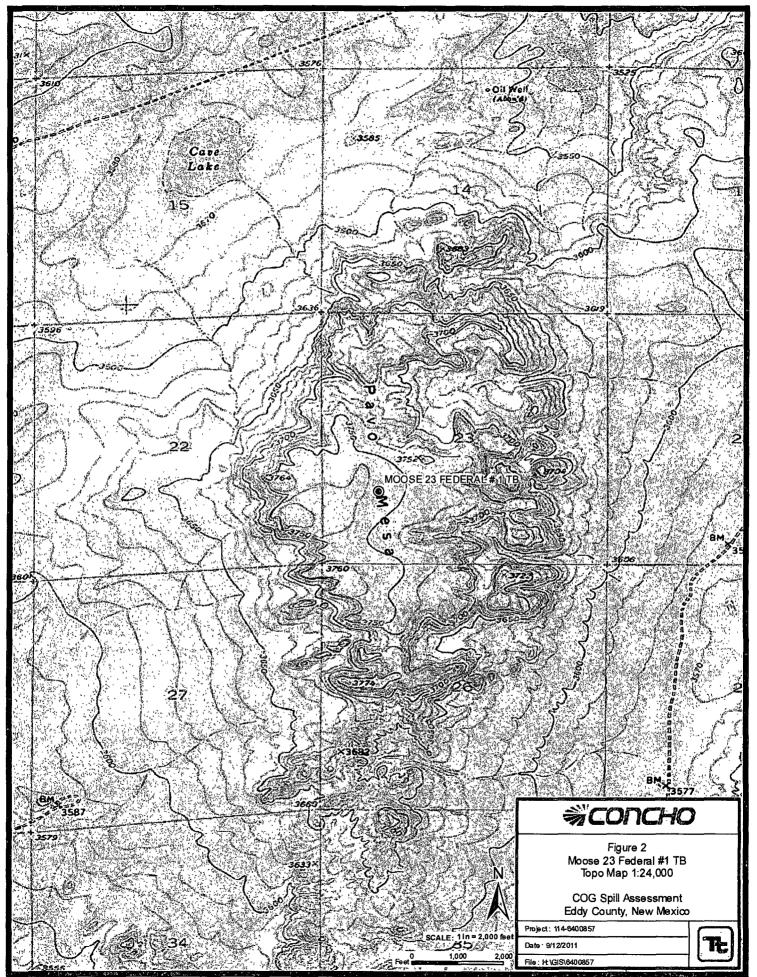
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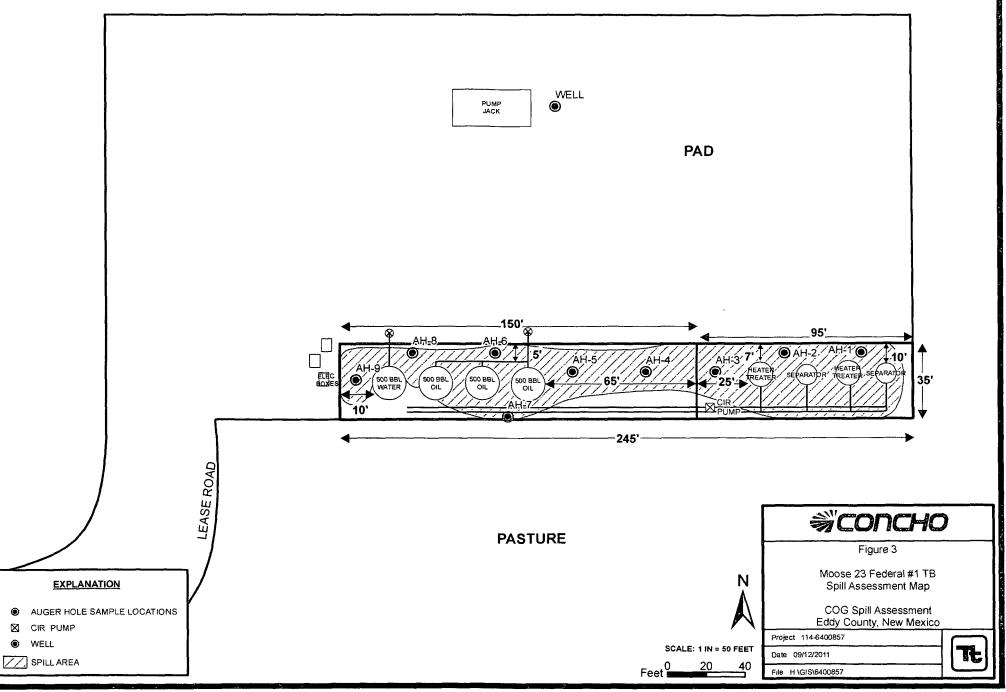
ξ



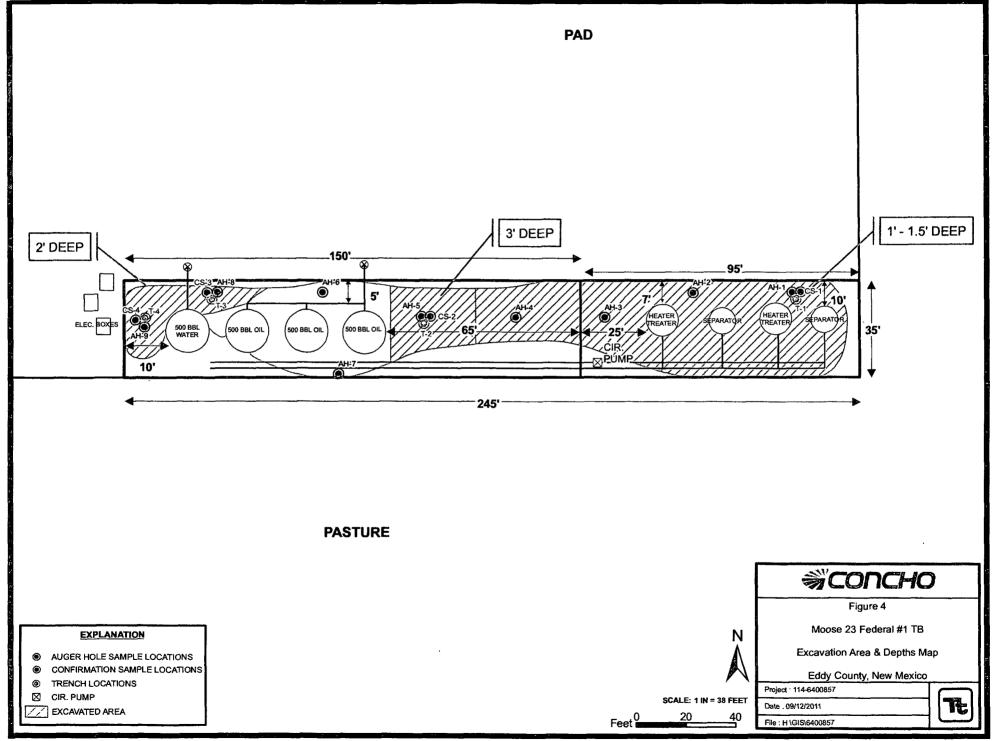
Dawn By Isabel Marmolejo



Drawn By Inabel Marmolejo



Drawn By Isabel Marmoleyo



Drawn By: leabel Marmolejo

Tables

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Table 1COG Operating LLC.MOOSE FEDERAL #23 TANK BATTERYEddy County, New Mexico

		Sample	Depth	Soil	Status	Г	PH (mg/l	(g)	Benzene	Toluene	Ethlybenzene	Xylene	Total	Chloride
Sample ID	Sample Date	Depth (ft)	(BEB)	In-Situ	Removed	GRO	DRO	Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	BTEX	(mg/kg)
AH-1	3/24/2011	0-1	0.5		X	3,190	1,990	5,180	15.6	148	97 2	165	425.8	<200
CS-1 Bottom Hole	1/13/2012	1	-	X		454	664	1,118	<0.100	1.07	6.31	16.7	24.08	-
CS-1 North	1/13/2012	-	-	x		2.84	<50.0	2.84	<0.200	<0.200	<0.200	<0.200	<0.200	-
CS-1 South	1/13/2012	-	-	х		727	607	1,334	<0.100	2.05	5.78	21.5	29.33	-
CS-1 East	1/13/2012	-	-	X		101	2,780	2,881	<0.100	<0.100	<0.100	0.221	0.221	-
T-1	1/13/2012	2	-	x		5.09	<50.0	5.09	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	-
AH-2	3/24/2011	0-1	0.5	17 4 a 27	X	632	929	1,561	0.209	7.40	15.0	28.3	50.9	<200
	"	1-1.5	0.5'	X		64.9	78.8	143.7	<0.0200	0.147	0.244	0.645	1.04	<200
	3/24/2011	0-1				4,870	11,700	16,570	21:3	165	130	212	528.3	324
	u	1-1.5			X	5,020	8,780	13,800	27.7	160	113	183	483.7	<200
	и	2-2.5	3: 1. 6	X		7.26	<50.0	7.26	<0.02	0.171	0.157	0.426	0.75	<200

Table 1COG Operating LLC.MOOSE FEDERAL #23 TANK BATTERYEddy County, New Mexico

		Sample	Depth	Soil	Status	L 1	PH (mg/k	(g)	Benzene	Toluene	Ethlybenzene	Xylene	Total	Chloride
Sample ID	Sample Date	Depth (ft)	(BEB)	In-Situ	Removed	GRO	DRO	Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	BTEX	(mg/kg)
AH-4	3/24/2011	0-1			X	688	37,10	4398	1.37	20.5	19.4	33.8	75.1	<200
	15	1-1.5		х		28.1	<50.0	28.1	<0.0200	0.177	0.277	0.749	1.2	<200
	H	2-2.5		X		10.3	<50.0	10.3	-	-	-	-	-	<200
	3/24/2011	0-1			X	. 3,360,	7,300,	10,660	13.0	83.5	73	124	293.5	1.570
CS-2 Bottom Hole	1/13/2012	3	*	X	25° 944 W	512	951	1,463	0.465	12.3	11.5	24.8	49.1	222
CS-2 North	1/13/2012	-	-	x		3.64	<50.0	3.64	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
CS-2 South	1/13/2012	-	-	X		66.6	744	811	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
	3/24/2011	0-1	L	×		127	293	420	 [-	-	385
AH-7	3/24/2011	0-1		Х		156	2,770	2,926	0.223	0.162	0.154	1.83	2.4	547
	l							 			 		l	

Table 1 COG Operating LLC. MOOSE FEDERAL #23 TANK BATTERY Eddy County, New Mexico

	O	Sample	Depth	Soil	Status	ד	PH (mg/k	(g)	Benzene	Toluene	Ethlybenzene	Xylene	Total	Chloride
Sample ID	Sample Date	Depth (ft)	(BEB)	In-Situ	Removed	GRO	DRO	Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	BTEX	(mg/kg)
AH-8	3/24/2011	0-1			X	1,280	4,090	5,370	4.25	12.8	5:85	:32.9	55.8	2,270
CS-3 Bottom Hole	1/13/2012	1			X	9.78	65.8	75.6	<0:0200	<0.0200	<0.0200	<0.0200	<0.0200	573
CS-3 Bottom Hole	1/30/2012	2	-	X		-	-	-	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	
(resampled)														
CS-3 North	1/13/2012	-	-	x		8.97	112	121	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	710
CS-3 South	1/13/2012	-	-	X		10.2	151	161	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	1,310
Т-3	1/13/2012	2	-	x		697	1,420	2,117	3.39	48.8	21.2	64.5	137.9	375
T-3	1/13/2012	4	-	X		-	-	-	0.412	4.27	1.73	5.45	11.9	-
AH-9	3/24/2011	0-1	11. 11. 11. 11. 11. 11. 11. 11. 11. 11.		X	1,420	2,290	3,710	22.2	7111	58.0	96.7	287.9	781
CS-4 Bottom Hole	1/13/2012	2	-	X		-	-	-	<0.100	0.381	0.383	1.46	2.224	-
CS-4 North	1/13/2012	-	-	x		-	-	-	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	-
CS-4 South	1/13/2012	-	-	Х		-	-	-	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	-
CS-4 West	1/13/2012	-	-	X		-	+	-	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	-
BEB	Below Excavation	on Bottom	<u></u>	4 <u></u>		<u></u>		L	<u> </u>	·····	L			L

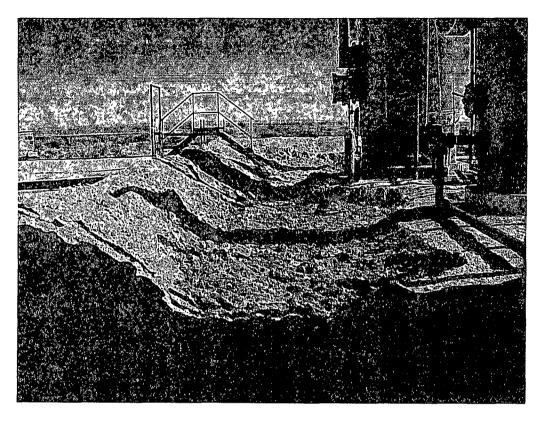
Not Analyzed



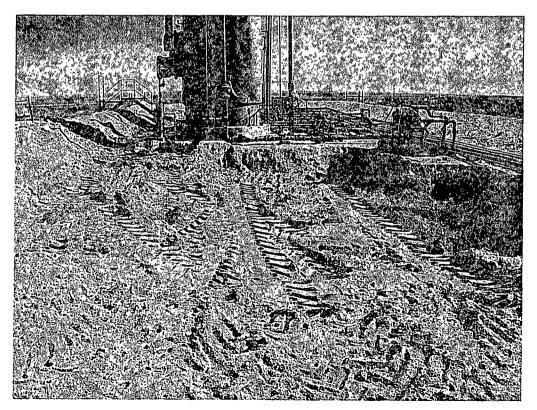
Excavation Depths

Photos

COG Operating LLC Moose Federal 23 Eddy County, New Mexico

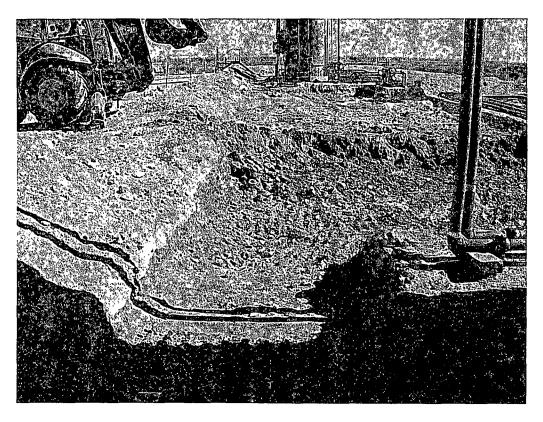


View East – AH-1 and AH-2

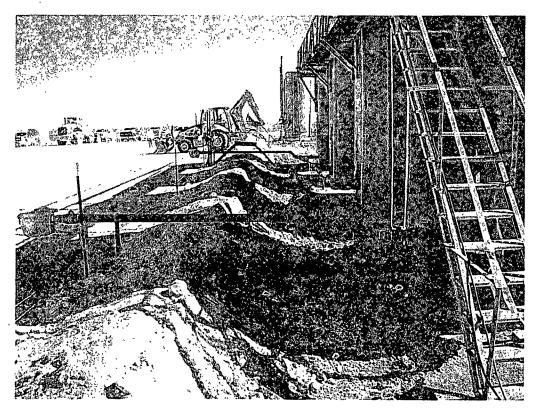


View East – AH-3

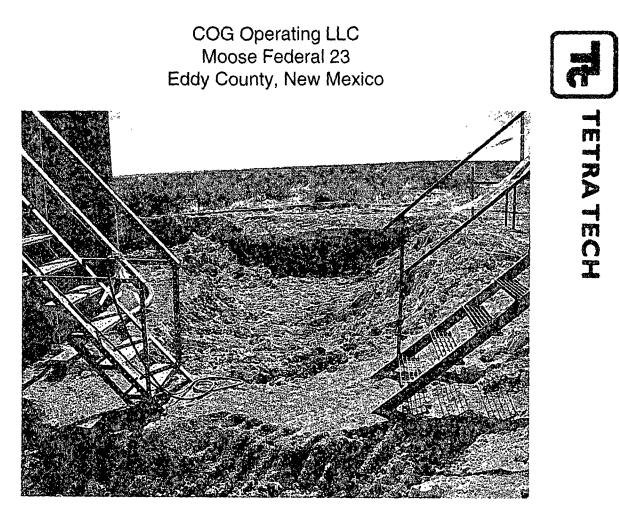
COG Operating LLC Moose Federal 23 Eddy County, New Mexico



View East – AH-4 and AH5



View East – AH-8



View South - AH-9

Appendix A

RECEIVED

MAY 21 2012

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District] 1625 N. French Dr., Hobbs, NM 88240 <u>District II</u> 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.

NMOCD ARTES District Office in accordance with Rule 116 on back

Form C-141 Revised October 10, 2003

side of form

Santa Fe, NM 87505

Release Notification and Corrective Action

OPERATOR		Initial Report		Final Report
Contact	Pat Ellis			
Telephone No.	432-230-0077			
Facility Type	Tank Battery			
	Contact Telephone No.	ContactPat EllisTelephone No.432-230-0077	Contact Pat Ellis Telephone No. 432-230-0077	Contact Pat Ellis Telephone No. 432-230-0077

		Lease No. (API#) 30-	
Surface Owner Federal	Mineral Owner		

LOCATION OF RELEASE

Unit Letter L	Section 23	Township 16S	Range 28E	Feet from the	North/South Line	Feet from the	East/West Line	County Eddy

Latitude 32 54.350 Longitude 104 09.130

NATURE OF RELEASE

Type of Release Oil	Volume of Release 65bbls	Volume Re	ecovered 63bbls						
Source of Release Swedge inside tank battery	Date and Hour of Occurrence 02/21/2011	Date and H 02/21/2011	Iour of Discovery 4:30 p.m.						
Was Immediate Notice Given?	If YES, To Whom?								
🛛 Yes 🗍 No 🗋 Not Required	Mike	Bratcher—OC	CD						
By Whom? Josh Russo		:43 p.m.							
Was a Watercourse Reached?	If YES, Volume Impacting the W	atercourse.							
If a Watercourse was Impacted, Describe Fully.*									
Describe Cause of Problem and Remedial Action Taken.*									
Swedge failed on circulating line coming off of production tank. The swedge has been replaced with a new one.									
Describe Area Affected and Cleanup Action Taken.*									
Initially 65bbls of oil was released and completely contained inside the walls of the facility. We were able to recover 63bbls with a vacuum truck and all standing fluid has been recovered. The contaminated soil has been removed from the facility and the spill area measured 10' x 100'. Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present a remediation work plan to the NMOCD / BLM for approval prior to any significant remediation work.									
I hereby certify that the information given above is true and complete to regulations all operators are required to report and/or file certain release i public health or the environment. The acceptance of a C-141 report by the should their operations have failed to adequately investigate and remedia or the environment. In addition, NMOCD acceptance of a C-141 report of federal, state, or local laws and/or regulations.	notifications and perform corrective a ne NMOCD marked as "Final Report" te contamination that pose a threat to	ctions for relea does not relie ground water,	uses which may endanger ve the operator of liability surface water, human health						
	OIL CONSER	VATION I	DIVISION						
Signature:									
	Approved by District Supervisor:								
Title: HSB Coordinator	Approval Date:	Expiration D	ate:						
E-mail Address: jrusso@conchoresources.com Date: 03/02/2011 Phone: 432-212-2399	Conditions of Approval: Attached								

* Attach Additional Sheets If Necessary

		REC	EIVED				
			21 2012				
1625 N French Dr. Hobbe NM 88240	of New Mexico			Form C-141			
District II Energy Mineral 1301 W. Grand Avenue, Artesia, NM 88210	ls and Natural Res	OUTCOMOCE) ARTES	A Revised October 10, 2003			
1991 II. Glada Hreino, Fakola, Hik bog to	ervation Division			Submit 2 Copies to appropriate District Office in accordance			
District IV 1220 Sol	th St. Francis Dr	r.		with Rule 116 on back side of form			
	Fe, NM 87505						
Release Notificati				_			
Name of Company COG OPERATING LLC	OPERATOR Contact	Pat Elli		al Report 🔲 Final Report			
Name of Company COG OPERATING LLC Address 550 W. Texas, Suite 100, Midland, TX 79701	Telephone No.	432-230-(
Facility Name Moose Federal 23	Facility Type	Tank Bat	tery				
Surface Owner Federal Mineral Owne	r		Lease N	Io. (API#) 30-015-25332			
LOCATI	ON OF RELEA	SE	•				
Unit Letter Section Township Range Feet from the Nor			t/West Line	County			
L 23 16S 28E				Eddy			
Latitude 32 54.35	0 Longitude 10	04 09 130		<u> </u>			
	E OF RELEAS						
Type of Release Oil	Volume of Relea		Volume R	ecovered 35bbls			
Source of Release Stock tank	Date and Hour of 02/26/2011	f Occurrence		Date and Hour of Discovery 02/26/2011 8:30 a.m.			
Was Immediate Notice Given?	If YES, To Whom?						
Yes No Not Require			Bratcher—O	CD			
By Whom? Josh Russo Was a Watercourse Reached?	Date and Hour O If YES, Volume		38 a.m. atercourse.	· · · · · · · · · · · · · · · · · · ·			
🗋 Yes 🖾 No							
If a Watercourse was Impacted, Describe Fully.*							
Describe Cause of Problem and Remedial Action Taken.*							
A hole developed in a stock tank at the tank battery. The tank has been	removed from service.						
Describe Area Affected and Cleanup Action Taken.*							
Initially 40bbls of oil was released from the stock tank and we were abl the berm walls of the facility and measured an area of 20' x 50' around							
free fluids have been picked up. Tetra Tech will sample the spill site ar	ea to delineate any pos	ssible contaminat					
remediation work plan to the NMOCD / BLM for approval prior to any	significant remediatio	on work.					
I hereby certify that the information given above is true and complete to							
regulations all operators are required to report and/or file certain release public health or the environment. The acceptance of a C-141 report by							
should their operations have failed to adequately investigate and remedi or the environment. In addition, NMOCD acceptance of a C-141 report							
federal, state, or local laws and/or regulations.							
	<u> </u>	IL CONSER	VATION	DIVISION			
Signature:							
Printed Name: Josh Russo	Approved by Distric	ct Supervisor:					
Title: HSE Coordinator	Approval Date:		Expiration D	Date:			
E-mail Address: jrusso@conchoresources.com	Conditions of Appro	oval:					
				Attached			
Date: 03/02/2011 Phone: 432-212-2399 Attach Additional Sheets If Necessary	L						

State of New Mexico Energy Minerals and Natural Resources

Form C-141 Revised October 10, 2003

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

Lease No. (API#) 30-015-25332

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

Release Notification and Corrective Action

	OPERATOR	Initial Report	🛛 Final Report
Name of Company COG Operating LLC	Contact Pat Ellis		
Address 550 W. Texas, Suite 1300 Midland, Texas 79701	Telephone No. (432) 230-0077		
Facility Name Moose Federal 23	Facility Type Tank Battery		

|--|

LOCATION OF RELEASE

Mineral Owner

Unit Letter	Section 23	Township 16S	Range 28E	Feet from the	North/South Line	East/West Line	County	Eddy
Ľ		100	200					2003

Latitude 32 54.350 Longitude 104 09.130

NATURE OF RELEASE

Type of Release: Oil	Volume of Release 40 bbls	Volume Re	ecovered 35 bbls
Source of Release: Equalizer	Date and Hour of Occurrence	Date and H	lour of Discovery
	02/26/2011	02/26/2011	8:30 a.m.
Was Immediate Notice Given?	If YES, To Whom?		
🛛 Yes 🗌 No 🗌 Not Required	Mike	BratcherOC	D
By Whom? Josh Russo	Date and Hour 02/28/2011 9:38		
Was a Watercourse Reached?	If YES, Volume Impacting the Wa	tercourse.	
🗌 Yes 🖾 No	N/A		
If a Watercourse was Impacted, Describe Fully.*	1		
N/A			
Describe Cause of Problem and Remedial Action Taken.*			
Describe Cause of Problem and Kenicular Action Taken.			
A hole developed in a stock tank at the tank battery. The tank has been re	emoved from service.		
· · ·			
		2174-124-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	
Describe Area Affected and Cleanup Action Taken.*			
Tetra Tech inspected the site and collected samples to define the spills exit	tent Impacted soil exceeding PDAL	was removed	and hauled to proper disposed
Once excavated to the appropriate depths, the excavation was backfilled v			
for review.	the order son. Teau roon propuled t	l closulo lopo	
I hereby certify that the information given above is true and complete to t			
regulations all operators are required to report and/or file certain release n			
public health or the environment. The acceptance of a C-141 report by th			
should their operations have failed to adequately investigate and remediat			
or the environment. In addition, NMOCD acceptance of a C-141 report d federal, state, or local laws and/or regulations.	oes not relieve the operator of respons	sibility for co	mpliance with any other
rederal, state, or local laws and/or registrations.	OU CONSERV		
	OIL CONSERV	ATION	<u>JIVISION</u>
Signature:			
	Approved by District Supervisor:		
Printed Name: Ike Tavarez (agent for COG)	Approved by District Supervisor.		
Title: Project Manager	Approval Date:	Expiration D	ate:
E mail Address: Ike Tayoraz@TatroTash som	Conditions of Approval		
E-mail Address: Ike.Tavarez@TetraTech.com	Conditions of Approval:		Attached
Date: 3-30-12 Phone: (432) 682-4559			

* Attach Additional Sheets If Necessary

State of New Mexico Energy Minerals and Natural Resources

Form C-141 Revised October 10, 2003

with Rule 116 on back

side of form

Submit 2 Copies to appropriate District Office in accordance

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

	OPERATOR	Initial Report	\boxtimes	Final Report
Name of Company COG Operating LLC	Contact Pat Ellis			
Address 550 W. Texas, Suite 1300 Midland, Texas 79701	Telephone No. (432) 230-0077			
Facility Name Moose Federal 23	Facility Type Tank Battery			

Surface Owner: Federal Mineral Owner	Lease No. (API#) 30-015-25332
--------------------------------------	-------------------------------

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
L	23	16S	28E					Eddy

Latitude 32 54.350 Longitude 104 09.130

NATURE OF RELEASE

Type of Release: Oil	Volume of Release 65 bbls	Volume Recovered 63 bbls
Source of Release: Equalizer	Date and Hour of Occurrence	Date and Hour of Discovery
	02/21/2011	02/21/2011 4:30 p.m.
Was Immediate Notice Given?	If YES, To Whom?	
🛛 Yes 🔲 No 🗌 Not Required	Mike	BratcherOCD
By Whom? Josh Russo	Date and Hour 3/15/10 4:59 p.m.	
Was a Watercourse Reached?	If YES, Volume Impacting the Wa	tercourse.
🗌 Yes 🖾 No	N/A	
If a Watercourse was Impacted, Describe Fully.*		
N//		
N/A		
Describe Cause of Problem and Remedial Action Taken.*		
Sundas failed on simulating line semina off of an dusting tool. The	day has been undered with a second second	
Swedge failed on circulating line coming off of production tank. The swe	edge has been replaced with a new one	
Describe Area Affected and Cleanup Action Taken.*		
Totas Tark increased the site and called a large data of the state of the second		
Tetra Tech inspected the site and collected samples to define the spills ex Once excavated to the appropriate depths, the excavation was backfilled v		
for review.	with clean son. Tetta Tech prepared a	closure report and submitted it to NMOCD
I hereby certify that the information given above is true and complete to t	he best of my knowledge and understa	nd that pursuant to NMOCD rules and
regulations all operators are required to report and/or file certain release n	otifications and perform corrective active	tions for releases which may endanger
public health or the environment. The acceptance of a C-141 report by th	e NMOCD marked as "Final Report"	does not relieve the operator of liability
should their operations have failed to adequately investigate and remediat		
or the environment. In addition, NMOCD acceptance of a C-141 report d	oes not relieve the operator of respons	ibility for compliance with any other
federal, state, or local laws and/or regulations.		
	OIL CONSERV	ATION DIVISION
Signature:		
Printed Name: Ike Tavarez (agent for COG)	Approved by District Supervisor:	
	·····	
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: Ike.Tavarez@TetraTech.com	Conditions of Approval:	
	Conditions of Approval:	Attached
Date: $7 - 70 - 12$ Phone: (432) 682-4559		

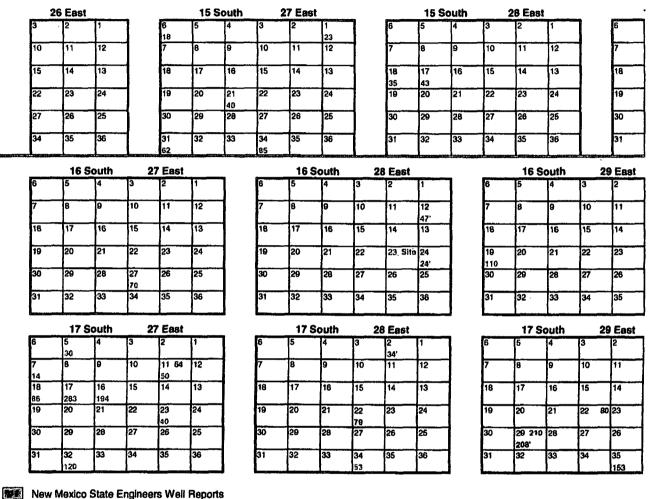
* Attach Additional Sheets If Necessary

Appendix B

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Water Well Data Average Depth to Groundwater (ft) COG - Moose Federal 23 Eddy County, New Mexico

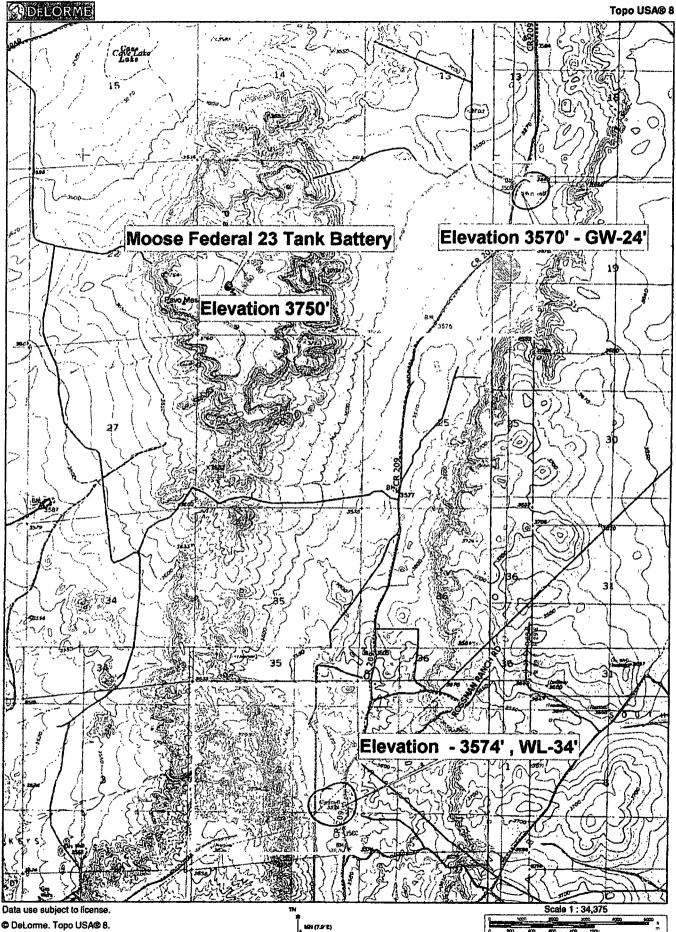


· · ·

USGS Well Reports

Geology and Groundwater Conditions in Southern Eddy, County, NM

NMOCD Map - Groundwater Data

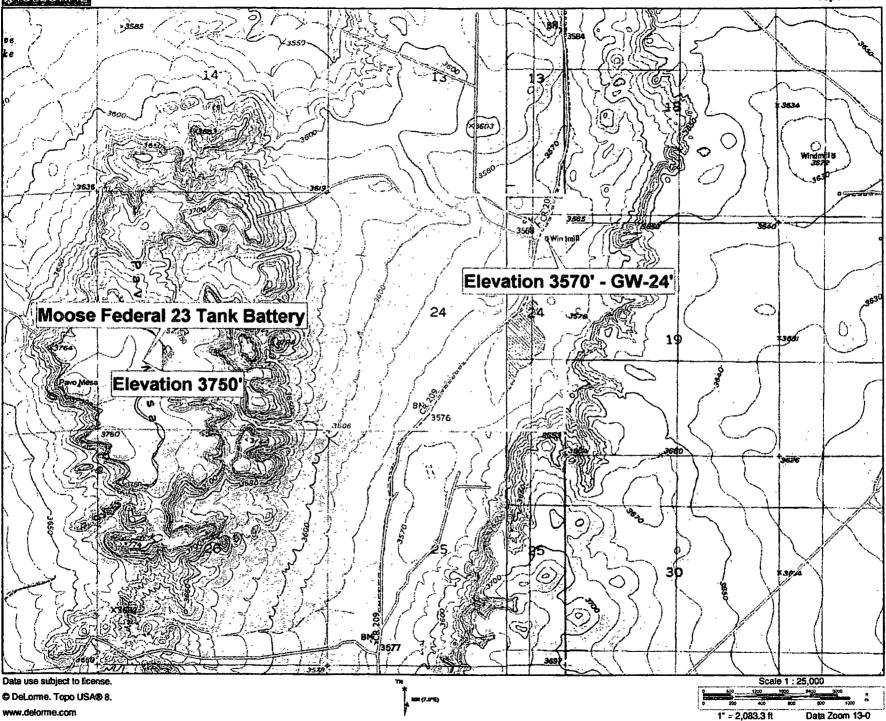


C DeLorme. Topo USA® 8.

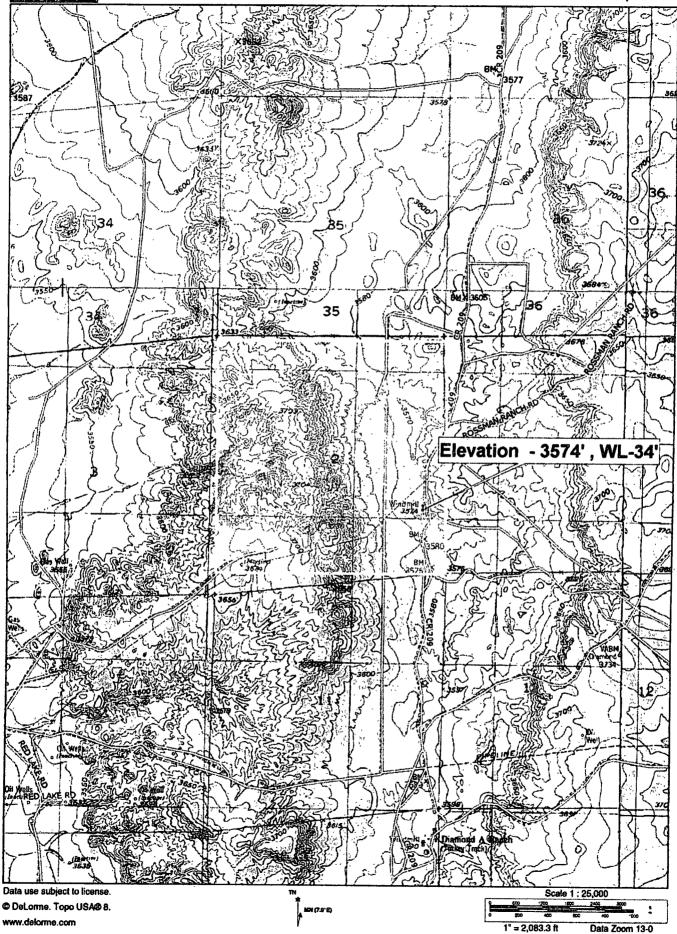
www.delorme.com

1" = 2,864.6 ft Data Zoom 12-5

DELORME



DELORME





New Mexico Office of the State Engineer Water Column/Average Depth to Water

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

Si POD Number ba	ıb sin Use ((quarte County	۳ Q	Q	2			NAD83 UTM X		Dèpth D Well V	(In feet) Jepth W VaterCo	later
RA 09342	DOM	ED	4	4 :	3 19	16S	29E	582737	3640640*	220	110	110
								Aven	age Depth to	Water:	110 fe	et
									Minimum	Depth:	110 fe	ət
									Maximum	Depth:	110 fe	ət

Record Count: 1

PLSS Search:

Township: 16S Range: 29E

Setur 19 - 5/erche 3630'

*UTM location was derived from PLSS - see Help

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



New Mexico Office of the State Engineer Water Column/Average Depth to Water

No records found.

PLSS Search:

Township: 16S Range: 28E

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



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New Mexico Office of the State Engineer Water Column/Average Depth to Water

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

POD Number	Sub basin Use ((quarte County	ors ard Q 64 1	e sin Q (16 4	allest) Sec	to larg		(NAD83 UTN X		Depth I Well \	(in feet) Depth M NaterCo	
RA 09342	DOM	EÐ	4	43	19	16S	29E	582737 Avera	3640640* age Depth to	220 Water:	110 110 fe	110 et
									Minimum			et

Record Count: 1

PLSS Search:

Township: 16S Range: 29E

*UTM location was derived from PLSS - see Help

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

Appendix C

Summary Report

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

Project Location:Eddy Co., NMProject Name:COG/Moose Fed. #23 TBProject Number:114-6400857

Date Time Date Sample Description Matrix Taken Taken Received 261909 AH-2 0-1' 0.5' BEB soil 2011-03-24 2011-03-28 00:00 261910 AH-2 1-1.5' 0.5' BEB soil 2011-03-24 2011-03-28 00:00 261914 AH-4 0-1' soil 2011-03-24 00:00 2011-03-28 261915 AH-4 1-1.5' soil 2011-03-24 00:00 2011-03-28 261919 AH-7 0-1' soil 2011-03-24 00:00 2011-03-28 261921 AH-9 0-1' 1' BEB soil 2011-03-24 00:00 2011-03-28

	BTEX						
	Benzene	Toluene	Ethylbenzene	Xylene			
Sample - Field Code	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)			
261909 - AH-2 0-1' 0.5' BEB	0.209	7.40	15.0	28.3			
261910 - AH-2 1-1.5' 0.5' BEB	<0.0200	0.147	0.244	0.645			
261914 - AH-4 0-1'	1.37	20.5	19.4	33.8			
261915 - AH-4 1-1.5'	< 0.0200	0.177	0.277	0.749			
261919 - AH-7 0-1'	0.223	0.162	0.154	1.83			
261921 - AH-9 0-1' 1' BEB	22.2	111	58.0	96.7			

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.

Report Date: September 8, 2011

Work Order: 11032822



6701 Abradeen Avenue, State 9 200 East Sunset Road, Suite E 5002 Basin Streat, Suite A1 6015 Harris Parkivay, Suite 110

Fuhbock, Taxas 79424
 El Paso, Texas 70922
 Midtand, Taxas 79703
 Ft Worth, Texas 76132
 E-Mark taiw@t

texas 70922 868+588+3443 915+585+3443 Lexas 79703 432+689+6301 Texas 76132 817+201+5260 E-Mail: tab@traceanalysis.com

 \$66+794+1295
 FAX 806+794+1298

 \$915+585+3443
 FAX 915+585+4944

 \$42+689+6301
 FAX 432+689+6313

 \$817+201+5260
 FAX 432+689+6313

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: September 8, 2011

Work Order: 11032822

Project Location:Eddy Co., NMProject Name:COG/Moose Fed. #23 TBProject Number:114-6400857

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
261909	AH-2 0-1' 0.5' BEB	soil	2011-03-24	00:00	2011-03-28
261910	AH-2 1-1.5' 0.5' BEB	soil	2011-03-24	00:00	2011-03-28
261914	AH-4 0-1'	soil	2011-03-24	00:00	2011-03-28
261915	AH-4 1-1.5'	soil	2011-03-24	00:00	2011-03-28
261919	AH-7 0-1'	soil	2011-03-24	00:00	2011-03-28
261921	AH-9 0-1' 1' BEB	soil	2011-03-24	00:00	2011-03-28

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 april

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/Moose Fed. #23 TB were received by TraceAnalysis, Inc. on 2011-03-28 and assigned to work order 11032822. Samples for work order 11032822 were received intact at a temperature of 3.6 C.

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

		Prep	Prep	\mathbf{QC}	Analysis
Test	Method	Batch	Date	Batch	Date
BTEX	S 8021B	67886	2011-04-01 at 11:35	80015	2011-04-02 at 14:30

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 11032822 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: September 8, 2011 114-6400857 Work Order: 11032822 COG/Moose Fed. #23 TB Page Number: 4 of 9 Eddy Co., NM

Analytical Report

Sample: 261909 - AH-2 0-1' 0.5' BEB

Laboratory: Analysis: QC Batch: Prep Batch:	Midland BTEX 80015 67886		Analytical Date Analy Sample Pre	zed:	S 8021B 2011-04-02 2011-04-01	Prep Method Analyzed By Prepared By		l By: M	
			\mathbf{RL}						
Parameter	Flag		\mathbf{Result}		Units	Γ	Dilution		\mathbf{RL}
Benzene			0.209		mg/Kg		1	0.	0200
Toluene			7.40		mg/Kg		1	0.	0200
Ethylbenzene	9		15.0		mg/Kg		1	0.0	0200
Xylene			28.3		mg/Kg	1		0.0	0200
						Spike	Percent	Recov	ery
Surrogate		Flag	Result	Units	Dilution	Amount	Recovery	Limi	ts
Trifluorotoluene (TFT)			2.45	mg/Kg	1	2.00	122	82.8 - 1	43.1
4-Bromofluorobenzene (4-BFB) ¹		1	6.47	mg/Kg	1	2.00	324	70.6 -	179

Sample: 261910 - AH-2 1-1.5' 0.5' BEB

Laboratory: Analysis: QC Batch: Prep Batch:	Midland BTEX 80015 67886		Analytical Date Analy Sample Pro	yzed:	S 8021B 2011-04-02 2011-04-01		Prep Me Analyze Preparec	d By:	S 5035 ME ME
			RI	L					
Parameter	Flag	5	Resul	t	Units	1	Dilution		\mathbf{RL}
Benzene			< 0.0200)	mg/Kg	· · · · · · · · · ·	1	-	0.0200
Toluene			0.147	7	mg/Kg		1		0.0200
Ethylbenzene	;		0.244	1	mg/Kg		1		0.0200
Xylene			0.645		mg/Kg	1		0.0200	
						Spike	Percent	Re	covery
Surrogate		Flag	Result	Units	Dilution	Amount	Recovery	L	imits
Trifluorotolue	ene (TFT)		2.10	mg/Kg	1	2.00	105	82.8	- 143.1
4-Bromofluorobenzene (4-BFB)		2.25	mg/Kg	1	2.00	112	70.	6 - 179	

Sample: 261914 - AH-4 0-1'

Laboratory: Analysis:	Midland BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch: Prep Batch:	80015	Date Analyzed: Sample Preparation:	2011-04-02	Analyzed By: Prepared By:	ME

¹High surrogate recovery due to peak interference.

Report Date: Septer 114-6400857	mber 8, 2011							Number: 5 of 9 Eddy Co., NM
			RL	1				
Parameter	Flag		Result		Units	E	lution	\mathbf{RL}
Benzene	·		1.37		mg/Kg		1	0.0200
Toluene	2		20.5	1	mg/Kg		1	0.0200
Ethylbenzene	3		19.4		mg/Kg		1	0.0200
Xylene	4		33.8		mg/Kg		1	0.0200
						Spike	Percent	Recovery
Surrogate		Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TF	T)		2.06	mg/Kg	1	2.00	103	82.8 - 143.1
4-Bromofluorobenzer	ne (4-BFB)	5	6.44	mg/Kg	1	2.00	322	70.6 - 179
Sample: 261915 -								
Sample: 261915 - Laboratory: Midlar Analysis: BTEX QC Batch: 80015 Prep Batch: 67886	nd		Analytical Date Anal Sample Pr	yzed:	S 8021B 2011-04-02 2011-04-01		Prep Me Analyze Preparec	d By: ME
Laboratory: Midla Analysis: BTEX QC Batch: 80015	nd		Date Anal	yzed: eparation:	2011-04-02		Analyze	d By: ME
Laboratory: Midlas Analysis: BTEX QC Batch: 80015 Prep Batch: 67886	nd		Date Anal Sample Pr	yzed: eparation: L	2011-04-02 2011-04-01 Units	Γ	Analyze	d By: ME
Laboratory: Midlas Analysis: BTEX QC Batch: 80015 Prep Batch: 67886 Parameter	nd		Date Anal Sample Pr RI	yzed: eparation: L	2011-04-02 2011-04-01	I	Analyze Prepared	d By: ME i By: ME
Laboratory: Midlas Analysis: BTEX QC Batch: 80015 Prep Batch: 67886 Parameter Benzene	nd		Date Anal Sample Pr RJ Resul	yzed: eparation: L t 0	2011-04-02 2011-04-01 Units	Ē	Analyze Prepared Dilution	d By: ME i By: ME RL
Laboratory: Midlas Analysis: BTEX QC Batch: 80015 Prep Batch: 67886 Parameter Benzene Toluene	nd		Date Anal Sample Pr RJ Resul	yzed: eparation: L t 0 7	2011-04-02 2011-04-01 <u>Units</u> mg/Kg mg/Kg mg/Kg	T	Analyzed Prepared Dilution 1	d By: ME 1 By: ME RL 0.0200
Laboratory: Midlas Analysis: BTEX QC Batch: 80015 Prep Batch: 67886 Parameter Benzene Toluene Ethylbenzene	nd		Date Anal Sample Pr R: Resul <0.020 0.17	yzed: eparation: L t 0 7 7 7	2011-04-02 2011-04-01 Units mg/Kg mg/Kg	I	Analyzed Prepared Dilution 1 1	d By: ME 1 By: ME RL 0.0200 0.0200
Laboratory: Midla Analysis: BTEX QC Batch: 80015	nd		Date Anal Sample Pr Rt Resul <0.020 0.17' 0.27' 0.74	yzed: eparation: L lt 0 7 7 9	2011-04-02 2011-04-01 <u>Units</u> mg/Kg mg/Kg mg/Kg mg/Kg	I Spike	Analyzed Prepared Dilution 1 1 1	d By: ME 1 By: ME RL 0.0200 0.0200 0.0200
Laboratory: Midlas Analysis: BTEX QC Batch: 80015 Prep Batch: 67886 Parameter Benzene Toluene Ethylbenzene Xylene Surrogate	nd Flag	Flag	Date Anal Sample Pr Result <0.020 0.17' 0.27' 0.74 Result	yzed: eparation: L It 0 7 7 9 Units	2011-04-02 2011-04-01 <u>Units</u> mg/Kg mg/Kg mg/Kg	Spike Amount	Analyzed Prepared Dilution 1 1 1 1 1	d By: ME 1 By: ME 0.0200 0.0200 0.0200 0.0200 0.0200 Recovery Limits
Laboratory: Midlas Analysis: BTEX QC Batch: 80015 Prep Batch: 67886 Parameter Benzene Toluene Ethylbenzene Xylene	nd Flag T)	Flag	Date Anal Sample Pr Rt Resul <0.020 0.17' 0.27' 0.74	yzed: eparation: L lt 0 7 7 9	2011-04-02 2011-04-01 <u>Units</u> mg/Kg mg/Kg mg/Kg mg/Kg	Spike	Analyzed Prepared Dilution 1 1 1 1 1 Percent	d By: ME 1 By: ME RL 0.0200 0.0200 0.0200 0.0200 Recovery

Sample: 261919 - AH-7 0-1'

Analysis: QC Batch:	Midland BTEX 80015 67886		Analytical Method: Date Analyzed: Sample Preparation:	S 8021B 2011-04-02 2011-04-01	Prep Method: Analyzed By: Prepared By:	S 5035 ME ME
			RL			
Parameter		Flag	\mathbf{Result}	Units	Dilution	\mathbf{RL}
Benzene			0.223	mg/Kg	1	0.0200
Toluene			0.162	mg/Kg	1	0.0200
Ethylbenzene			0.154	mg/Kg	1	0.0200
Xylene			1.83	mg/Kg	1	0.0200

²Estimated concentration value greater than standard range.
 ³Estimated concentration value greater than standard range.
 ⁴Estimated concentration value greater than standard range.
 ⁵High surrogate recovery due to peak interference.

Report Date: September 8, 2011 114-6400857		(er: 11032822 Fed. #23 TB		Page Number: 6 of 9 Eddy Co., NM		
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits	
	Piag			1			82.8 - 143.1	
Trifluorotoluene (TFT)		1.93	mg/Kg	1	2.00	96		
4-Bromofluorobenzene (4-BFB)		2.36	mg/Kg	1	2.00	118	70.6 - 179	

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Sample: 261921 - AH-9 0-1' 1' BEB

Laboratory: Midland								
Analysis: BTEX		Analytical	Method:	S 8021B		Prep Me	thod:	S 5035
QC Batch: 80015		Date Anal	yzed:	2011-04-02		Analyze	d By:	ME
Prep Batch: 67886		Sample Pr	eparation:	2011-04-01		Preparec	l By:	ME
		\mathbf{RL}						
Parameter Flag	S	Result		Units	Γ	Dilution		\mathbf{RL}
Benzene		22.2		mg/Kg		10		0.0200
Toluene ⁶		111		mg/Kg		10		0.0200
Ethylbenzene		58.0		mg/Kg		10		0.0200
Xylene		96.7		mg/Kg		10		0.0200
					Spike	Percent	Ro	covery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery		imits
	Tiag							
Trifluorotoluene (TFT)	_	9.66	mg/Kg	10	10.0	97	82.8	- 143.1
4-Bromofluorobenzene (4-BFB)	7	21.0	mg/Kg	10	10.0	210	70.	6 - 179

Method Blank (1) QC Batch: 80015

QC Batch: 80015 Prep Batch: 67886		Date An QC Prep		011-04-02 011-04-01			yzed By: ME ared By: ME
•		•	M	זר		•	J J
Parameter	Flag		Res		Un	its	RL
Benzene	·		< 0.01	.18	mg	/Kg	0.02
Toluene			<0.006	600		/Kg	0.02
Ethylbenzene			< 0.008	50	mg		0.02
Xylene		·····	<0.006	513	mg	/Kg	0.02
					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1.78	mg/Kg	1	2.00	89	65.9 - 111.8
4-Bromofluorobenzene (4-BFB)		1.73	mg/Kg	1	2.00	86	48.4 - 123.1

⁶Estimated concentration value greater than standard range. ⁷High surrogate recovery due to peak interference.

Report Date: September 8, 2011 114-6400857	-	Work Order: 11032822 COG/Moose Fed. #23 TB									r: 7 of 9 Co., NM
Laboratory Control Spike (L	(CS-1)										
QC Batch: 80015		Date A	Analyze	d: 2011-()4-02				Anal	yzed By	: ME
Prep Batch: 67886			reparati		04-01					ared By	
	LC	CS			Spike	e	Mat	trix		J	Rec.
Param	Res		Units	Dil.	Amou	nt	Res		Rec.		imit
Benzene	1.7		ng/Kg	1	2.00		<0.0		85		- 121.7
Toluene	1.7		ng/Kg	1	2.00		<0.0		88		- 121.6
Ethylbenzene	1.9		ng/Kg	1	2.00		<0.0		96		- 117.9
Xylene	5.7		ng/Kg		6.00		<0.0		96	73.4	- 118.8
Percent recovery is based on the	spike result	t. RPD is	s based	on the spik	e and sp	ike du	plicat	e resul	t.		
	LCSD			Spike	Mat	rix		1	Rec.		RPD
Param	Result	Units	Dil.	Amount	Rest	ılt	Rec.	L	imit	RPD	Limit
Benzene	1.76	mg/Kg	; 1	2.00	< 0.0		88	77.4	- 121.7	4	20
Toluene	1.81	mg/Kg	1	2.00	<0.00	600	90	88.6	- 121.6	3	20
Ethylbenzene	1.96	mg/Kg	; 1	2.00	<0.00	850	98	74.3	- 117.9	3	20
Xylene	5.89	mg/Kg	; 1	6.00	<0.00	613	98	73.4	- 118.8	2	20
Percent recovery is based on the	spike result	t. RPD i	s based	on the spik	e and sp	ike du	plicat	e resul	 t.		
	LC	S L	CSD			Spik	0	LCS	LCSD	r	lec.
Surrogate	Res		esult	Units	Dil.	Amou		Rec.	Rec.		imit
Trifluorotoluene (TFT)	1.7		.51	mg/Kg	1	2.00		87	76		- 116.7
4-Bromofluorobenzene (4-BFB)	1.8		.59	mg/Kg	1	2.00		92	80		- 132.1
Matrix Spike (MS-1) Spike QC Batch: 80015 Prep Batch: 67886	ed Sample: :	Date A	Analyze eparati							yzed By ared By:	
	M	IS			Spike	e	Mat	rix		F	lec.
Param		sult	Units	Dil.	Amou	nt	Res	ult	Rec.	L	imit
Benzene		61	mg/Kg	1	2.00		<0.0	118	80	69.4	- 123.6
Toluene			mg/Kg	1	2.00		0.17		76	75.4	- 134.3
Ethylbenzene			mg/Kg	1	2.00		<0.0		86	58.8	- 133.7
Xylene	¹⁰ 5.	25	mg/Kg	1	6.00		0.5	52	78	57 -	134.2
Percent recovery is based on the	spike result	. RPD is	s based	on the spik	e and sp	ike du	plicate	e result			
	MSD			Spike	Matr	ix		F	lec.		RPD
Param	Result	Units	Dil.	Amount	Resu		Rec.		imit	RPD	Limit
Benzene	1.74	mg/Kg		2.00	<0.01		87		- 123.6	8	20
continued		0/ 0									

⁸Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control. ⁹Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control. ¹⁰Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

Report Date: September 8, 2011	Work Order: 11032822	Page Number: 8 of 9
114-6400857	COG/Moose Fed. #23 TB	Eddy Co., NM

matrix spikes continued ...

.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	\mathbf{Result}	Rec.	Limit	RPD	Limit
Toluene	1.88	mg/Kg	1	2.00	0.1724	85	75.4 - 134.3	10	20
Ethylbenzene	1.96	mg/Kg	1	2.00	< 0.00850	98	58.8 - 133.7	13	20
Xylene	5.97	mg/Kg	1	6.00	0.552	90	57 - 134.2	13	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.87	2.28	mg/Kg	1	2	94	114	79.4 - 141.1
4-Bromofluorobenzene (4-BFB)	2.12	2.41	mg/Kg	1	2	106	120	71 - 167

.

Standard (CCV-1)

QC Batch: 80015			Date Analyzed	: 2011-04-02	Analyzed By: ME		
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene	·····	mg/Kg	0.100	0.0871	87	80 - 120	2011-04-02
Toluene		mg/Kg	0.100	0.0894	89	80 - 120	2011-04-02
Ethylbenzene		mg/Kg	0.100	0.0981	98	80 - 120	2011-04-02
Xylene		mg/Kg	0.300	0.294	98	80 - 120	2011-04-02

Standard (CCV-2)

QC Batch: 80	015		Date Analyzed:	2011-04-02		Analyzed By: ME			
			CCVs	CCVs	CCVs	Percent			
			True	Found	Percent	Recovery	Date		
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed		
Benzene		mg/Kg	0.100	0.0885	88	80 - 120	2011-04-02		
Toluene		mg/Kg	0.100	0.0908	91	80 - 120	2011-04-02		
Ethylbenzene		mg/Kg	0.100	0.0974	97	80 - 120	2011-04-02		
Xylene		mg/Kg	0.300	0.294	98	80 - 120	2011-04-02		

Standard (CCV-3)

QC Batch:	80015			Date Analyzed:	2011-04-0	2	Analy	yzed By: ME
				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
					Found	1 ercent	recovery	
Param		Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene			mg/Kg	0.100	0.0872	87	80 - 120	2011-04-02

continued ...

Report Date: 114-6400857	September 8, 2	011		ork Order: 110 /Moose Fed. ;		Page	Number: 9 of 9 Eddy Co., NM
standard contin	rued		CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Toluene		mg/Kg	0.100	0.0887	89	80 - 120	2011-04-02
Ethylbenzene		mg/Kg	0.100	0.0935	94	80 - 120	2011-04-02
Xylene		mg/Kg	0.300	0.282	94	80 - 120	2011-04-02

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			Ĺ		R		Spring St. (as 79705 • Fax (432) 682-3946								05 (Ext. to C35)	Cd Cr Pb Hg Se	5									pH, TDS		
CLIENT NAM	VE: COG	2				SITE MANAGE	B: avarez	NERS		P	-	erv eth(	ATIVE DD		TX1005	88	8			60/624	270/625					tions, pH,		
PROJECT N	10.: DØ85 7		PR		ECT OG	NAME:		CONTAIL	Z	Ī						a Ag As	s Ag As	Volatiles Semi Volatiles		3240/82	508 Kol. 8	, ,		<u>ا</u>	100	1.0		
LAB (.D. NUMBER	DATE 2011	ΤΙΜΕ	MATRIX	COMP	GRAB	Eddy Co, r	Sim. Le IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8013	RCRA Metals Ag	TCLP Metals	TCLP Volatiles	RCI	GC.MS Voi. 8240/8260/6	GC.MS Semi. Vo PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spe	PLM (Asbestos)	Major Anions/Ce		
261908	3/24		ડ		X	AH-1 0-1'	0.5 BEB	1				X		ľ	X								X					T
909						AH-2 0-1	0.5 BEI3					$\square$			X								$\square$					
910						AH-2 1-1.5	0.5 BEB			Ц										$\square$							_	$\downarrow$
911						AH-3 0-1'									X	1-	Ц						Д					$\downarrow\downarrow$
912			Ц		L	AH-3 1-15	·····	Ц								_	$\square$											$\downarrow\downarrow$
913					$\mathcal{T}$	AH-3 2'-2.5'						Ц		$\downarrow$					Ļ						_		$\downarrow$	$\downarrow$
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915			[[]		$\downarrow$	AH-4 1-1.5						$\prod$					$\square$		<u> </u> _				Щ		1-		$\downarrow$	╞┼
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NUMBER	2611		MATRIX	NOS COM	GRAI											NUM	FILTE	ц Н	HN03	Ð	NONE		E E	PAH 8270	RCR	1CL		В <u>О</u>	GC.N	GC.N	PCB.	Pest.	Į.	Alpha	PLM	Majo		
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# **Summary Report**

Tetra Tech 1910 N. Big Spring Street Midland, TX 79705 Report Date: April 4, 2011

# Work Order: 11032822

Project Location:Eddy Co., NMProject Name:COG/Moose Fed. #23 TBProject Number:114-6400857

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
261908	AH-1 0-1' 0.5' BEB	soil	2011-03-24	00:00	2011-03-28
261909	AH-2 0-1' 0.5' BEB	soil	2011-03-24	00:00	2011-03-28
261910	AH-2 1-1.5' 0.5' BEB	soil	2011-03-24	00:00	2011-03-28
261911	AH-3 0-1'	soil	2011-03-24	00:00	2011-03-28
261912	AH-3 1-1.5'	soil	2011-03-24	00:00	2011-03-28
261913	AH-3 2-2.5'	soil	2011-03-24	00:00	2011-03-28
261914	AH-4 0-1'	soil	2011-03-24	00:00	2011-03-28
261915	AH-4 1-1.5'	soil	2011-03-24	00:00	2011-03-28
261916	AH-4 2-2.5'	soil	2011-03-24	00:00	2011-03-28
261917	AH-5 0-1'	soil	2011-03-24	00:00	2011-03-28
261918	AH-6 0-1'	soil	2011-03-24	00:00	2011-03-28
261919	AH-7 0-1'	soil	2011-03-24	00:00	2011-03-28
261920	AH-8 0-1'	soil	2011-03-24	00:00	2011-03-28
261921	AH-9 0-1' 1' BEB	soil	2011-03-24	00:00	2011-03-28

		]	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)
261908 - AH-1 0-1' 0.5' BEB	15.6	148	97.2	165	1990	3190
261909 - AH-2 0-1' 0.5' BEB					929	632
261910 - AH-2 1-1.5' 0.5' BEB					78.8	64.9
261911 - AH-3 0-1'	<b>21.3</b>	165	130	212	11700	4870
261912 - AH-3 1-1.5'	27.7	160	113	183	8780	5020
261913 - AH-3 2-2.5'	< 0.0200	0.171	0.157	0.426	<50.0	7.26
261914 - AH-4 0-1'					3710	688
261915 - AH-4 1-1.5'					<50.0	28.1
261916 - AH-4 2-2.5'					<50.0	10.3
261917 - AH-5 0-1'	13.0	83.5	73.0	124	7300	3360
261918 - AH-6 0-1'					293	127
261919 - AH-7 0-1'					2770	156

continued ...

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		]	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)
261920 - AH-8 0-1'	4.25	12.8	5.85	32.9	4090	1280
261921 - AH-9 0-1' 1' BEB					2290	1420

#### Sample: 261908 - AH-1 0-1' 0.5' BEB

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

#### Sample: 261909 - AH-2 0-1' 0.5' BEB

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

#### Sample: 261910 - AH-2 1-1.5' 0.5' BEB

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

# Sample: 261911 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		324	mg/Kg	4.00

#### Sample: 261912 - AH-3 1-1.5'

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

#### Sample: 261913 - AH-3 2-2.5'

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

#### Sample: 261914 - AH-4 0-1'

Report Date: April 4, 2011	Work Order: 11032822	P	age Number: 3 of 3
Param Flag	Result	Units	RL
Chloride	<200	mg/Kg	4.00
Sample: 261915 - AH-4 1-1.5'			
Param Flag	Result	Units	RL
Chloride	<200	mg/Kg	4.00
Sample: 261916 - AH-4 2-2.5'			
Param Flag	Result	Units	RL
Chloride	<200	mg/Kg	4.00
Sample: 261917 - AH-5 0-1'			
Param Flag Chloride	Result 1570	Units mg/Kg	RL 4.00
Sample: 261918 - AH-6 0-1' Param Flag Chloride	Result 385	Units mg/Kg	RL 4.00
Sample: 261919 - AH-7 0-1'		mg/Kg	4.00
Param Flag	Result	Units	RL
Chloride	547	mg/Kg	4.00
Sample: 261920 - AH-8 0-1'			
Param Flag	Result	Units	RL
Chloride	2270	mg/Kg	4.00
Sample: 261921 - AH-9 0-1' 1' BEB			
Param Flag	Result	Units	$\mathbf{RL}$
Chloride	781	mg/Kg	4.00

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 6/01 Aberdeen Avenue, Suite 9
 Lubhock, Texas 79424

 200 East Sunset Road, Suite E
 El Paso, Texas 79922

 5002 Basin Street, Suite A1
 Midland, Texas 79703

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Certifications

**WBENC:** 237019

HUB:1752439743100-86536NCTRCAWFWB38444Y0909

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

Tetra Tech 1910 N. Big Spring Street Midland, TX, 79705 Report Date: April 4, 2011

Work Order: 11032822

Project Location:Eddy Co., NMProject Name:COG/Moose Fed. #23 TBProject Number:114-6400857

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
261908	AH-1 0-1' 0.5' BEB	soil	2011-03-24	00:00	2011-03-28
261909	AH-2 0-1' 0.5' BEB	soil	2011-03-24	00:00	2011-03-28
261910	AH-2 1-1.5' 0.5' BEB	soil	2011-03-24	00:00	2011-03-28
261911	AH-3 0-1'	soil	2011-03-24	00:00	2011-03-28
261912	AH-3 1-1.5'	soil	2011-03-24	00:00	2011-03-28
261913	AH-3 2-2.5'	soil	2011-03-24	00:00	2011-03-28
261914	AH-4 0-1'	soil	2011-03-24	00:00	2011-03-28
261915	AH-4 1-1.5'	soil	2011-03-24	00:00	2011-03-28
261916	AH-4 2-2.5'	soil	2011-03-24	00:00	2011-03-28
261917	AH-5 0-1'	soil	2011-03-24	00:00	2011-03-28
261918	AH-6 0-1'	soil	2011-03-24	00:00	2011-03-28

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
261919	AH-7 0-1'	soil	2011-03-24	00:00	2011-03-28
261920	AH-8 0-1'	soil	2011-03-24	00:00	2011-03-28
261921	AH-9 0-1' 1' BEB	soil	2011-03-24	00:00	2011-03-28

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

Michael about

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

#### **Standard Flags**

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

# **Case Narrative**

Samples for project COG/Moose Fed. #23 TB were received by TraceAnalysis, Inc. on 2011-03-28 and assigned to work order 11032822. Samples for work order 11032822 were received intact at a temperature of 3.6 C.

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

		Prep	Prep	$\mathbf{QC}$	Analysis
Test	Method	Batch	Date	Batch	Date
BTEX	S 8021B	67886	2011-04-01 at 11:35	80015	2011-04-02 at 14:30
Chloride (Titration)	SM 4500-Cl B	67767	2011-03-29 at 13:28	79936	2011-03-31 at 13:29
Chloride (Titration)	SM 4500-Cl B	67767	2011-03-29 at 13:28	79937	2011-03-31 at 13:30
Chloride (Titration)	SM 4500-Cl B	67767	2011-03-29 at 13:28	79938	2011-03-31 at 13:31
TPH DRO - NEW	S 8015 D	67823	2011-03-30 at 10:06	79924	2011-03-30 at 10:06
TPH DRO - NEW	S 8015 D	67893	2011-04-01 at 09:28	80023	2011-04-01 at 09:28
TPH GRO	S 8015 D	67886	2011-04-01 at 11:35	80016	2011-04-02 at 14:30

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 11032822 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.

		Analy	tical	Report			
Sample: 261908 - AH-1	0-1' 0.5' BE	v		- <b>I</b>			
Laboratory: Midland							
Analysis: BTEX		Analytical I		S 8021B		Prep Meth	
QC Batch: 80015		Date Analy		2011-04-02		Analyzed	•
Prep Batch: 67886		Sample Pre	paration:	2011-04-01		Prepared	By: ME
		$\mathbf{RL}$					
Parameter	Flag	Result		Units	Di	lution	$\mathbf{RL}$
Benzene		15.6		mg/Kg		10	0.0200
Toluene	1	148		mg/Kg		10	0.0200
Ethylbenzene	2	97.2		mg/Kg		10	0.0200
Xylene	3	165		mg/Kg		10	0.0200
					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		11.2	mg/Kg	10	10.0	112	52.8 - 137
4-Bromofluorobenzene (4-B)	FB) ⁴	37.8	mg/Kg	10	10.0	378	38.4 - 157

# Sample: 261908 - AH-1 0-1' 0.5' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	79936	Date Analyzed:	2011-03-31	Analyzed By:	AR
Prep Batch:	67767	Sample Preparation:	2011-03-29	Prepared By:	AR
		RL			
Parameter	Flag	Result	Units	Dilution	$\mathbf{RL}$
Chloride	······································	<200	mg/Kg	50	4.00

# Sample: 261908 - AH-1 0-1' 0.5' BEB

QC Batch:	79924	Date Analy	zed: 2011-03-30	Prep Method: Analyzed By:	
Prep Batch:	67823	Sample Pre	paration: 2011-03-30	Prepared By:	-
		RL			
Parameter	$\mathbf{Flag}$	Result	Units	Dilution	$\mathbf{RL}$
DRO		1990	mg/Kg	1	50.0

 $^1\rm Estimated$  concentration value greater than standard range.  $^2\rm Estimated$  concentration value greater than standard range.

³Estimated concentration value greater than standard range. ⁴High surrogate recovery due to peak interference.

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Report Date: April 4, 2011 Work Order: 11032822 COG/Moose Fed. #23 TB 114-6400857

Report Date: April 4, 2011 114-6400857			Work Order: 11032822 COG/Moose Fed. #23 TB			Page Number: 5 of 32 Eddy Co., NM		
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits	
n-Tricosane	5	252	mg/Kg	1	100	252	70 - 130	

•

# Sample: 261908 - AH-1 0-1' 0.5' BEB

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH GRO 80016 67886		Analytical Date Anal Sample Pr	yzed:	S 8015 D 2011-04-02 2011-04-01		Prep Meth Analyzed Prepared 1	By: ME
			$\mathbf{RL}$					
Parameter	Flag		Result		Units	D	ilution	$\mathbf{RL}$
GRO			3190		mg/Kg		10	2.00
						Spike	Percent	Recovery
Surrogate		Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotolue	ene (TFT)		11.7	mg/Kg	10	10.0	117	48.5 - 152
4-Bromofluor	obenzene (4-BFB)	6	61.3	mg/Kg	10	10.0	613	42 - 159

# Sample: 261909 - AH-2 0-1' 0.5' BEB

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 79936 67767	Analytical Method: Date Analyzed: Sample Preparation:	SM 4500-Cl B 2011-03-31 2011-03-29	Prep Method: Analyzed By: Prepared By:	AR
		$\mathbf{RL}$			
Parameter	$\mathbf{Flag}$	Result	Units	Dilution	$\mathbf{RL}$
Chloride		<200	mg/Kg	50	4.00

# Sample: 261909 - AH-2 0-1' 0.5' BEB

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical M	Aethod: S 8015 D	Prep Method:	N/A
QC Batch:	79924	Date Analyz	zed: 2011-03-30	Analyzed By:	kg
Prep Batch:	67823	Sample Prep	paration: 2011-03-30	Prepared By:	kg
		RL			
Parameter	$\mathbf{Flag}$	Result	Units	Dilution	$\mathbf{RL}$
DRO		929	mg/Kg	1	50.0

⁵High surrogate recovery due to peak interference. ⁶High surrogate recovery due to peak interference.

Report Date: April 4, 2011 114-6400857			Work Order COG/Moose	Page Number: 6 of 32 Eddy Co., NM			
Surrogate	Flag	Result	Units D	ilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	7	185	mg/Kg	1	100	185	70 - 130
Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH GRO 80016 67886		Analytical Method Date Analyzed: Sample Preparation	2011-04-02		Prep Method Analyzed By: Prepared By:	ME
Parameter	Fla	æ	RL Result	Units		Dilution	RL
GRO		0	632	mg/Kg			2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.58	mg/Kg	1	2.00	129	48.5 - 152
4-Bromofluorobenzene (4-BFB)	8	10.6	mg/Kg	1	2.00	530	42 - 159

# Sample: 261910 - AH-2 1-1.5' 0.5' BEB

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical	Method: SM 4500-Cl B	Prep Method:	N/A
QC Batch:	79936	Date Analy	zed: 2011-03-31	Analyzed By:	AR
Prep Batch:	67767	Sample Pre	eparation: 2011-03-29	Prepared By:	AR
		$\mathbf{RL}$			
Parameter	Flag	Result	Units	Dilution	$\mathbf{RL}$
Chloride		<200	mg/Kg	50	4.00

# Sample: 261910 - AH-2 1-1.5' 0.5' BEB

DRO		78.8	mg/Kg	1	50.0
Parameter	Flag	RL Result	Units	Dilution	RL
Prep Batch:	67893	Sample Prep	paration: 2011-04-01	Prepared By:	kg
QC Batch:	80023	Date Analyz	zed: 2011-04-01	Analyzed By:	kg
Analysis:	TPH DRO - NEW	Analytical M	Aethod: S 8015 D	Prep Method:	N/A
Laboratory:	Midland				

⁷High surrogate recovery due to peak interference. ⁸High surrogate recovery due to peak interference.

Report Date: April 4, 2011 114-6400857				Order: 11032822 Moose Fed. #23 7	Page Number: 7 of 32 Eddy Co., NM		
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		116	mg/Kg	1	100	116	70 - 130

# Sample: 261910 - AH-2 1-1.5' 0.5' BEB

Laboratory:	Midland							
Analysis:	TPH GRO		Analytical	Method:	S 8015 D		Prep Meth	nod: S 5035
QC Batch:	80016		Date Anal	yzed:	2011-04-02		Analyzed	By: ME
Prep Batch:	67886		Sample P	reparation:	2011-04-01		Prepared 1	By: ME
			$\mathbf{RL}$					
Parameter	Flag		Result		Units	D	ilution	$\mathbf{RL}$
GRO			64.9		mg/Kg		1	2.00
						Spike	Percent	Recovery
Surrogate		Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotolu	ene (TFT)		2.18	mg/Kg	1	2.00	109	48.5 - 152
4-Bromofluor	robenzene (4-BFB)		2.93	mg/Kg	1	2.00	146	42 - 159

# Sample: 261911 - AH-3 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland BTEX 80015 67886		Analytical Date Analy Sample Pre	zed:	S 8021B 2011-04-02 2011-04-01		Prep Meth Analyzed Prepared	By: ME
•			RL	•			r	5
Parameter	Flag	S	Result		Units	Di	lution	$\mathbf{RL}$
Benzene			21.3		mg/Kg		20	0.0200
Toluene	9		165		mg/Kg		20	0.0200
Ethylbenzene	10		130		mg/Kg		20	0.0200
Xylene	11		212		mg/Kg		20	0.0200
						Spike	Percent	Recovery
Surrogate		Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotolue	ene (TFT)		22.1	mg/Kg	20	20.0	110	52.8 - 137
4-Bromofluor	obenzene (4-BFB)	12	62.2	mg/Kg		20.0	311	38.4 - 157

#### Sample: 261911 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	79937	Date Analyzed:	2011-03-31	Analyzed By:	AR
Prep Batch:	67767	Sample Preparation:	2011-03-29	Prepared By:	AR

⁹Estimated concentration value greater than standard range. ¹⁰Estimated concentration value greater than standard range. ¹¹Estimated concentration value greater than standard range. ¹²High surrogate recovery due to peak interference.

Report Date: April 4, 2011 114-6400857			der: 11032822 se Fed. #23 TB	Page Number: 8 of 32 Eddy Co., NM		
Parameter	Flag	RL Result	Units	Dilution	RL	
Chloride		324	mg/Kg	50	4.00	

# Sample: 261911 - AH-3 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NEW 79924 67823		Date A	Analytical Method: Date Analyzed: Sample Preparation:		Prep M Analyz Prepare	0
T Top Batom	01020		Statipio	i ioparation.	2011-03-30	ropur	d Dj. ng
			$\mathbf{RL}$				
Parameter	Fl	ag	$\mathbf{Result}$	τ	Units	Dilution	$\mathbf{RL}$
DRO			11700	mį	g/Kg	5	50.0
					Spike	Percent	Recovery
Surrogate	Flag	$\mathbf{Result}$	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	13	748	mg/Kg	5	100	748	70 - 130

# Sample: 261911 - AH-3 0-1'

Laboratory:MidlandAnalysis:TPH GROQC Batch:80016Prep Batch:67886			Analytical Date Anal Sample Pr		S 8015 D 2011-04-02 2011-04-01		Prep Meth Analyzed Prepared	By: ME
			$\mathbf{RL}$					
Parameter	Flag		$\mathbf{Result}$		Units	D	lution	$\mathbf{RL}$
GRO			4870		mg/Kg		20	2.00
						Spike	Percent	Recovery
Surrogate		Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotolu	ene (TFT)		23.1	mg/Kg	20	20.0	116	48.5 - 152
4-Bromofluor	obenzene (4-BFB)	14	71.6	mg/Kg	20	20.0	358	42 - 159

#### Sample: 261912 - AH-3 1-1.5'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	80015	Date Analyzed:	2011-04-02	Analyzed By:	ME
Prep Batch:	67886	Sample Preparation:	2011-04-01	Prepared By:	ME

¹³High surrogate recovery due to peak interference.
¹⁴High surrogate recovery due to peak interference.

Report Date 114-6400857	e: April 4, 2011			Work Order: 11032822 COG/Moose Fed. #23 TB				mber: 9 of 32 Eddy Co., NM
			$\mathbf{RL}$					
Parameter		Flag	Result		Units	I	Dilution	RL
Benzene	_		27.7		mg/Kg		50	0.0200
Toluene			160		mg/Kg		50	0.0200
Ethylbenzene	e		113		mg/Kg		50	0.0200
Xylene			183		mg/Kg		50	0.0200
						Spike	Percent	Recovery
Surrogate		Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotolu			51.7	mg/Kg	50	50.0	103	52.8 - 137
4-Bromofluor	robenzene (4-Bl	FB) ¹⁵	88.3	mg/Kg	50	50.0	177	38.4 - 157
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Chloride		ration) 'lag	Date A	tical Method: Analyzed: e Preparation:	SM 4500-0 2011-03-31 2011-03-29 Units mg/Kg	l Ə	Prep M Analyze Prepare Dilution 50	ed By: AR
-	1912 - AH-3	1-1.5'						
Laboratory:	Midland TPH DRO - I	JEW.	Anola	tical Method:	S 8015 D		Dean M	othod. N/A
Analysis: QC Batch:	80023	AT7 AA		Analyzed:	2011-04-0		Prep M Analyze	
Prep Batch:	67893			ble Preparation			Prepare	
i iep Dateit.	01000		oamp	no i reparation	. 2011-04-0	11	riepare	u Dy. Kg
<b>n</b> .	-	•	RL		<b>TT</b> 1/		<b>D</b> .1.	
Parameter	F	lag	Result		Units		Dilution	RL
DRO	•••		8780		mg/Kg		5	50.0
			'		St	oike	Percent	Recovery
Surrogate	Flag	$\mathbf{Result}$	Units	Dilutio	-	iount	Recovery	Limits
	<u> </u>						*	

# Sample: 261912 - AH-3 1-1.5'

Laboratory: Analysis:		Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch: Prep Batch:	80016	Date Analyzed: Sample Preparation:	2011-04-02 2011-04-01	Analyzed By: Prepared By:	ME

¹⁵High surrogate recovery due to peak interference. ¹⁶High surrogate recovery due to peak interference.

Report Date: April 4, 2011 114-6400857			Work Order: 11032822 COG/Moose Fed. #23 TB			Page Number: 10 of Eddy Co., N			
Parameter	Flag		$\operatorname{RL}$ Result		Units	E	Dilution	$\mathbf{RL}$	
GRO			5020		mg/Kg		50	2.00	
Surrogate		Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits	
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-B	FB)	17	55.2 99.7	mg/Kg mg/Kg	50 50	50.0 50.0	110 199	48.5 - 152 42 - 159	

# Sample: 261913 - AH-3 2-2.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland BTEX 80015 67886			Analytical Date Analy Sample Pre	zed:	S 8021B 2011-04-02 2011-04-01		Prep Meth Analyzed Prepared	By: ME
				RL	,				
Parameter		Flag		Result		Units	Di	lution	$\mathbf{RL}$
Benzene				< 0.0200		mg/Kg	<u> </u>	1	0.0200
Toluene				0.171		mg/Kg		1	0.0200
Ethylbenzene	<b>;</b>			0.157		mg/Kg		1	0.0200
Xylene				0.426		mg/Kg	·····	1	0.0200
							Spike	Percent	Recovery
Surrogate			Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotolu	ene (TFT)			2.00	mg/Kg	1	2.00	100	52.8 - 137
4-Bromofluor	obenzene (4-BF	FB)		2.05	mg/Kg		2.00	102	38.4 - 157

# Sample: 261913 - AH-3 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	79937	Date Analyzed:	2011-03-31	Analyzed By:	AR
Prep Batch:	67767	Sample Preparation:	2011-03-29	Prepared By:	AR
		RL			
Parameter	Flag	Result	Units	Dilution	$\mathbf{RL}$
Chloride		<200	mg/Kg	50	4.00

# Sample: 261913 - AH-3 2-2.5'

Laboratory: Analysis:	Midland TPH DRO - NEW	Applutical Mathed	9 901E D	Drep Methods	NI / A
QC Batch:	80023	Analytical Method: Date Analyzed:	S 8015 D 2011-04-01	Prep Method: Analyzed By:	•
Prep Batch:	67893	Sample Preparation:	2011-04-01	Prepared By:	kg

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¹⁷High surrogate recovery due to peak interference.

Report Date 114-6400857	e: April 4, 2011		Work Order: 11032822 COG/Moose Fed. #23 TB				Page Number: 11 of 32 Eddy Co., NM		
Parameter	Flag	RL Result		Units		Dilution	RL		
DRO		<50.0	··	mg/Kg		1	50.0		
Surrogate n-Tricosane	Flag Rest		Dilut 1		Spike mount	Percent Recovery 106	Recovery Limits 70 - 130		
Sample: 26 Laboratory: Analysis: QC Batch:	<b>51913 - AH-3 2-2.5'</b> Midland TPH GRO 80016	Analytica Date Ana		S 8015 D 2011-04-02		Prep Met Analyzed			
Prep Batch:	67886	Sample P RL	reparation:	2011-04-01		Prepared	By: ME		
Parameter	Flag	Result		Units		Dilution	$\mathbf{RL}$		
GRO		7.26		mg/Kg		1	2.00		
Surrogate Trifluorotolu		Flag Result 2.06	Units mg/Kg	Dilution 1	Spike Amount 2.00	Percent Recovery 103	Recovery Limits 48.5 - 152		
4-Bromofluor	robenzene (4-BFB)	2.35	mg/Kg	1	2.00	118	42 - 159		
Laboratory:	1914 - AH-4 0-1' Midland								
Analysis:	Chloride (Titration)	•	tical Method		÷ ··	Prep M	,		
QC Batch: Prep Batch:	79937 67767		Analyzed: le Preparatio	2011-03-3 n: 2011-03-3	-	Analyze Prepare	•		
		~ ~							
Parameter	Flag	$\operatorname{RL}$ Result		Units		Dilution	$\mathbf{RL}$		

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# Sample: 261914 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	79924	Date Analyzed:	2011-03-30	Analyzed By:	kg
Prep Batch:	67823	Sample Preparation:	2011-03-30	Prepared By:	kg

Report Date 114-6400857	e: April 4, 2011		Work Order: 11032822 COG/Moose Fed. #23 TB				Page Number: 12 of 32 Eddy Co., NM		
The second se			RL		<b>TT</b>		<b>D</b> (1) (1)		DI
Parameter	Flag		Result		Units		Dilution		RL
DRO			3710		mg/Kg		1		50.0
						Spike	Percent		covery
Surrogate	Flag	Result	Units	Dilu		Amount	Recovery		imits
n-Tricosane	18	340	mg/Kg	]		100	340	70	) - 130
Sample: 26	31914 - AH-4 0-1 ³	,							
Laboratory:	Midland								
Analysis:	TPH GRO		Analytical		S 8015 D		Prep Meth		S 5035
QC Batch:	80016		Date Anal		2011-04-02		Analyzed I		ME
Prep Batch:	67886		Sample Pr	eparation:	2011-04-01	l	Prepared H	By:	ME
			$\mathbf{RL}$						
Parameter	$\mathbf{F}$ lag		Result		Units		Dilution		$\mathbf{RL}$
GRO		·····	688		mg/Kg		1		2.00
					0,0				
_						Spike	Percent		covery
Surrogate	(00000)	Flag	Result	Units	Dilution				imits
Trifluorotolu		19	2.10	mg/Kg	1	2.00	105		5 - 152
<u>4-DIOIIIOII00</u>	robenzene (4-BFB)		10.6	mg/Kg	1	2.00	530	42	- 159
-	31915 - AH-4 1-1.	.5'							
Laboratory: Analysis:	Midland Chloride (Titratio	) n)	Analyt	ical Metho	4. SM 45	00-Cl B	Prep Me	thad	N/A
QC Batch:	79937	лг <i>у</i>		nalyzed:	2011-0		Analyzed		AR
Prep Batch:	67767			e Preparati			Prepared	-	AR
			$\mathbf{RL}$						
Parameter	Flag		Result		Units		Dilution		RL
Chloride			<200		mg/Kg		50		4.00
Sample: 26	31915 - AH-4 1-1.	.5'							
<b>F</b>									
-	Midland								
- Laboratory:	Midland TPH DRO - NEV	v	Analy	tical Metho	od: S 801	5 D	Pren Ma	thod	N/A
Laboratory: Analysis: QC Batch:	Midland TPH DRO - NEV 80023	V		rtical Metho Analyzed:	od: S 801		Prep Me Analyzed		N/A kg

continued ...

¹⁸High surrogate recovery due to peak interference.
 ¹⁹High surrogate recovery due to peak interference.

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sample 261915 continued ...

			$\mathbf{RL}$				
Parameter	F	lag	Result	Un	its	Dilution	RL
			$\mathbf{RL}$				
Parameter	$\mathbf{F}$	lag	Result	Units		Dilution	RL
DRO	······································	······································	<50.0	mg/l	Kg	1	50.0
					Spike	Percent	Recovery
Surrogate	Flag	$\mathbf{Result}$	Units	Dilution	Amount	Recovery	Limits
n-Tricosane		109	mg/Kg	1	100	109	70 - 130

# Sample: 261915 - AH-4 1-1.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH GRO 80016 67886		Analytical Date Anal Sample Pr	yzed:	S 8015 D 2011-04-02 2011-04-01		Prep Meth Analyzed Prepared	By: ME
			RL			_		
Parameter	Flag		Result		Units	D	ilution	RL
GRO			28.1		mg/Kg		1	2.00
Surrogate		Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotolue	ene (TFT)		2.05	mg/Kg	1	2.00	102	48.5 - 152
	obenzene (4-BFB)		2.57	mg/Kg	1	2.00	128	42 - 159

# Sample: 261916 - AH-4 2-2.5'

Chloride		<200	mg/Kg	50	4.00
Parameter	Flag	RL Result	Units	Dilution	RL
Prep Batch:	67767	Sample Preparation:	2011-03-29	Prepared By:	AR
QC Batch:	79937	Date Analyzed:	2011-03-31	Analyzed By:	AR
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Laboratory:	Midland				

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G		

#### Sample: 261916 - AH-4 2-2.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - N 80023 67893	EW	Date A	cal Method: nalyzed: Preparation:	S 8015 D 2011-04-01 2011-04-01	Prep M Analyz Prepare	• •
-			RL				
Parameter	Fl	ag	Result		Units	Dilution	$\mathbf{RL}$
DRO			<50.0	m	g/Kg	1	50.0
					Spike	Percent	Recovery
Surrogate	$\mathbf{Flag}$	$\mathbf{Result}$	Units	Dilution	Amount	Recovery	Limits
n-Tricosane		107	mg/Kg	1	100	107	70 - 130

# Sample: 261916 - AH-4 2-2.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH GRO 80016 67886		Analytical Date Anal Sample Pr		S 8015 D 2011-04-02 2011-04-01		Prep Meth Analyzed Prepared 1	By: ME
			$\mathbf{RL}$					
Parameter	$\mathbf{Flag}$		Result		Units	D	ilution	$\mathbf{RL}$
GRO			10.3		mg/Kg		1	2.00
a .		-	<b>D</b> 1/	TT		Spike	Percent	Recovery
Surrogate		Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotolue	ene (TFT)		1.57	mg/Kg	1	2.00	78	48.5 - 152
4-Bromofluor	obenzene (4-BFB)		1.62	mg/Kg	1	2.00	81	42 - 159

# Sample: 261917 - AH-5 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland BTEX 80015 67886		Analytical Method: Date Analyzed: Sample Preparation:	S 8021B 2011-04-02 2011-04-01	Prep Method: Analyzed By: Prepared By:	S 5035 ME ME
			RL			
Parameter		Flag	Result	Units	Dilution	RL
Benzene			13.0	mg/Kg	50	0.0200
Toluene			83.5	mg/Kg	50	0.0200
Ethylbenzene	e		73.0	mg/Kg	50	0.0200
Xylene			124	mg/Kg	50	0.0200

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Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	20	52.2	mg/Kg	50	50.0	104	52.8 - 137
4-Bromofluorobenzene (4-BFB)		80.2	mg/Kg	50	50.0	160	38.4 - 157

# Sample: 261917 - AH-5 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 79937 67767	Analytical Method: Date Analyzed: Sample Preparation:	SM 4500-Cl B 2011-03-31 2011-03-29	Prep Method: Analyzed By: Prepared By:	ÁR
		RL			
Parameter	Flag	Result	Units	Dilution	$\mathbf{RL}$
Chloride		1570	mg/Kg	100	4.00

#### Sample: 261917 - AH-5 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NEW 80023 67893		Date A	Analytical Method: Date Analyzed: Sample Preparation:		Prep M Analyze Prepare	
_	_		RL				
Parameter	F	ag	Result		Units	Dilution	RL
DRO			7300	m	g/Kg	5	50.0
					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	21	482	mg/Kg	5	100	482	70 - 130

# Sample: 261917 - AH-5 0-1'

GRO		3360	mg/Kg	50	2.00
Parameter	Flag	RL Result	Units	Dilution	RL
Prep Batch:	67886	Sample Preparation:	2011-04-01	Prepared By:	ME
QC Batch:	80016	Date Analyzed:	2011-04-02	Analyzed By:	ME
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
Laboratory:	Midland				

²⁰High surrogate recovery due to peak interference.
²¹High surrogate recovery due to peak interference.

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Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)	22	55.8 84.4	mg/Kg mg/Kg	50 50	50.0 50.0	112 169	48.5 - 152 42 - 159

# Sample: 261918 - AH-6 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 79937 67767	Analytical Method: Date Analyzed: Sample Preparation:	SM 4500-Cl B 2011-03-31 2011-03-29	Prep Method: Analyzed By: Prepared By:	AR
		$\mathbf{RL}$			
Parameter	$\mathbf{Flag}$	Result	Units	Dilution	$\mathbf{RL}$
Chloride		385 1	mg/Kg	50	4.00

# Sample: 261918 - AH-6 0-1'

n-Tricosane	23	142	mg/Kg	1	100	142	70 - 130
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
					Spike	Percent	Recovery
DRO			293	m	g/Kg	1	50.0
Parameter	F	lag	RL Result		Units	Dilution	RL
Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NEW 79924 67823		Date A	Analytical Method: Date Analyzed: Sample Preparation:		Prep M Analyz Prepare	

# Sample: 261918 - AH-6 0-1'

GRO		127	mg/Kg	1	2.00
Parameter	Flag	RL Result	Units	Dilution	RL
Prep Batch:	67886	Sample Preparation:	2011-04-01	Prepared By:	ME
QC Batch:	80016	Date Analyzed:	2011-04-02	Analyzed By:	ME
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
Laboratory:	Midland				

²²High surrogate recovery due to peak interference.
²³High surrogate recovery due to peak interference.

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Surrogate	Flag	$\operatorname{Result}$	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)		$\begin{array}{c} 2.51 \\ 2.73 \end{array}$	mg/Kg mg/Kg	1 1	2.00 2.00	126 136	48.5 - 152 42 - 159

# Sample: 261919 - AH-7 0-1'

Midland				
Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
79937	Date Analyzed:	2011-03-31	Analyzed By:	AR
67767	Sample Preparation:	2011-03-29	Prepared By:	AR
	RL			
Flag	Result	Units	Dilution	$\mathbf{RL}$
	547	mg/Kg	50	4.00
	Chloride (Titration) 79937 67767	Chloride (Titration)Analytical Method:79937Date Analyzed:67767Sample Preparation:RLFlagResult	Chloride (Titration)Analytical Method:SM 4500-Cl B79937Date Analyzed:2011-03-3167767Sample Preparation:2011-03-29RLFlagResultUnits	Chloride (Titration)Analytical Method:SM 4500-Cl BPrep Method:79937Date Analyzed:2011-03-31Analyzed By:67767Sample Preparation:2011-03-29Prepared By:RLFlagResultUnitsDilution

# Sample: 261919 - AH-7 0-1'

Laboratory:	Midland						
Analysis:	TPH DRO - N	IEW .	Analyti	cal Method:	S 8015 D	Prep M	lethod: N/A
QC Batch:	•		Date Analyzed: 2011-03-30			Analyz	ed By: kg
Prep Batch: 67823		Sample Preparation: 2011-03-30			Prepare		
			$\mathbf{RL}$				
Parameter	Flag		Result	U	nits	Dilution	RL
DRO			2770	mg	/Kg	1	50.0
					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	24	329	mg/Kg	1	100	329	70 - 130

# Sample: 261919 - AH-7 0-1'

Parameter GRO	Flag	Result 156	Units mg/Kg	Dilution	$\frac{\text{RL}}{2.00}$
		RL			
Prep Batch:	67886	Sample Preparation:	2011-04-01	Prepared By:	ME
QC Batch:	80016	Date Analyzed:	2011-04-02	Analyzed By:	ME
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
Laboratory:					

²⁴High surrogate recovery due to peak interference.

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Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	0	2.00	mg/Kg	1	2.00	100	48.5 - 152
4-Bromofluorobenzene (4-BFB)		2.47	mg/Kg	1	2.00	124	42 - 159

# Sample: 261920 - AH-8 0-1'

Laboratory:	Midland									
Analysis:	BTEX			Analytical I	Method:	S 8021B		Prep Metl	hod:	S 5035
QC Batch:	80015			Date Analy	zed:	2011-04-02		Analyzed	By:	ME
Prep Batch:	67886			Sample Pre	paration:	2011-04-01		Prepared	By:	ME
				$\mathbf{RL}$						
Parameter	1	Flag		Result		Units	D	ilution		$\mathbf{RL}$
Benzene				4.25		mg/Kg		20		0.0200
Toluene				12.8		mg/Kg		20		0.0200
Ethylbenzene	9			5.85		mg/Kg		20		0.0200
Xylene				32.9		mg/Kg		20		0.0200
							Spike	Percent	Re	ecovery
Surrogate			Flag	Result	Units	Dilution	Amount	Recovery	I	limits
Trifluorotolu	ene (TFT)			21.0	mg/Kg	20	20.0	105	52	.8 - 137
4-Bromofluor	obenzene (4-BF	B)		27.0	mg/Kg	20	20.0	135	38.	.4 - 157

# Sample: 261920 - AH-8 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 79937 67767	Analytical Method: Date Analyzed: Sample Preparation:	SM 4500-Cl B 2011-03-31 2011-03-29	Prep Method: Analyzed By: Prepared By:	AR
		RL			
Parameter	Flag	Result	Units	Dilution	$\mathbf{RL}$
Chloride		2270	mg/Kg	100	4.00

# Sample: 261920 - AH-8 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	79924	Date Analyzed:	2011-03-30	Analyzed By:	kg
Prep Batch:	67823	Sample Preparation:	2011-03-30	Prepared By:	kg

Report Date: April 4, 2011 114-6400857			Work Order: 11032822 COG/Moose Fed. #23 TB			Page Number: 19 of 32 Eddy Co., NM		
Parameter	F	lag	$\operatorname{RL}$ Result	Units		Dilution	RL	
DRO			4090	mg/l	mg/Kg		50.0	
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits	
n-Tricosane	25	381	mg/Kg	1	100	381	70 - 130	

# Sample: 261920 - AH-8 0-1'

-								
Laboratory:	Midland		A	Matha J.	C 9015 D		Dece Matt	a la circor
Analysis:	TPH GRO		Analytical		S 8015 D		Prep Metl	
QC Batch: 80016			Date Analyzed:		2011-04-02		Analyzed	By: ME
Prep Batch:	67886		Sample Pr	eparation:	2011-04-01		Prepared	By: ME
			RL					
Parameter	Flag		$\mathbf{Result}$		Units	Ľ	Dilution	RL
GRO			1280		mg/Kg	······	20	2.00
						Spike	Percent	Recovery
Surrogate		Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotolu	ene (TFT)		22.0	mg/Kg	20	20.0	110	48.5 - 152
4-Bromofluor	obenzene (4-BFB)		26.9	mg/Kg	20	20.0	134	42 - 159

# Sample: 261921 - AH-9 0-1' 1' BEB

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 79938 67767	Analytical Method: Date Analyzed: Sample Preparation:	SM 4500-Cl B 2011-03-31 2011-03-29	Prep Method: Analyzed By: Prepared By:	AR
		RL			
Parameter	Flag	Result	Units	Dilution	$\mathbf{RL}$
Chloride		781	mg/Kg	50	4.00

# Sample: 261921 - AH-9 0-1' 1' BEB

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	79924	Date Analyzed:	2011-03-30	Analyzed By:	•
Prep Batch:	67823	Sample Preparation:	2011-03-30	Prepared By:	kg
				······	

continued ...

²⁵High surrogate recovery due to peak interference.

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sample 261921 cc	ontinued									
			$\mathbf{RL}$							
Parameter	Flag	g	Result		Units		Dilution	RL		
			$\mathbf{RL}$							
Parameter	Fla	g	Result		Units		Dilution	RL		
DRO			2290		mg/Kg		1	50.0		
						Spike	Percent	Recovery		
Surrogate	Flag	Result	Units	Dilu	ition	Amount	Recovery	Limits		
n-Tricosane	26	332	mg/Kg		1	100	332	70 - 130		
U	PH GRO 016 886 Fla _i	g	Analytical Date Analy Sample Pro RL Result	yzed:	S 8015 D 2011-04-02 2011-04-01 Units		Prep Met Analyzed Prepared Dilution	By: ME		
GRO		D	1420	·····	mg/Kg		10	2.00		
Surrogate		Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits		
Trifluorotoluene			10.3	mg/Kg	10	10.0	103	48.5 - 152		
4-Bromofluorober	nzene (4-BFB	) 27	25.4	mg/Kg	10	10.0	254	42 - 159		
Method Blank QC Batch: 799 Prep Batch: 678	924	Batch: 79924	Date Ana QC Prepa	aration: 2	2011-03-30 2011-03-30		-	zed By: kg red By: kg		
Parameter		Flag		MDL Result		Un	its	$\mathbf{RL}$		
DRO		0		<15.7		mg/		50		
Surrogate	Flag	Result	Units	Dilu	ition	Spike Amount	Percent Recovery	Recovery Limits		
n-Tricosane		121	mg/Kg		1	100	121	70 - 130		

²⁶High surrogate recovery due to peak interference.
 ²⁷High surrogate recovery due to peak interference.

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Method Blank (1)	QC Batch: 79936							
QC Batch: 79936 Prep Batch: 67767		Date Analy: QC Prepara		2011-03-31 2011-03-29		Analyze Prepare		AR AR
			MI	DL				
Parameter	Flag		Res		Units			$\mathbf{RL}$
Chloride			<3.	.85	mg/Kg			4
Method Blank (1)	QC Batch: 79937							
QC Batch: 79937		Date Analyz	zed:	2011-03-31		Analyze	d By:	AR
Prep Batch: 67767		QC Prepara		2011-03-29		Prepare		AR
Parameter	Flag		MI Res		Units			$\mathbf{RL}$
Chloride	I lag		<3.		mg/Kg		· · · · · · · · · · · · · · · · · · ·	4
QC Batch: 79938 Prep Batch: 67767		Date Analyz QC Prepara	tion: MI		<b>TT</b> 11.	Analyze Prepare		AR AR
Parameter Chloride	Flag		Rest <3.		Units mg/Kg			RL 4
Method Blank (1)	QC Batch: 80015							
QC Batch: 80015 Prep Batch: 67886		Date Analyz QC Prepara		2011-04-02 2011-04-01		Analyze Prepared	-	ME ME
Parameter	Flag		-	MDL Lesult	Units			$\mathbf{RL}$
Benzene	± 100	<u></u>		.0118	mg/Kg			0.02
Toluene				0600	mg/Kg			0.02
Ethylbenzene				0850	mg/Kg			0.02
Xylene			<0.0	0613	mg/Kg			0.02
					Spike	Percent	Rec	overy
Surrogate	Flag	Result	Units		Amount	Recovery		mits
Trifluorotoluene (TFT)			mg/K		2.00	89		- 122
4-Bromofluorobenzene (4	4-BFB)	1.73	mg/K	.g 1	2.00	86	55.4	- 124

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Method Blank	(1) QC H	Batch: 80016								
QC Batch: 800	16		Date An	alyzed:	2011-04-	02		Ana	alyzed By	: ME
Prep Batch: 678	86		QC Prep	paration:	2011-04-	01			pared By	
Parameter		Flag		MD Resu			T	Inits		RI
GRO		1 105	·	<0.75			-	g/Kg		2
Surrogate		Flag	Result	Units	D;	lution	Spike Amoun			ecovery Limits
Trifluorotoluene (	TFT)	riag	1.88	mg/Kg		1	2.00	t Recover 94		.6 - 150
4-Bromofluoroben		- <u></u>	1.66	mg/Kg		1	2.00	83		.4 - 130
Parameter DRO		Flag		MD Resu <15.	t			nits g/Kg		RI 50
<u></u>			<u></u>			Sp	ike	Percent		ecovery
Surrogate n-Tricosane	Flag	Result 130	Units mg/Kg	Di	ution 1	Amo 1(	ount	Recovery 130		Limits 0 - 130
Laboratory Cor QC Batch: 799	_	LCS-1)	Date Ar	alvzed.	2011-03	-30		An	alyzed B	y: kg
Prep Batch: 678			QC Prej	-	2011-03	-30		Pro	epared B	y: kg
Param		LC Rest		nits	Dil.	Spike	Mat Res			lec.
Param		250		g/Kg	$\frac{DII.}{1}$	Amount 250	<1 <1			imit - 144.1
DRO	s based on th				e spike a					
Percent recovery i					~	Matuin		Rec.		RPD
		$\begin{array}{c} { m LCSD} \\ { m Result} \end{array}$	Units		Spike mount	Matrix Result	Rec.	Limit	RPD	Limit

Report Date: April 4, 114-6400857	2011	011 Work Order: 11032822 COG/Moose Fed. #23 TB						Page Number: 23 of Eddy Co., N					
control spikes continue	ed												
-	LCS	LCSD			Spike	LCS	3 3	LCSD		Rec.			
Surrogate	Result	Result	Units	Dil.	Amount	Rec	•	Rec.	]	Limit			
	LCS	LCSD			Spike	LCS	z .	LCSD		Rec.			
Surrogate	Result	Result	Units	Dil.	Amount	Rec		Rec.		Limit			
n-Tricosane	126	122	mg/Kg	1	100	126		122		) - 130			
Laboratory Control	l Spike (LC	S-1)											
QC Batch: 79936		I	Date Analyzed:	2011-03-3	1			Analyz	ed Bv:	AR			
Prep Batch: 67767			QC Preparation:	2011-03-2				Prepare	•	AR			
D		LCS		10.1	Spike		trix	P		Rec.			
Param		Resul		Dil.	Amount		sult	Rec.		Limit			
				1	100	<3	.85	97	8	5 - 118			
Chloride		96.8											
Chloride Percent recovery is ba	sed on the sp			the spike a	nd spike du	plicate r	esult.						
Chloride	sed on the sp			the spike a Spike	nd spike du Matrix	plicate r	esult. Rec	2.		RPE			
Chloride Percent recovery is ba	sed on the sp	ike result. F LCSD Result	RPD is based on t	_		plicate ro Rec.			PD				
Chloride Percent recovery is ba Param Chloride		ike result. F LCSD Result 104	PD is based on the Units Dil.	Spike Amount 100	Matrix Result <3.85	Rec.	Rec Limi 85 - 1	it R	PD 7				
Chloride Percent recovery is ba Param Chloride Percent recovery is ba Laboratory Control	sed on the sp	ike result. F LCSD Result 104 ike result. F S-1)	PD is based on t Units Dil. mg/Kg 1 PD is based on t	Spike Amount 100 the spike ar	Matrix Result <3.85 nd spike du	Rec.	Rec Limi 85 - 1	it R 115	7	Limi 20			
Chloride Percent recovery is ba Param	sed on the sp	ike result. F LCSD Result 104 ike result. F S-1)	PD is based on the Units Dil.	Spike Amount 100	Matrix Result <3.85 nd spike du	Rec.	Rec Limi 85 - 1	it R	7 ed By:	Limi 20 AR			
Chloride Percent recovery is ba Param Chloride Percent recovery is ba Laboratory Control QC Batch: 79937 Prep Batch: 67767	sed on the sp	ike result. F LCSD Result 104 ike result. F S-1) I C LCS	Units       Dil.         mg/Kg       1         RPD is based on the second se	Spike Amount 100 the spike ar 2011-03-3	Matrix Result <3.85 nd spike du	Rec.	Rec Limi 85 - 1 esult.	it R 115 Analyze	7 ed By: ed By:	Limit 20 AR AR Rec.			
Chloride Percent recovery is ba Param Chloride Percent recovery is ba Laboratory Control QC Batch: 79937 Prep Batch: 67767 Param	sed on the sp	ike result. F LCSD Result 104 ike result. F S-1) I C LCS Resul	Units       Dil.         mg/Kg       1         RPD is based on the second se	Spike Amount 100 the spike ar 2011-03-3 2011-03-2 Dil.	Matrix Result <3.85 ad spike duy 1 9 Spike Amount	Rec. 104 plicate re Mat Res	Rec Limi 85 - 1 esult. trix	it R 115 Analyze Prepare Rec.	7 ed By: ed By: I	AR AR Rec.			
Chloride Percent recovery is ba Param Chloride Percent recovery is ba Laboratory Control QC Batch: 79937 Prep Batch: 67767 Param Chloride	sed on the sp	ike result. F LCSD Result 104 ike result. F S-1) I C LCS Resul 97.2	Units       Dil.         mg/Kg       1         RPD is based on the second se	Spike Amount 100 the spike an 2011-03-3 2011-03-2 Dil. 1	Matrix Result <3.85 ad spike du 1 9 Spike Amount 100	Rec. 104 plicate re Mau Res <3	Rec Limi 85 - 1 esult. trix sult .85	it R 115 Analyze Prepare	7 ed By: ed By: I	Limi 20 AR AR AR Cimit			
Chloride Percent recovery is ba Param Chloride Percent recovery is ba Laboratory Control QC Batch: 79937 Prep Batch: 67767 Param Chloride	sed on the sp	ike result. F LCSD Result 104 ike result. F S-1) I C LCS Resul 97.2	Units       Dil.         mg/Kg       1         RPD is based on the second se	Spike Amount 100 the spike an 2011-03-3 2011-03-2 Dil. 1	Matrix Result <3.85 ad spike du 1 9 Spike Amount 100	Rec. 104 plicate re Mau Res <3	Rec Limi 85 - 1 esult. trix sult .85	it R 115 Analyze Prepare Rec.	7 ed By: ed By: I	Limi 20 AR AR AR Cimit			
Chloride Percent recovery is ba Param Chloride Percent recovery is ba Laboratory Control QC Batch: 79937 Prep Batch: 67767 Param Chloride Percent recovery is ba	sed on the sp	ike result. F LCSD Result 104 ike result. F S-1) I LCS Resul 97.2 ike result. R LCSD	Units       Dil.         mg/Kg       1         RPD is based on the second of the se	Spike Amount 100 the spike an 2011-03-3 2011-03-2 Dil. 1 the spike an Spike	Matrix Result <3.85 ad spike duy 1 9 Spike Amount 100 ad spike duy Matrix	Rec. 104 plicate re Mau Res <3 plicate re	Rec Limi 85 - 1 esult. trix sult 	it R 15 Analyze Prepare Rec. 97	7 ed By: ed By: I 85	Limit 20 AR AR Comit 5 - 115 RPD			
Chloride Percent recovery is ba Param Chloride Percent recovery is ba Laboratory Control QC Batch: 79937 Prep Batch: 67767	sed on the sp	ike result. F LCSD Result 104 ike result. F S-1) I C LCS Result 97.2 ike result. R LCSD Result	Units       Dil.         mg/Kg       1         RPD is based on the second se	Spike Amount 100 the spike an 2011-03-3 2011-03-2 Dil. 1 the spike an	Matrix Result <3.85 ad spike duy 1 9 Spike Amount 100 ad spike duy	Rec. 104 plicate re Mau Res <3	Rec Limi 85 - 1 esult. trix sult. .85 esult.	it R 15 Analyze Prepare <u>Rec.</u> 97	7 ed By: ed By: I	Limi 20 AR AR Comit 5 - 115			

QC Batch:	79938	Date Analyzed:	2011-03-31	Analyzed By:	AR
Prep Batch:	67767	QC Preparation:	2011-03-29	Prepared By:	$\mathbf{AR}$

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2			<b></b>			pike		atrix			Rec.	
Param	Result Units				nount		esult	Rec		Limit		
Chloride	97.6 mg/Kg				100		3.85	98		85 - 115		
Percent recovery is based on the	spike result.	RPD is	based	on the spike	e and sp	ike duj	plicate	result.				
	LCSD			Spike	e M	atrix		F	lec.		RPD	
Param	Result	Units	s Di	-		esult	Rec.	$\mathbf{L}$	imit	RPD	Limit	
Chloride	103	mg/K	g 1	100	<	3.85	103	85	- 115	5	20	
Percent recovery is based on the	spike result.	RPD is	based	on the spike	e and sp	ike duj	plicate	result.				
Laboratory Control Spike (L	CS-1)											
QC Batch: 80015		Date A	nalyzed	l: 2011-04	4-02				Analy	zed By	: ME	
Prep Batch: 67886		QC Pr	eparatio	on: 2011-04	4-01				-	red By		
	TO	a			<i>a</i>						5	
Demos	LC		Traite	D:1	Spik		Mat		<b>D</b>		Rec.	
Param Benzene	Resu 1.7		$\frac{\text{Units}}{\text{ng/Kg}}$	Dil1	Amou 2.00		Res <0.0		Rec. 85		Limit .9 - 108	
Toluene	1.7		ng/Kg	1			<0.0		88		.9 - 108	
Ethylbenzene	1.9		ng/Kg	1		2.00		)850	96		.4 - 107	
Xylene	5.7		ng/Kg	1		6.00 <0.00613		96	79.1 - 107			
Percent recovery is based on the	spike result.			on the spike								
	LCSD			Spike	Ma	trix		В	lec.		RPD	
Param	Result	Units	Dil.	Amount	Res		Rec.		mit	RPD	Limit	
Benzene	1.76	mg/Kg	1	2.00	<0.0	)118	88	81.9	- 108	4	20	
Toluene	1.81	mg/Kg		2.00	<0.0	0600	90	81.9	- 107	3	20	
Ethylbenzene	1.96	mg/Kg	1	2.00	<0.0		98		- 107	3	20	
Xylene	5.89	mg/Kg	1	6.00	<0.0	0613	98	79.1	- 107	2	20	
Percent recovery is based on the	spike result.	RPD is	based	on the spike	e and sp	ike duj	plicate	result.				
	LC		CSD			Spil		LCS	LCSD		Rec.	
Surrogate	Resu		esult	Units	Dil.	Amo		Rec.	Rec.		Limit	
Trifluorotoluene (TFT)	1.74		.51	mg/Kg	1	2.0		87	76		.2 - 114	
4-Bromofluorobenzene (4-BFB)	1.84	4 1	.59	mg/Kg		2.0	0	92	80	69	.8 - 121	
Laboratory Control Spike (Le	<b>CS-1</b> )											
QC Batch: 80016		Date A	nalyzed	l: 2011-04	4-02				Analy	zed By	: ME	
Prep Batch: 67886			eparatic							red By		
									-	5		
	$\mathbf{LC}$	S			Spi	ke	Mat	rix			Rec.	
Param	Rest		Units	Dil.	Amo	unt	Res		Rec.		imit	
GRO	17.	7	mg/Kg	1	20	0	<0.1	77.0	88	00	9 - 95.4	

ParamRe GROIPercent recovery is based on the spike ofSurrogateTrifluorotoluene (TFT)4-Bromofluorobenzene (4-BFB)Laboratory Control Spike (LCS-1)QC Batch:QC Batch:80023Prep Batch:67893ParamDROPercent recovery is based on the spike ofDROPercent recovery is based on the spike ofLCSSurrogateResultIn-Tricosane126Matrix Spike (MS-1)Spiked SamQC Batch:79924Prep Batch:67823	CSD esult Units 6.8 mg/K result. RPD is LCS L Result R 2.03 1.93 Date A QC P LCS Result 282
Param       Reference         GRO       1         Percent recovery is based on the spike of         Surrogate         Trifluorotoluene (TFT)         4-Bromofluorobenzene (4-BFB)         Laboratory Control Spike (LCS-1)         QC Batch:       80023         Prep Batch:       67893         Param       DRO         Percent recovery is based on the spike of         DRO       2         Percent recovery is based on the spike of         LCS       1         Surrogate       Result         n-Tricosane       126         Matrix Spike (MS-1)       Spiked Sam         QC Batch:       79924         Prep Batch:       67823	esult Units 6.8 mg/K result. RPD is LCS L Result R 2.03 1.93 Date - QC P LCS Result 282
GRO       1         Percent recovery is based on the spike of spike (ICS-1)         Surrogate         Trifluorotoluene (TFT)         4-Bromofluorobenzene (4-BFB)         Laboratory Control Spike (LCS-1)         QC Batch:         80023         Prep Batch:         67893         Param         DRO         Percent recovery is based on the spike of the spike	6.8 mg/K result. RPD is LCS L Result R 2.03 1.93 Date . QC P LCS Result 282
Percent recovery is based on the spike r Surrogate Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (LCS-1) QC Batch: 80023 Prep Batch: 67893 Param DRO Percent recovery is based on the spike r LCS Percent recovery is based on the spike r LCS Surrogate Result I n-Tricosane 126 Matrix Spike (MS-1) Spiked Sam QC Batch: 79924 Prep Batch: 67823 Param	LCS L Result R 2.03 1.93 Date A QC P LCS Result 282
Surrogate         Trifluorotoluene (TFT)         4-Bromofluorobenzene (4-BFB)         Laboratory Control Spike (LCS-1)         QC Batch:       80023         Prep Batch:       67893         Param       DRO         Percent recovery is based on the spike recovery is based recovery	LCS L Result R 2.03 1.93 Date . QC P LCS Result 282
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (LCS-1) QC Batch: 80023 Prep Batch: 67893 Param DRO Percent recovery is based on the spike r LCS Percent recovery is based on the spike r LCS Surrogate Result 1 n-Tricosane 126 Matrix Spike (MS-1) Spiked Sam QC Batch: 79924 Prep Batch: 67823 Param	Result R 2.03 1.93 Date QC P LCS Result 282
Trifluorotoluene (TFT)         4-Bromofluorobenzene (4-BFB)         Laboratory Control Spike (LCS-1)         QC Batch:       80023         Prep Batch:       67893         Param       DRO         Percent recovery is based on the spike recovery recov	2.03 1.93 Date - QC P LCS Result 282
4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (LCS-1) QC Batch: 80023 Prep Batch: 67893 Param DRO Percent recovery is based on the spike r LC Param Re DRO 2 Percent recovery is based on the spike r LCS 1 Surrogate Result 1 n-Tricosane 126 Matrix Spike (MS-1) Spiked Sam QC Batch: 79924 Prep Batch: 67823 Param	1.93 Date . QC P LCS Result 282
Laboratory Control Spike (LCS-1)         QC Batch:       80023         Prep Batch:       67893         Param       DRO         Percent recovery is based on the spike r         DRO       2         Param       Re         DRO       2         Percent recovery is based on the spike r         LCS       1         Surrogate       Result         n-Tricosane       126         Matrix Spike (MS-1)       Spiked Sam         QC Batch:       79924         Prep Batch:       67823	) Date . QC P LCS Result 282
QC Batch: 80023 Prep Batch: 67893 Param DRO Percent recovery is based on the spike r LC Param Re DRO 2 Percent recovery is based on the spike r LCS Surrogate Result n-Tricosane 126 Matrix Spike (MS-1) Spiked Sam QC Batch: 79924 Prep Batch: 67823 Param	Date . QC P LCS Result 282
DRO Percent recovery is based on the spike r LC Param Re DRO 2 Percent recovery is based on the spike r LCS 1 Surrogate Result 1 n-Tricosane 126 Matrix Spike (MS-1) Spiked Sam QC Batch: 79924 Prep Batch: 67823 Param	Result 282
DRO Percent recovery is based on the spike r LC Param Re DRO 2 Percent recovery is based on the spike r LCS 1 Surrogate Result 1 n-Tricosane 126 Matrix Spike (MS-1) Spiked Sam QC Batch: 79924 Prep Batch: 67823 Param	282
Percent recovery is based on the spike r LC Param Re DRO 2 Percent recovery is based on the spike r LCS 1 Surrogate Result 1 n-Tricosane 126 Matrix Spike (MS-1) Spiked Sam QC Batch: 79924 Prep Batch: 67823 Param	
Param Re DRO 2 Percent recovery is based on the spike r LCS 1 Surrogate Result 1 n-Tricosane 126 Matrix Spike (MS-1) Spiked Sam QC Batch: 79924 Prep Batch: 67823 Param	
Param     Re       DRO     2       Percent recovery is based on the spike for	result. RPD is
DRO 2 Percent recovery is based on the spike r LCS 1 Surrogate Result 1 n-Tricosane 126 Matrix Spike (MS-1) Spiked Sam QC Batch: 79924 Prep Batch: 67823 Param	CSD
Percent recovery is based on the spike r LCS 1 Surrogate Result 1 n-Tricosane 126 Matrix Spike (MS-1) Spiked Sam QC Batch: 79924 Prep Batch: 67823 Param	esult Units
LCS Surrogate Result I n-Tricosane 126 Matrix Spike (MS-1) Spiked Sam QC Batch: 79924 Prep Batch: 67823 Param	278 mg/Kį
Surrogate     Result     I       n-Tricosane     126       Matrix Spike (MS-1)     Spiked Sam       QC Batch:     79924       Prep Batch:     67823	result. RPD is
Surrogate     Result     I       n-Tricosane     126       Matrix Spike (MS-1)     Spiked Sam       QC Batch:     79924       Prep Batch:     67823	LCSD
n-Tricosane 126 Matrix Spike (MS-1) Spiked Sam QC Batch: 79924 Prep Batch: 67823 Param	Result
QC Batch: 79924 Prep Batch: 67823 Param	124 m
	nple: 261939 Date A QC Pr
DRO	MS
Percent recovery is based on the spike i	Result
	Result 242
	Result 242 result. RPD is
	Result 242 result. RPD is SD
DRO 2 Percent recovery is based on the spike r	Result       242       result. RPD is       SD       sult     Units

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	MS	MSD			Spike	MS	MS	D	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec			Limit
n-Tricosane	121	126	mg/Kg	1	100	121	12	6	70 - 130
Matrix Spike (MS-1	l) Spiked	Sample: 261	.910						
QC Batch: 79936			Date Analyzed:	2011-03-3				alyzed E	-
Prep Batch: 67767		(	QC Preparation:	2011-03-2	9		Pre	pared B	y: AR
		MS			Spike	Mat	rix		Rec.
Param		Resu		Dil.	Amount	Res		ec.	Limit
Chloride		9960	mg/Kg	100	10000	<38	85 1	00	80 - 120
Percent recovery is bas	sed on the sp	ike result. F	RPD is based on	the spike ar	nd spike duj	olicate re	sult.		
		MSD		Spike	Matrix		Rec.		RPE
Param		Result	Units Dil.	Amount	Result	Rec.	Limit	RPD	Limi
Chloride		10200	mg/Kg 100	10000	<385	102	80 - 120	2	20
Matrix Spike (MS-1 QC Batch: 79937	-	Sample: 261	920 Date Analyzed:	2011-03-3	1	olicate re	An	alyzed B	-
Matrix Spike (MS-1 QC Batch: 79937	-	Sample: 261 1 (	920	2011-03-3	1 9		An: Pre	alyzed B pared B	y: AR
Matrix Spike (MS-1 2C Batch: 79937 2rep Batch: 67767	-	Sample: 261	920 Date Analyzed: QC Preparation:	2011-03-3	1	olicate re Mat Res	Ana Pre	-	-
Matrix Spike (MS-1 2C Batch: 79937 Prep Batch: 67767 Param	-	Sample: 261 1 ( MS	920 Date Analyzed: QC Preparation: t Units	2011-03-3 2011-03-2	1 9 Spike	Mat	Ana Pre rix ult R	pared B	y: AR Rec. Limit
Matrix Spike (MS-1 QC Batch: 79937 Prep Batch: 67767 Param Chloride	l) Spiked	Sample: 261	920 Date Analyzed: QC Preparation: t Units 0 mg/Kg	2011-03-3 2011-03-2 Dil. 100	1 9 Spike Amount 10000	Mat Res 227	Ana Pre rix ult R 70 9	pared B	y: AR Rec. Limit
Matrix Spike (MS-1 QC Batch: 79937 Prep Batch: 67767 Param Chloride	l) Spiked	Sample: 261 I MS Resul 12200 ike result. F MSD	920 Date Analyzed: QC Preparation: t Units 0 mg/Kg	2011-03-3 2011-03-2 Dil. 100	1 9 Spike Amount 10000	Mat Res 227	Ana Pre rix ult R 70 9	pared B	y: AR Rec. Limit 80 - 120
Matrix Spike (MS-1 QC Batch: 79937 Prep Batch: 67767 Param Chloride Percent recovery is bas Param	l) Spiked	Sample: 261 I MS Resul 12200 ike result. F MSD Result	920 Date Analyzed: QC Preparation: t Units D mg/Kg RPD is based on Units Dil.	2011-03-3 2011-03-2 Dil. 100 the spike ar Spike Amount	1 9 Amount 10000 nd spike dup Matrix Result	Mat Ress 227 Dlicate res Rec.	Ana Pre ult R 70 9 sult. Rec. Limit	ec. 99 RPD	y: AR Rec. Limit 80 - 120 RPD Limit
Matrix Spike (MS-1 QC Batch: 79937 Prep Batch: 67767 Param Chloride Percent recovery is bas Param Chloride	1) Spiked	Sample: 261	920 Date Analyzed: QC Preparation: t Units D mg/Kg RPD is based on Units Dil. mg/Kg 100	2011-03-3 2011-03-2 Dil. 100 the spike ar Spike Amount 10000	1 9 Amount 10000 nd spike dup Matrix Result 2270	Mat Res 227 Dicate re Rec. 102	Ana Pre ult R 70 9 sult. Rec. Limit 80 - 120	ec.	y: AR Rec. Limit 80 - 120 RPD
Matrix Spike (MS-1 QC Batch: 79937 Prep Batch: 67767 Param Chloride Percent recovery is bas Param Chloride Percent recovery is bas Matrix Spike (MS-1	I) Spiked	Sample: 261	920 Date Analyzed: QC Preparation: t Units D mg/Kg RPD is based on Units Dil. mg/Kg 100 RPD is based on	2011-03-3 2011-03-2 Dil. 100 the spike ar Spike Amount 10000	1 9 Amount 10000 nd spike dup Matrix Result 2270 nd spike dup	Mat Res 227 Dicate re Rec. 102	An. Pre rix ult R 70 9 sult. Rec. Limit 80 - 120 sult.	pared B ec. 99 RPD 2	y: AR Rec. Limit 80 - 120 RPD Limi 20
Matrix Spike (MS-1 QC Batch: 79937 Prep Batch: 67767 Param Chloride Percent recovery is bas Param Chloride Percent recovery is bas Matrix Spike (MS-1 QC Batch: 79938	I) Spiked	Sample: 261	920 Date Analyzed: QC Preparation: t Units D mg/Kg RPD is based on Units Dil. mg/Kg 100 RPD is based on 933	2011-03-3 2011-03-2 Dil. 100 the spike ar Spike Amount 10000 the spike ar 2011-03-3	1 9 Amount 10000 nd spike dup Matrix Result 2270 nd spike dup	Mat Res 227 Dicate re Rec. 102	An Pre rix ult R 70 9 sult. Rec. Limit 80 - 120 sult.	ec. 99 RPD	y: AR Rec. Limit 80 - 120 RPD Limit 20
Matrix Spike (MS-1 QC Batch: 79937 Prep Batch: 67767 Param Chloride Percent recovery is bas Param Chloride Percent recovery is bas Matrix Spike (MS-1 QC Batch: 79938	I) Spiked	Sample: 261	920 Date Analyzed: QC Preparation: t Units D mg/Kg RPD is based on Units Dil. mg/Kg 100 RPD is based on 933 Date Analyzed:	2011-03-3 2011-03-2 Dil. 100 the spike ar Spike Amount 10000 the spike ar 2011-03-3	1 9 Amount 10000 nd spike dup Matrix Result 2270 nd spike dup	Mat Res 227 Dicate re Rec. 102	Ann Pre rix ult R 70 9 sult. Rec. Limit 80 - 120 sult. Ann Pre	pared B ec. 99 RPD 2 alyzed B	y: AR Rec. Limit 80 - 120 RPD Limi 20
Prep Batch: 67767 Param Chloride Percent recovery is bas Param Chloride Percent recovery is bas Matrix Spike (MS-1 QC Batch: 79938	I) Spiked	Sample: 261	920 Date Analyzed: QC Preparation: t Units D mg/Kg RPD is based on Units Dil. mg/Kg 100 RPD is based on 933 Date Analyzed: QC Preparation: t Units	2011-03-3 2011-03-2 Dil. 100 the spike ar Spike Amount 10000 the spike ar 2011-03-3	1 9 Spike Amount 10000 nd spike dup Matrix Result 2270 nd spike dup 1 9	Mat Ress 227 Dicate res Rec. 102 Dicate res	Ana Pre rix ult R 70 9 sult. Rec. Limit 80 - 120 sult. Ana Pre rix ult R	pared B ec. 99 RPD 2 alyzed B	y: AR Rec. Limit 80 - 120 RPI Limi 20 sy: AR y: AR

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

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	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit	
Param	nesuu	Omus	Dii.	Amount	nesuit	nec.	LIIIII	πrD	DIIIII	
Chloride	10300	mg/Kg	100	10000	<385	103	80 - 120	3	20	

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

#### Matrix Spike (MS-1) Spiked Sample: 261925

QC Batch:	80015	Date Analyzed:	2011-04-02	Analyzed By:	ME
Prep Batch:	67886	QC Preparation:	2011-04-01	Prepared By:	ME

		MS			Spike	Matrix		Rec.
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene	28	1.61	mg/Kg	1	2.00	< 0.0118	80	80.5 - 112
Toluene	29	1.70	mg/Kg	1	2.00	0.1724	76	82.4 - 113
Ethylbenzene		1.72	mg/Kg	1	2.00	< 0.00850	86	83.9 - 114
Xylene	30	5.25	mg/Kg	1	6.00	0.552	78	84 - 114

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

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	$\mathbf{Result}$	Rec.	$\mathbf{Limit}$	RPD	Limit
Benzene	1.74	mg/Kg	1	2.00	< 0.0118	87	80.5 - 112	8	20
Toluene	1.88	mg/Kg	1	2.00	0.1724	85	82.4 - 113	10	20
Ethylbenzene	1.96	mg/Kg	1	2.00	< 0.00850	98	83.9 - 114	13	20
Xylene	5.97	mg/Kg	1	6.00	0.552	90	84 - 114	13	20

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

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.87	2.28	mg/Kg	1	2	94	114	41.3 - 117
4-Bromofluorobenzene (4-BFB)	2.12	2.41	mg/Kg	1	2	106	120	35.5 - 129

#### Matrix Spike (MS-1) Spiked Sample: 261891

QC Batch: Prep Batch:	80016 67886		Date Analyzed: QC Preparation:				Analyzed By: ME Prepared By: ME		
Param		MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	
GRO		19.5	mg/Kg	1	20.0	<0.753	98	61.8 - 114	

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

²⁸Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.
 ²⁹Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.
 ³⁰Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

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Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	21.1	mg/Kg		20.0	< 0.753		61.8 - 11	14 8	20
Percent recovery is based on the	spike result	RPD is	based or	n the spike a	and spike	duplicate r	esult.		
	М	S N	ASD			Spike	MS	MSD	Rec.
Surrogate	Res	ult R	esult	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	2.4		2.49	mg/Kg	1	2	122	124	50 - 162
4-Bromofluorobenzene (4-BFB)	2.5	29 2	2.35	mg/Kg	1	2	114	118	50 - 162
Matrix Spike (MS-1) Spike QC Batch: 80023 Prep Batch: 67893	ed Sample: 2	Date A	nalyzed					Analyzed I Prepared I	
	M	5			Spike	Matri	x		Rec.
Param	Res		Units	Dil.	Amount	Resul			Limit
DRO	28	5 n	ng/Kg	1	250	<15.'	71	14 11.	7 - 152.3
Percent recovery is based on the	spike result.	RPD is	based or	n the spike a	and spike	duplicate r	esult.		
	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
		Units mg/Kg	Dil.	-			Limit 1.7 - 152		Limit 20
DRO	Result 275	mg/Kg	1	Amount 250	Result <15.7	110	1.7 - 152		
DRO	Result 275	mg/Kg	1	Amount 250	Result <15.7 and spike	110 duplicate r	11.7 - 152 esult.	2.3 4	20
DRO Percent recovery is based on the MS	Result 275 spike result	mg/Kg RPD is	1	Amount 250	Result <15.7	110 duplicate r M	11.7 - 152 esult. S 1		
DRO Percent recovery is based on the MS Surrogate Result	Result 275 spike result. MSD	mg/Kg RPD is	1 based or	Amount 250 1 the spike a	Result <15.7 and spike Spike	110 duplicate r M	11.7 - 152 esult. S l c	2.3 4 MSD	20 Rec. Limit
DRO Percent recovery is based on the MS Surrogate Result n-Tricosane 117 Standard (CCV-1)	Result 275 spike result MSD Result	mg/Kg RPD is t U m	1 based or Jnits g/Kg	Amount 250 1 the spike a Dil.	Result <15.7 and spike Spike Amour 100	110 duplicate r M at Re	11.7 - 152 esult. S l c	2.3 4 MSD Rec.	20 Rec. Limit 70 - 130
DRO Percent recovery is based on the MS Surrogate Result n-Tricosane 117 Standard (CCV-1)	Result 275 spike result MSD Result	mg/Kg RPD is t U m Date A CCVs	1 based or Jnits ag/Kg nalyzed:	Amount 250 1 the spike a Dil. 1	Result <15.7 and spike Spike Amour 100	110 duplicate r M t Re 11	11.7 - 152 esult. S 1 c. 7 Percent	2.3 4 MSD Rec. 119	20 Rec. Limit 70 - 130
DRO Percent recovery is based on the MS Surrogate Result n-Tricosane 117 Standard (CCV-1) QC Batch: 79924	Result 275 spike result. MSD Result 119	mg/Kg RPD is t U m Date A CCVs True	1 based or Jnits g/Kg .nalyzed: C' Fc	Amount 250 h the spike a Dil. 1 2011-03-3 CVs pund	Result <15.7 and spike Spike Amour 100 30 CCVs Percent	110 duplicate r M t Re 11	11.7 - 152 esult. S I c. 7 Percent Recovery	2.3 4 MSD Rec. 119 Analyzed	20 Rec. Limit 70 - 130 By: kg Date
DRO Percent recovery is based on the MS Surrogate Result n-Tricosane 117 Standard (CCV-1) QC Batch: 79924 Param Flag Un	Result 275 spike result. MSD Result 119	mg/Kg RPD is t U m Date A CCVs True Conc.	1 based or Jnits g/Kg .nalyzed: C' Fc C	Amount 250 h the spike a Dil. 1 2011-03-3 CVs bund onc.	Result <15.7 and spike Spike Amour 100 30 CCVs Percent Recover	110 duplicate r M t Re 11	Percent Recovery Limits	2.3 4 MSD Rec. 119 Analyzed	20 Rec. Limit 70 - 130 By: kg Date .nalyzed
Surrogate     Result       n-Tricosane     117       Standard (CCV-1)       QC Batch:     79924	Result 275 spike result. MSD Result 119	mg/Kg RPD is t U m Date A CCVs True	1 based or Jnits g/Kg .nalyzed: C' Fc C	Amount 250 h the spike a Dil. 1 2011-03-3 CVs pund	Result <15.7 and spike Spike Amour 100 30 CCVs Percent	110 duplicate r M t Re 11	11.7 - 152 esult. S I c. 7 Percent Recovery	2.3 4 MSD Rec. 119 Analyzed	20 Rec. Limit 70 - 130 By: kg Date
DRO Percent recovery is based on the MS Surrogate Result n-Tricosane 117 Standard (CCV-1) QC Batch: 79924 Param Flag Un	Result 275 spike result. MSD Result 119	mg/Kg RPD is t U m Date A CCVs True Conc.	1 based or Jnits g/Kg .nalyzed: C' Fc C	Amount 250 h the spike a Dil. 1 2011-03-3 CVs bund onc.	Result <15.7 and spike Spike Amour 100 30 CCVs Percent Recover	110 duplicate r M t Re 11	Percent Recovery Limits	2.3 4 MSD Rec. 119 Analyzed	20 Rec. Limit 70 - 130 By: kg Date .nalyzed

Report Da 114-640085	te: April 4, 20	)11		rk Order: 11032 Moose Fed. #		Page N	umber: 29 of 3 Eddy Co., NN
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		mg/Kg	250	258	103	80 - 120	2011-03-3
Standard	(CCV-3)						
QC Batch:	79924		Date Ana	alyzed: 2011-0	3-30	Ana	alyzed By: kg
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO	<u>×</u>	mg/Kg	250	272	109	80 - 120	2011-03-3
QC Batch:	79936			lyzed: 2011-03			yzed By: AR
			ICVs True	ICVs Found	ICVs	Percent	Data
Param	Flag	Units	Conc.	Conc.	Percent Recovery	Recovery Limits	Date Analyzed
Chloride	Tiag	mg/Kg	100	102	102	85 - 115	2011-03-3
<b>Standard</b> QC Batch:			Date Ana	lyzed: 2011-03	3-31	Anal	yzed By: AR
						_	
			CCVs	CCVs	CCVs	Percent	<b>D</b> .
Param	Flag	Units	True Conc.	Found Conc.	Percent Recovery	Recovery Limits	Date Analyzed
Chloride	rtag	mg/Kg	100	97.9	<u>98</u>	85 - 115	2011-03-3
omoride		0/ 0					
Standard	. ,						
Standard QC Batch:	. ,			lyzed: 2011-03	3-31	Anal	yzed By: AR
Standard	. ,		ICVs	ICVs	ICVs	Percent	yzed By: AR
Standard QC Batch:	79937	<b>TT</b> -	ICVs True	ICVs Found	ICVs Percent	Percent Recovery	Date
Standard	. ,	Units mg/Kg	ICVs	ICVs	ICVs	Percent	

QC Batch: 79937

Date Analyzed: 2011-03-31

Analyzed By: AR

114-6400857	e: April 4, 2011 7			Order: 110328 400se Fed. #23		Page N	umber: 30 of 32 Eddy Co., NM
Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	101	101	85 - 115	2011-03-31
							2011 00 01
Standard (	(ICV-1)						
QC Batch:	79938		Date Analy	zed: 2011-03-	31	Anal	yzed By: AR
			ICVs True	ICVs Found	ICVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	100	99.9	100	85 - 115	2011-03-31
<b>Standard</b> ( QC Batch:			Date Analy		91	A	
QU batch:	79938		Date Analy	zed: 2011-03-	-01	Anal	yzed By: AR
		·	CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param Chloride	Flag	Units mg/Kg	<u>Conc.</u> 100	<u>Conc.</u> 100	Recovery 100	Limits 85 - 115	Analyzed 2011-03-31
Standard (	(CCV-1)						
<b>Standard (</b> QC Batch:	•		Date Analy	zed: 2011-04-0	02	Anal	yzed By: ME
	•		CCVs	CCVs	CCVs	Percent	-
QC Batch:	80015	Units	CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
QC Batch: Param	•	Units mg/Kg	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
QC Batch: Param Benzene	80015	mg/Kg	CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
QC Batch: Param Benzene Toluene	80015 Flag	mg/Kg mg/Kg	CCVs True Conc. 0.100	CCVs Found Conc. 0.0871	CCVs Percent Recovery 87	Percent Recovery Limits 80 - 120	Date Analyzed 2011-04-02
QC Batch: Param Benzene Toluene Ethylbenzen	80015 Flag	mg/Kg	CCVs True Conc. 0.100 0.100	CCVs Found Conc. 0.0871 0.0894	CCVs Percent Recovery 87 89	Percent Recovery Limits 80 - 120 80 - 120	Date Analyzed 2011-04-02 2011-04-02
QC Batch: Param Benzene Toluene Ethylbenzen Xylene	80015 Flag	mg/Kg mg/Kg mg/Kg	CCVs True Conc. 0.100 0.100 0.100	CCVs Found Conc. 0.0871 0.0894 0.0981	CCVs Percent Recovery 87 89 98	Percent Recovery Limits 80 - 120 80 - 120 80 - 120	Date Analyzed 2011-04-02 2011-04-02 2011-04-02
QC Batch: Param Benzene Toluene Ethylbenzen Xylene Standard (	80015 Flag ne (CCV-2)	mg/Kg mg/Kg mg/Kg	CCVs True Conc. 0.100 0.100 0.100	CCVs Found Conc. 0.0871 0.0894 0.0981 0.294	CCVs Percent Recovery 87 89 98 98 98	Percent Recovery Limits 80 - 120 80 - 120 80 - 120 80 - 120	Date Analyzed 2011-04-02 2011-04-02 2011-04-02
	80015 Flag ne (CCV-2)	mg/Kg mg/Kg mg/Kg	CCVs True Conc. 0.100 0.100 0.100 0.300	CCVs Found Conc. 0.0871 0.0894 0.0981 0.294	CCVs Percent Recovery 87 89 98 98 98	Percent Recovery Limits 80 - 120 80 - 120 80 - 120 80 - 120	Date Analyzed 2011-04-02 2011-04-02 2011-04-02 2011-04-02
QC Batch: Param Benzene Toluene Ethylbenzen Xylene Standard (	80015 Flag ne (CCV-2)	mg/Kg mg/Kg mg/Kg	CCVs True Conc. 0.100 0.100 0.100 0.300 Date Analy	CCVs Found Conc. 0.0871 0.0894 0.0981 0.294 zed: 2011-04-0 CCVs Found	CCVs Percent Recovery 87 89 98 98 98	Percent Recovery Limits 80 - 120 80 - 120 80 - 120 80 - 120 80 - 120	Date Analyzed 2011-04-02 2011-04-02 2011-04-02 2011-04-02
QC Batch: Param Benzene Toluene Ethylbenzen Xylene Standard ( QC Batch:	80015 Flag ne (CCV-2)	mg/Kg mg/Kg mg/Kg Mg/Kg	CCVs True Conc. 0.100 0.100 0.300 Date Analy CCVs True Conc.	CCVs Found Conc. 0.0871 0.0894 0.0981 0.294 zed: 2011-04-0 CCVs Found Conc.	CCVs Percent Recovery 87 89 98 98 98 02 02 CCVs Percent Recovery	Percent Recovery Limits 80 - 120 80 - 120 80 - 120 80 - 120 Analy Percent Recovery Limits	Date Analyzed 2011-04-02 2011-04-02 2011-04-02 2011-04-02 yzed By: ME Date Analyzed
QC Batch: Param Benzene Toluene Ethylbenzen Xylene Standard ( QC Batch: Param	80015 Flag ne (CCV-2) 80015	mg/Kg mg/Kg mg/Kg Units mg/Kg	CCVs True Conc. 0.100 0.100 0.300 Date Analy CCVs True Conc. 0.100	CCVs Found Conc. 0.0871 0.0894 0.0981 0.294 zed: 2011-04-0 CCVs Found	CCVs Percent Recovery 87 89 98 98 98 02 02 CCVs Percent	Percent Recovery Limits 80 - 120 80 - 120 80 - 120 80 - 120 Analy Percent Recovery Limits 80 - 120	Date Analyzed 2011-04-02 2011-04-02 2011-04-02 2011-04-02 yzed By: ME Date
QC Batch: Param Benzene Toluene Ethylbenzen Xylene Standard (	80015 Flag ne (CCV-2) 80015 Flag	mg/Kg mg/Kg mg/Kg Mg/Kg	CCVs True Conc. 0.100 0.100 0.300 Date Analy CCVs True Conc.	CCVs Found Conc. 0.0871 0.0894 0.0981 0.294 zed: 2011-04-0 CCVs Found Conc.	CCVs Percent Recovery 87 89 98 98 98 02 02 CCVs Percent Recovery	Percent Recovery Limits 80 - 120 80 - 120 80 - 120 80 - 120 Analy Percent Recovery Limits	Date Analyzed 2011-04-02 2011-04-02 2011-04-02 2011-04-02 yzed By: ME Date Analyzed

Report Dat 114-640085	te: April 4, 201	1		( Order: 110328 Moose Fed. #2		Page N	umber: 31 of 32 Eddy Co., NM
standard co	ntinued						
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Xylene		mg/Kg	0.300	0.294	98	80 - 120	2011-04-02
Standard	(CCV-3)						
QC Batch:	80015		Date Analy	/zed: 2011-04-	-02	Anal	yzed By: ME
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene	0	mg/Kg	0.100	0.0872	87	80 - 120	2011-04-02
Toluene		mg/Kg	0.100	0.0887	89	80 - 120	2011-04-02
Ethylbenze	ne	mg/Kg	0.100	0.0935	94	80 - 120	2011-04-02
Xylene		mg/Kg	0.300	0.282	94	80 - 120	2011-04-02
Standard	(CCV 1)						
Stanuaru	(00V-1)						
QC Batch:	80016		Date Analy	vzed: 2011-04-	02	Anal	yzed By: ME
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	1.05	105	80 - 120	2011-04-02
Standard	(CCV-2)						
QC Batch:	80016		Date Analy	zed: 2011-04-	02	Anal	yzed By: ME
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	1.20	120	80 - 120	2011-04-02
Standard	(CCV-3)						
QC Batch:	80016		Date Analy	zed: 2011-04-	02	Anal	yzed By: ME
			CCVs	CCVs	$\rm CCVs$	Percent	
				Found	Percent	Recovery	Date
			True	rouna	rercent		Dave
Param	Flag	Units	True Conc.	Conc.	Recovery	Limits	Analyzed

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Report Da 114-64008	ate: April 4, 2 57	011		rk Order: 1103 /Moose Fed. #		Page N	umber: 32 of 32 Eddy Co., NM
Standard	l (CCV-2)						
QC Batch	: 80023		Date An	alyzed: 2011-0	)4-01	An	alyzed By: kg
			$\mathrm{CCVs}$	CCVs	$\operatorname{CCVs}$	Percent	
			True	Found	Percent	Recovery	$\mathbf{Date}$
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		mg/Kg	250	262	105	80 - 120	2011-04-01
Standard	(CCV-3)						
QC Batch	: 80023		Date An	alyzed: 2011-0	)4-01	Ana	alyzed By: kg
			CCVs	$\mathrm{CCVs}$	$\mathrm{CCVs}$	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		mg/Kg	250	298	119	80 - 120	2011-04-01
Standard	(CCV-4)						
QC Batch	: 80023		Date An	alyzed: 2011-0	)4-01	Ana	alyzed By: kg
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		mg/Kg	250	293	117	80 - 120	2011-04-01

X	WOH: 110328	122	``													~	`	
Analysis I	Request of Cha	ain of Custod	v R	ec	:01	d	T					_	PAGE:		1	OF	: 2	<u>.</u>
			<u> </u>				-			6			SIS RI			<b>)</b> .)		
		Spring St. kas 79705 • Fax (432) 682-3946						05 (Ext. to C35)	Cd Cr Pb Hg Se	89 A-							pH, 105	
CLIENT NAME:	SITE MANAGE	B:	IERS	P		RVATIVE		TX1006	8 6	5		30/824					É	
PROJECT NO.: 114-6400857	PROJECT NAME: COGI Moose Federal #2 Eddy Co, r		F CONTAINERS			TT	- 6			er er er	Semi Votatiles	8240/82	n. vu. oz	B	00C.	etos)	ns/Catro	
LAB I.D. NUMBER DATE TIME ZOI I		NAL LE IDENTIFICATION	NUMBER OF	HCL	HN03	NONE	BTEX 8021B	PAH 8270	RCRA Metals Ag	TCLP Volatiles	TCLP Sem RCI	GC.MS Vol. 8240/8260/824	PCB's 8080/608	Pest. 808/609 Chloride	Gamma Spec. Aiche Boto /Ai-	PLM (Asbes	Major Anions/Cations,	
261908 3/24	S X AH-1 0-1'	0.5 BEB	1		j	(	ľ	X						X				
909 /	AH-2 0-1	0.5 BEB						X										
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911	AH-3 0-1'	<u></u>						X	Π				$\uparrow \uparrow$			TT	TT	
912	AH-3 1-1.5				╈				$\dagger$	$\uparrow \uparrow$	$\uparrow$			$\prod$		$\uparrow \uparrow$		
913	AH-3 2'-2.5'			$\dagger$			$\dagger$				1	$\uparrow\uparrow$	$\dagger$			11	11	
914	AH-4 0-1'	unga ang mata ang ang ang ang ang ang ang ang ang an	-11				$\uparrow$	X			╋			11		$\dagger \dagger$	11	
915	AH-41 1-1.5										$\uparrow$		$\dagger$	$\uparrow$		$\dagger$	11	
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RECEIVING LABORATORY: 776 ADDRESS: 11 CITY: 710 Lanu STATE CONTACT: 51	TY ZIP:	RECEIVED BY: (Signature)	TIME		- 1	<u>کن</u> حم		-]	1	<i> </i> /~	Ta	Vert-	ł			RUSH Autho	I Charge orized:	x5 No
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<b>PROJECT N</b>		7	PF		ECT		Federa	1 23	5 TB	·			CONTAIL	ξ	T	T	Τ	T				s Ag As	Volatiles		8240/82	1. VOI. 82 1608			ġ	Arr	s/Catior		
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# Summary Report

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

Project Location:	Eddy Co., NM
Project Name:	COG/Moose Fed. #23 TB
Project Number:	114-6400857

Time Date Date Description Taken Sample Matrix Taken Received CS-1 North (AH-1) 286946 soil 2012-01-13 00:00 2012-01-19 286947 CS-1 South (AH-1) 00:00 soil 2012-01-13 2012-01-19 286948 CS-1 East (AH-1) soil 2012-01-13 00:00 2012-01-19 CS-1 Bottom Hole 1' (AH-1) 286949 soil 2012-01-13 00:00 2012-01-19 T-1 2' (AH-1) 286950 soil 2012-01-13 00:00 2012-01-19 CS-2 North (AH-5) 286952 soil 2012-01-13 00:00 2012-01-19 CS-2 South (AH-5) 286953 soil 2012-01-13 00:00 2012-01-19 CS-2 Bottom Hole 3' (AH-5) 286954 soil 2012-01-13 00:00 2012-01-19 286958 CS-3 North (AH-8) soil 2012-01-13 00:00 2012-01-19 CS-3 South (AH-8) 286959 soil 2012-01-13 00:00 2012-01-19 286960 CS-3 Bottom Hole 1' (AH-8) soil 2012-01-13 00:00 2012-01-19 T-3 2' (AH-8) 286961 2012-01-13 soil 00:00 2012-01-19 T-3 4' (AH-8) 286962 soil 2012-01-13 00:00 2012-01-19 286964 CS-4 North (AH-9) soil 2012-01-13 00:00 2012-01-19 286965 CS-4 South (AH-9) soil 2012-01-13 00:00 2012-01-19 CS-4 West (AH-9) 286966 soil 2012-01-13 00:00 2012-01-19 CS-4 Bottom Hole 2' (AH-9) 286967 soil 2012-01-13 00:00 2012-01-19

		]	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)
286946 - CS-1 North (AH-1)	< 0.0200	< 0.0200	< 0.0200	< 0.0200	<50.0	2.84
286947 - CS-1 South (AH-1)	<0.100	2.05	5.78	21.5	607	727
286948 - CS-1 East (AH-1)	<0.100	< 0.100	< 0.100	0.221	2780	101
286949 - CS-1 Bottom Hole 1' (AH-1)	<0.100	1.07	6.31	16.7	664	454
286950 - T-1 2' (AH-1)	< 0.0200	< 0.0200	< 0.0200	< 0.0200	<50.0	5.09
286952 - CS-2 North (AH-5)	< 0.0200	< 0.0200	< 0.0200	< 0.0200	<50.0	3.64
286953 - CS-2 South (AH-5)	< 0.0200	< 0.0200	< 0.0200	< 0.0200	744	66.6
286954 - CS-2 Bottom Hole 3' (AH-5)	0.465	12.3	11.5	24.8	951	512

continued ...

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.

Report Date: January 26, 2012

Work Order: 12012003

... continued

		]	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)
286958 - CS-3 North (AH-8)	< 0.0200	< 0.0200	< 0.0200	< 0.0200	112	8.97
286959 - CS-3 South (AH-8)	< 0.0200	< 0.0200	< 0.0200	< 0.0200	151	10.2
286960 - CS-3 Bottom Hole 1' (AH-8)	< 0.0200	< 0.0200	< 0.0200	< 0.0200	65.8	9.78
286961 - T-3 2' (AH-8)	3.39	48.8 Je	21.2	64.5	1420	697
286962 - T-3 4' (AH-8)	0.412	4.27	1.73	5.45		
286964 - CS-4 North (AH-9)	< 0.0200	< 0.0200	< 0.0200	< 0.0200		
286965 - CS-4 South (AH-9)	< 0.0200	< 0.0200	< 0.0200	< 0.0200		
286966 - CS-4 West (AH-9)	< 0.0200	< 0.0200	< 0.0200	< 0.0200		
286967 - CS-4 Bottom Hole 2' (AH-9)	<0.100	0.381	0.383	1.46		

#### Sample: 286952 - CS-2 North (AH-5)

Param	Flag	Result	Units	$\mathbf{RL}$
Chloride		<200	mg/Kg	4

#### Sample: 286953 - CS-2 South (AH-5)

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4

#### Sample: 286954 - CS-2 Bottom Hole 3' (AH-5)

Param	Flag	Result	Units	RL
Chloride		222	mg/Kg	4

#### Sample: 286958 - CS-3 North (AH-8)

Param	Flag	Result	Units	RL
Chloride		710	mg/Kg	4

#### Sample: 286959 - CS-3 South (AH-8)

Param	Flag	Result	Units	$\mathbf{RL}$
Chloride		1310	mg/Kg	4

Sample: 286960 - CS-3 Bottom Hole 1' (AH-8)

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.

Report Date: Janua	ry 26, 2012	Work Order: 12012003	Page N	Number: 3 of 3
Param	Flag	Result	Units	RL
Chloride		573	mg/Kg	4

#### Sample: 286961 - T-3 2' (AH-8)

Param	Flag	Result	Units	$\mathbf{RL}$
Chloride		375	mg/Kg	4



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Kansas Oklahoma ISO 17025

# Analytical and Quality Control Report

Certifications

NELAP DoD LELAP

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

WBE

Report Date: January 26, 2012

Work Order: 12012003 

Project Location: Eddy Co., NM COG/Moose Fed. #23 TB Project Name: Project Number: 114-6400857

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
286946	CS-1 North (AH-1)	soil	2012-01-13	00:00	2012-01-19
286947	CS-1 South (AH-1)	soil	2012-01-13	00:00	2012-01-19
286948	CS-1 East (AH-1)	soil	2012-01-13	00:00	2012-01-19
286949	CS-1 Bottom Hole 1' (AH-1)	soil	2012-01-13	00:00	2012-01-19
286950	T-1 2' (AH-1)	soil	2012-01-13	00:00	2012-01-19
286952	CS-2 North (AH-5)	soil	2012-01-13	00:00	2012-01-19
286953	CS-2 South (AH-5)	soil	2012-01-13	00:00	2012-01-19
286954	CS-2 Bottom Hole 3' (AH-5)	soil	2012-01-13	00:00	2012-01-19
286958	CS-3 North (AH-8)	soil	2012-01-13	00:00	2012-01-19
286959	CS-3 South (AH-8)	soil	2012-01-13	00:00	2012-01-19
286960	CS-3 Bottom Hole 1' (AH-8)	soil	2012-01-13	00:00	2012-01-19
286961	T-3 2' (AH-8)	soil	2012-01-13	00:00	2012-01-19
286962	T-3 4' (AH-8)	soil	2012-01-13	00:00	2012-01-19
286964	CS-4 North (AH-9)	soil	2012-01-13	00:00	2012-01-19
286965	CS-4 South (AH-9)	soil	2012-01-13	00:00	2012-01-19
286966	CS-4 West (AH-9)	soil	2012-01-13	00:00	2012-01-19
286967	CS-4 Bottom Hole 2' (AH-9)	soil	2012-01-13	00:00	2012-01-19

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

Michael april

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

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QC Batch 87961 - CCV (1)       3         QC Batch 87961 - CCV (2)       3         QC Batch 87961 - CCV (3)       3         QC Batch 87961 - CCV (4)       3         QC Batch 87963 - CCV (2)       3         QC Batch 87963 - CCV (2)       3         QC Batch 87964 - CCV (2)       3         QC Batch 87964 - CCV (2)       3         QC Batch 87979 - CCV (1)       3         QC Batch 87979 - CCV (2)       3         QC Batch 87979 - CCV (3)       3         QC Batch 87980 - CCV (2)       3         QC Batch 87980 - CCV (3)       4
QC Batch 87961 - CCV (2)       3         QC Batch 87961 - CCV (3)       3         QC Batch 87961 - CCV (4)       3         QC Batch 87963 - CCV (2)       3         QC Batch 87963 - CCV (2)       3         QC Batch 87964 - CCV (2)       3         QC Batch 87964 - CCV (3)       3         QC Batch 87964 - CCV (2)       3         QC Batch 87979 - CCV (1)       3         QC Batch 87979 - CCV (2)       3         QC Batch 87979 - CCV (2)       3         QC Batch 87980 - CCV (1)       3         QC Batch 87980 - CCV (2)       4         QC Batch 87980 - CCV (3)       4
QC Batch 87961 - CCV (3)       3         QC Batch 87961 - CCV (4)       33         QC Batch 87963 - CCV (2)       33         QC Batch 87963 - CCV (3)       34         QC Batch 87964 - CCV (2)       35         QC Batch 87964 - CCV (2)       35         QC Batch 87964 - CCV (2)       35         QC Batch 87964 - CCV (3)       36         QC Batch 87979 - CCV (1)       37         QC Batch 87979 - CCV (2)       37         QC Batch 87979 - CCV (3)       37         QC Batch 87980 - CCV (1)       37         QC Batch 87980 - CCV (2)       37         QC Batch 87980 - CCV (3)       44
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QC Batch 87963 - CCV (2)       3         QC Batch 87963 - CCV (3)       3         QC Batch 87964 - CCV (2)       3         QC Batch 87964 - CCV (2)       3         QC Batch 87964 - CCV (1)       3         QC Batch 87979 - CCV (1)       3         QC Batch 87979 - CCV (2)       3         QC Batch 87979 - CCV (2)       3         QC Batch 87979 - CCV (2)       3         QC Batch 87979 - CCV (3)       3         QC Batch 87980 - CCV (1)       3         QC Batch 87980 - CCV (2)       4         QC Batch 87980 - CCV (3)       4
QC Batch 87963 - CCV (3)       3         QC Batch 87964 - CCV (2)       3         QC Batch 87964 - CCV (3)       3         QC Batch 87979 - CCV (1)       3         QC Batch 87979 - CCV (2)       3         QC Batch 87979 - CCV (3)       3         QC Batch 87980 - CCV (1)       3         QC Batch 87980 - CCV (2)       4         QC Batch 87980 - CCV (3)       4
QC Batch 87964 - CCV (2)       3         QC Batch 87964 - CCV (3)       3         QC Batch 87979 - CCV (1)       3         QC Batch 87979 - CCV (2)       3         QC Batch 87979 - CCV (3)       3         QC Batch 87979 - CCV (1)       3         QC Batch 87979 - CCV (2)       3         QC Batch 87979 - CCV (2)       3         QC Batch 87980 - CCV (1)       3         QC Batch 87980 - CCV (2)       4         QC Batch 87980 - CCV (3)       4         QC Batch 87980 - CCV (3)       4
QC Batch 87964 - CCV (2)       3         QC Batch 87964 - CCV (3)       3         QC Batch 87979 - CCV (1)       3         QC Batch 87979 - CCV (2)       3         QC Batch 87979 - CCV (3)       3         QC Batch 87979 - CCV (1)       3         QC Batch 87979 - CCV (2)       3         QC Batch 87979 - CCV (3)       3         QC Batch 87980 - CCV (1)       3         QC Batch 87980 - CCV (2)       4         QC Batch 87980 - CCV (3)       4
QC Batch 87979 - CCV (1)       3         QC Batch 87979 - CCV (2)       3         QC Batch 87979 - CCV (3)       3         QC Batch 87980 - CCV (1)       3         QC Batch 87980 - CCV (2)       4         QC Batch 87980 - CCV (3)       4         QC Batch 87980 - CCV (3)       4
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Report Definitions
Laboratory Certifications
Standard Flags
Attachments

.

# **Case Narrative**

Samples for project COG/Moose Fed. #23 TB were received by TraceAnalysis, Inc. on 2012-01-19 and assigned to work order 12012003. Samples for work order 12012003 were received intact at a temperature of 4.1 C.

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

		Prep	Prep	$\mathbf{QC}$	Analysis
Test	Method	Batch	Date	$\operatorname{Batch}$	Date
BTEX	S 8021B	74695	2012-01-20 at 09:00	87963	2012-01-23 at 10:00
BTEX	S 8021B	74696	2012-01-20 at 09:00	87979	2012-01-23 at 10:23
BTEX	S 8021B	74757	2012-01-24 at 09:00	88045	2012-01-24 at 15:55
Chloride (Titration)	SM 4500-Cl B	74739	2012-01-24 at 08:56	88083	2012-01-25 at 16:03
Chloride (Titration)	SM 4500-Cl B	74793	2012-01-24 at 10:05	88084	2012-01-26 at 12:06
TPH DRO - NEW	S 8015 D	74693	2012-01-20 at 09:00	87961	2012-01-21 at 01:08
TPH GRO	S 8015 D	74695	2012-01-20 at 09:00	87964	2012-01-23 at 10:00
TPH GRO	S 8015 D	74696	2012-01-20 at 09:00	87980	2012-01-23 at 10:26

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 12012003 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: January 26, 2012 114-6400857

Work Order: 12012003 COG/Moose Fed. #23 TB

# **Analytical Report**

#### Sample: 286946 - CS-1 North (AH-1)

Laboratory: Midland Analysis: BTEX QC Batch: 87963 Prep Batch: 74695		Date Ana	al Method alyzed: Preparatio	2012-0	1-23		Prep Met Analyzed Prepared	By: DA
				$\mathbf{RL}$				
Parameter	Flag	Cert		Result	Uı	nits	Dilution	$\mathbf{RL}$
Benzene	υ	1		< 0.0200	mg/	'Kg	1	0.0200
Toluene	υ	1		< 0.0200	mg/	ΊKg	1	0.0200
Ethylbenzene	U	1		< 0.0200	mg/	'Kg	1	0.0200
Xylene	U	1		< 0.0200	mg/	Kg	1	0.0200
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.05	mg/Kg	1	2.00	102	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			1.83	mg/Kg	1	2.00	92	70.6 - 179

#### Sample: 286946 - CS-1 North (AH-1)

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NE 87961 74693	W	Dat	alytical Me te Analyzec nple Prepa	l: 2012	15 D -01-21 -01-20	Analyz	fethod: N/A ed By: tc ed By: tc
Parameter		Flag	Cert	F	RL Result	Units	Dilution	RL
DRO		υ	1		<50.0	mg/Kg	1	50.0
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		·······	85.8	mg/Kg	1	100	86	53.5 - 147.1

#### Sample: 286946 - CS-1 North (AH-1)

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	87964	Date Analyzed:	2012-01-23	Analyzed By:	DA
Prep Batch:	74695	Sample Preparation:	2012-01-20	Prepared By:	DA

Report Date: January 26, 2012 114-6400857			C	Work O COG/Mo	Page Number: 7 of 43 Eddy Co., NM				
Parameter	Flag		Cert		RL Result	Uni	ts	Dilution	RL
GRO			1		2.84	mg/I	ζg	1	2.00
Surrogate		Flag	$\operatorname{Cert}$	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)				2.12	mg/Kg	1	2.00	106	30 - 134.6
4-Bromofluorobenzene (4-BFB)				1.79	mg/Kg	1	2.00	90	22.4 - 149

# Sample: 286947 - CS-1 South (AH-1)

Laboratory: Midland Analysis: BTEX QC Batch: 87979 Prep Batch: 74696		I	Date Ana	l Method: lyzed: reparatior	2012-0	1-23		Prep Met Analyzed Prepared	By: DA
					$\mathbf{RL}$				
Parameter	Flag		Cert		Result	Un	its	Dilution	$\mathbf{RL}$
Benzene	U		1		< 0.100	mg/l	Kg	5	0.0200
Toluene			1		2.05	mg/l	Kg	5	0.0200
Ethylbenzene			1		5.78	mg/l	Kg	5	0.0200
Xylene			1		21.5	mg/l		5	0.0200
							Spike	Percent	Recovery
Surrogate		Flag	Cert	$\mathbf{Result}$	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				4.96	mg/Kg	5	5.00	99	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)	Qar	Qar		9.40	mg/Kg	5	5.00	188	70.6 - 179

#### Sample: 286947 - CS-1 South (AH-1)

n-Tricosane			111	mg/Kg	1	100	111	53.5 -	147.1
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery		overy nits
DRO			1	·	607	mg/Kg	1		50.0
Parameter		Flag	Cert	R	RL lesult	Units	Dilution		RL
Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NE 87961 74693	W	Da	alytical Me te Analyzec mple Prepar	l: 2012	15 D 2-01-21 2-01-20	Analyz	Method: zed By: red By:	,

Report Date: January 26, 2012 114-6400857		···· .	C		der: 120120 se Fed. #2:			-	nber: 8 of 43 ldy Co., NM
Sample: 286947 - CS-1 Sout	h (AE	I-1)							
Laboratory:MidlandAnalysis:TPH GROQC Batch:87980Prep Batch:74696		Ι	Date An	al Method alyzed: Preparatio	2012-0	1-23		Prep Meth Analyzed I Prepared E	By: DA
					$\mathbf{RL}$				
Parameter	Flag		Cert	]	Result	Uni	ts	Dilution	$\mathbf{RL}$
GRO			1		727	mg/K	lg	5	2.00
							Spike	Percent	Recovery
Surrogate		Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				5.09	mg/Kg	5	5.00	102	30 - 134.6
4-Bromofluorobenzene (4-BFB)	Qar	Qar		8.96	mg/Kg	5	5.00	179	22.4 - 149

# Sample: 286948 - CS-1 East (AH-1)

Laboratory: Midland Analysis: BTEX QC Batch: 87979 Prep Batch: 74696		Date Ana	al Method: alyzed: Preparation	2012-0	)1-23		Prep Met Analyzed Prepared	By: D	5035 DA DA
				$\mathbf{RL}$					
Parameter	Flag	Cert		Result	Ur	nits	Dilution		RL
Benzene	υ	1		< 0.100	mg/	Kg	5	0	0.0200
Toluene	U	1		<0.100	mg/	Kg	5	0	.0200
Ethylbenzene	U	1		<0.100	mg/	Kg	5	0	0.0200
Xylene		1	·	0.221	mg/	Kg	5	0	.0200
						Spike	Percent	Reco	•
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Lim	its
Trifluorotoluene (TFT)			4.63	mg/Kg	5	5.00	93	82.8 -	143.1
4-Bromofluorobenzene (4-BFB)	· · · · · · · · · · · · · · · · · · ·		4.51	mg/Kg	5	5.00	90	70.6 -	179

# Sample: 286948 - CS-1 East (AH-1)

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	87961	Date Analyzed:	2012-01-21	Analyzed By:	tc
Prep Batch:	74693	Sample Preparation:	2012-01-20	Prepared By:	tc

Report Date: January 26, 2012 114-6400857				C	Work Orde OG/Moose	Page Number: 9 of 43 Eddy Co., NM			
Parameter			Flag	Cert	R	RL esult	Units	Dilution	$\mathbf{RL}$
DRO			Tag	1		2780	mg/Kg	1	50.0
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qar	Qsr		192	mg/Kg	1	100	192	53.5 - 147.1

# Sample: 286948 - CS-1 East (AH-1)

Laboratory: Midland Analysis: TPH GRO QC Batch: 87980 Prep Batch: 74696		Date A	ical Metho nalyzed: Preparati	2012-	01-23		Prep Meth Analyzed H Prepared H	By: DA
				$\mathbf{RL}$				
Parameter	Flag	Cert		Result	Uni	ts	Dilution	$\mathbf{RL}$
GRO		1		101	mg/ł	(g	5	2.00
Surrogate	F	ag Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	······		4.86	mg/Kg	5	5.00	97	30 - 134.6
4-Bromofluorobenzene (4-BFB)			4.45	mg/Kg	5	5.00	89	22.4 - 149

# Sample: 286949 - CS-1 Bottom Hole 1' (AH-1)

Laboratory:MidlandAnalysis:BTEXQC Batch:87979Prep Batch:74696		Date Ana	al Method alyzed: `reparation	2012-0	)1-23		Prep Met Analyzed Prepared	By: DA
				RL				
Parameter	Flag	Cert		Result	Ur	nits	Dilution	$\mathbf{RL}$
Benzene	υ	1		< 0.100	mg/	Kg	5	0.0200
Toluene		1		1.07	mg/	Kg	5	0.0200
Ethylbenzene		1		6.31	mg/	Kg	5	0.0200
Xylene		1		16.7	mg/	Kg	5	0.0200
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			4.51	mg/Kg	5	5.00	90	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			7.91	mg/Kg	5	5.00	158	70.6 - 179

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# Sample: 286949 - CS-1 Bottom Hole 1' (AH-1)

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NE 87961 74693	EW	Da	alytical Met te Analyzed mple Prepar	l: 2012-	15 D •01-21 •01-20	Prep Method: Analyzed By: Prepared By:		N/A tc tc
					RL				
Parameter		Flag	Cert	R	esult	Units	Dilution		$\mathbf{RL}$
DRO			1		664	mg/Kg	1		50.0
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recov Limi	
n-Tricosane			112	mg/Kg	1	100	112	53.5 - 1	147.1

# Sample: 286949 - CS-1 Bottom Hole 1' (AH-1)

Laboratory: Midland Analysis: TPH GRO QC Batch: 87980 Prep Batch: 74696		I	Date An	al Method alyzed: Preparatio	2012-0	1-23		Prep Meth Analyzed H Prepared H	By: DA
					$\mathbf{RL}$				
Parameter	Flag		Cert	I	Result	Uni	ts	Dilution	$\mathbf{RL}$
GRO			1		454	mg/K	g	5	2.00
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)				4.62	mg/Kg	5	5.00	92	30 - 134.6
4-Bromofluorobenzene (4-BFB)	Qsr	QBT		10.6	mg/Kg	5	5.00	212	22.4 - 149

#### Sample: 286950 - T-1 2' (AH-1)

Laboratory: Analysis: QC Batch: Prep Batch:	Midland BTEX 87979 74696		Analytical Mo Date Analyze Sample Prepa	d: 2012-01-2		Prep Method: Analyzed By: Prepared By:	S 5035 DA DA
				RL			
Parameter		Flag	Cert	Result	Units	Dilution	$\mathbf{RL}$
Benzene	· · · · · · · · · · · · · · · · · · ·	υ	1	< 0.0200	mg/Kg	1	0.0200
Toluene		υ	1	< 0.0200	mg/Kg	1	0.0200
Ethylbenzene	e	U	1	< 0.0200	mg/Kg	1	0.0200

continued ...

114-6400857	uary 26, 2012			C		der: 1201 se Fed. #			Page Number: 11 of 43 Eddy Co., NM		
sample 286950 cor	itinued										
						RL					
Parameter		Flag		$\operatorname{Cert}$		Result	U	nits	Dilution	R	
Xylene		U		1		< 0.0200	mg,	/Kg	1	0.020	
								Spike	Percent	Recovery	
Surrogate			Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits	
Frifluorotoluene (7	(FT)		<u>_</u>	······································	2.10	mg/Kg	1	2.00	105	82.8 - 143.	
(muorocordene ()					1.94	mg/Kg	1	2.00	97	70.6 - 179	
L-Bromofluoroben		H-1)			1.01	<u>67</u> 0					
1-Bromofluoroben Sample: 286950 Laboratory: Mid Analysis: TPH	- T-1 2' (A land I DRO - NEV				alytical M	lethod:	S 8015 D 2012-01-21		Prep M Analyz		
4-Bromofluoroben Sample: 286950 Laboratory: Mid Analysis: TPH QC Batch: 8796	- T-1 2' (A) land I DRO - NEV 51			Da		fethod: zed:	S 8015 D 2012-01-21 2012-01-20		Prep M Analyz Prepare	ed By: tc	
4-Bromofluoroben Sample: 286950 Laboratory: Mid Analysis: TPI QC Batch: 8796	- T-1 2' (A) land I DRO - NEV 51			Da	alytical M te Analyz	fethod: zed:	2012-01-21		Analyz	ed By: tc	
4-Bromofluoroben Sample: 286950 Laboratory: Mid Analysis: TPI QC Batch: 8796	- T-1 2' (A) land I DRO - NEV 51			Da	alytical M te Analyz	fethod: zed: paration:	2012-01-21 2012-01-20	nits	Analyz	ed By: tc	
4-Bromofluoroben Sample: 286950 Laboratory: Mid Analysis: TPI QC Batch: 8796 Prep Batch: 7469	- T-1 2' (A) land I DRO - NEV 51	V		Da Sar	alytical M te Analyz	fethod: æd: paration: RL	2012-01-21 2012-01-20 U	nits /Kg	Analyz Prepare	ed By: tc ed By: tc	
4-Bromofluoroben Sample: 286950 Laboratory: Mid Analysis: TPF QC Batch: 8796 Prep Batch: 7469 Parameter	- T-1 2' (A) land I DRO - NEV 51	V	R	Da Sar Cert	alytical M te Analyz	fethod: zed: paration: RL Result <50.0	2012-01-21 2012-01-20 U mg,		Analyz Prepare Dilution	ed By: tc ed By: tc Rl	

#### Sample: 286950 - T-1 2' (AH-1)

Laboratory: Midland Analysis: TPH GRO QC Batch: 87980 Prep Batch: 74696		D٤	te An	al Methoo alyzed: Preparatio	2012-0	01-23		Prep Meth Analyzed E Prepared E	By: DA
					$\mathbf{RL}$				
Parameter	Flag		Cert		Result	Uni	ts	Dilution	$\mathbf{RL}$
GRO			1		5.09	mg/ł	(g	1	2.00
Surrogate	F	flag (	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)				2.20	mg/Kg	1	2.00	110	30 - 134.6
4-Bromofluorobenzene (4-BFB)	)			1.96	mg/Kg	1	2.00	98	22.4 - 149

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Report Date 114-6400857	:: January 26, 2012		r: 12012003 Fed. #23 TB	Page Number: Eddy	12 of 43 Co., NM
Sample: 28	6952 - CS-2 North (AI	H-5)			
Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	87979	Date Analyzed:	2012-01-23	Analyzed By:	$\mathbf{D}\mathbf{A}$
Prep Batch: 74696		Sample Preparation:	2012-01-21	Prepared By:	DA
			RL		

			RL			
Parameter	Flag	$\mathbf{Cert}$	Result	Units	Dilution	$\mathbf{RL}$
Benzene	U	1	< 0.0200	mg/Kg	1	0.0200
Toluene	υ	1	< 0.0200	mg/Kg	1	0.0200
Ethylbenzene	υ	1	< 0.0200	mg/Kg	1	0.0200
Xylene	U	1	< 0.0200	mg/Kg	1	0.0200

					Spike	Percent	Recovery
Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
		1.99	mg/Kg	1	2.00	100	82.8 - 143.1
		1.85	mg/Kg	1	2.00	92	70.6 - 179
	Flag	Flag Cert	1.99	1.99 mg/Kg	1.99 mg/Kg 1	FlagCertResultUnitsDilutionAmount1.99mg/Kg12.00	FlagCertResultUnitsDilutionAmountRecovery1.99mg/Kg12.00100

# Sample: 286952 - CS-2 North (AH-5)

Parameter Chloride	Flag	Cert	Result <200	Units mg/Kg	Dilution 50	$\frac{\text{RL}}{4.00}$
_		-	RL			
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 88083 74739	Date An	al Method: alyzed: Preparation:	SM 4500-Cl B 2012-01-25 2012-01-24	Prep Method: Analyzed By: Prepared By:	ÁR

# Sample: 286952 - CS-2 North (AH-5)

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - N 87961 74693	EW	Dat	alytical Met te Analyzed nple Prepar	: 2012-	15 D -01-21 -01-20	Analyz	Aethod: zed By: zed By:	N/A tc tc
					$\mathbf{RL}$				
Parameter		Flag	Cert	R	esult	Units	Dilution		$\mathbf{RL}$
DRO		υ	1	<	<50.0	mg/Kg	1		50.0
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Reco Lin	overy
n-Tricosane		······	89.9	mg/Kg	1	100	90	53.5 -	147.1

Report Date: January 26, 2012 114-6400857		C		Work Order: 12012003 COG/Moose Fed. #23 TB				
Sample: 286952 - CS-2 Nor	th (AH-5)							
Laboratory:MidlandAnalysis:TPH GROQC Batch:87980Prep Batch:74696		Date An	al Metho alyzed: Preparati	2012-0	01-23		Prep Meth Analyzed H Prepared H	By: DA
				$\mathbf{RL}$				
Parameter	Flag	$\operatorname{Cert}$		Result	Uni	ts	Dilution	$\mathbf{RL}$
GRO		1		3.64	mg/I	ζg	1	2.00
Sumorata	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Surrogate Trifluorotoluene (TFT)	Fiag	Gert	2.08	mg/Kg	1	2.00	104	30 - 134.6
4-Bromofluorobenzene (4-BFB)			1.84	mg/Kg	1	2.00	92	22.4 - 149

# Sample: 286953 - CS-2 South (AH-5)

Laboratory: Midland Analysis: BTEX QC Batch: 87979 Prep Batch: 74696		Date Ana	al Method alyzed: Preparation	2012-0	1-23		Prep Met Analyzed Prepared	By: DA
				$\mathbf{RL}$				
Parameter	Flag	Cert		Result	U	nits	Dilution	$\mathbf{RL}$
Benzene	υ	1		< 0.0200	mg/	′Kg	1	0.0200
Toluene	U	1	•	< 0.0200	mg/		1	0.0200
Ethylbenzene	U	1		< 0.0200	mg/	′Kg	1	0.0200
Xylene	U	1		<0.0200	mg/	′Kg	1	0.0200
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.98	mg/Kg	1	2.00	99	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			2.01	mg/Kg	1	2.00	100	70.6 - 179

# Sample: 286953 - CS-2 South (AH-5)

Laboratory:					
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	88083	Date Analyzed:	2012-01-25	Analyzed By:	AR
Prep Batch:	74739	Sample Preparation:	2012-01-24	Prepared By:	AR

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Parameter	Flag	Cert	RL Result	Units	Dilution	$\mathbf{RL}$
		0010				
Chloride	U		<200	mg/Kg	50	4.00

# Sample: 286953 - CS-2 South (AH-5)

,

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NH 87961 74693	EW	Dat	alytical Me te Analyzec nple Prepai	l: 2	8 8015 D 2012-01-21 2012-01-20	Analyz	fethod: N/A red By: tc red By: tc
Parameter		Flag	Cert	F	RL Result	Units	Dilution	RL
DRO			1		744	mg/Kg	1	50.0
Surrogate	Flag	Cert	Result	Units	Diluti	Spike on Amount	Percent Recovery	Recovery Limits
n-Tricosane			130	mg/Kg	1	100	130	53.5 - 147.1

# Sample: 286953 - CS-2 South (AH-5)

Laboratory: Midland Analysis: TPH GRO QC Batch: 87980 Prep Batch: 74696			Date An	al Metho alyzed: Preparatio	2012-0	)1-23		Prep Metho Analyzed E Prepared B	By: DA
					$\mathbf{RL}$				
Parameter	Flag		Cert		Result	Uni	ts	Dilution	$\mathbf{RL}$
GRO			1		66.6	mg/F	ζg	1	2.00
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		<del>.</del>		2.09	mg/Kg	1	2.00	104	30 - 134.6
4-Bromofluorobenzene (4-BF	B)			2.23	mg/Kg	1	2.00	112	22.4 - 149

#### Sample: 286954 - CS-2 Bottom Hole 3' (AH-5)

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	87979	Date Analyzed:	2012-01-23	Analyzed By:	DA
Prep Batch:	74696	Sample Preparation:	2012-01-21	Prepared By:	DA

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	-	~ .		RL				
Parameter	Flag	Cert	j 	Result		nits	Dilution	RL
Benzene		1		0.465	mg/	Kg	5	0.0200
Toluene		1		12.3	mg/	Kg	5	0.0200
Ethylbenzene		1		11.5	mg/		5	0.0200
Xylene		1		24.8	mg/		5	0.0200
						Spike	Percent	Recovery
Surrogate	$\mathbf{Flag}$	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		•	4.65	mg/Kg	5	5.00	93	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			8.06	mg/Kg	5	5.00	161	70.6 - 179

# Sample: 286954 - CS-2 Bottom Hole 3' (AH-5)

Laboratory:	Midland					
Analysis:	Chloride (Titration)	Analyti	cal Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	88083	Date A	nalyzed:	2012-01-25	Analyzed By:	AR
Prep Batch:	74739	Sample	Preparation:	2012-01-24	Prepared By:	$\mathbf{AR}$
			$\mathbf{RL}$			
Parameter	Flag	Cert	Result	Units	Dilution	$\mathbf{RL}$
Chloride			222	mg/Kg	50	4.00

#### Sample: 286954 - CS-2 Bottom Hole 3' (AH-5)

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NF 87961 74693	εw	Da	alytical Me te Analyze mple Prepa	d: 2	5 8015 D 2012-01-21 2012-01-20	Analyz	fethod: ed By: ed By:	
Parameter	14000	Flag	Cert		RL Result	Units	Dilution	cu Dy.	RL
DRO			1	·····	951	mg/Kg	1		50.0
Surrogate n-Tricosane	Flag	Cert	Result 117	Units mg/Kg	Diluti 1	Spike on Amount 100	Percent Recovery 117	Reco Lim 53.5 -	nits

# Sample: 286954 - CS-2 Bottom Hole 3' (AH-5)

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	87980	Date Analyzed:	2012-01-23	Analyzed By:	DA
Prep Batch:	74696	Sample Preparation:	2012-01-21	Prepared By:	DA

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Parameter	Flag		Cert	]	RL Result	Uni	ts	Dilution	$\mathbf{RL}$	
GRO			1 512		512	mg/Kg		5	2.00	
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits	
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)	Qer	QBT		$\begin{array}{c} 4.86\\ 10.2 \end{array}$	mg/Kg mg/Kg	5 5	5.00 5.00	97 204	30 - 134.6 22.4 - 149	

# Sample: 286958 - CS-3 North (AH-8)

Laboratory:MidlandAnalysis:BTEXQC Batch:87979Prep Batch:74696		Date An	al Method alyzed: Preparation	2012-0	)1-23		Prep Met Analyzed Prepared	By: DA
				RL				
Parameter	Flag	Cert		Result	U	nits	Dilution	$\mathbf{RL}$
Benzene	υ	1		< 0.0200	mg/	'Kg	1	0.0200
Toluene	U	1	•	< 0.0200	mg/	ΊKg	1	0.0200
Ethylbenzene	U	ı		<0.0200	mg/	ΊKg	1	0.0200
Xylene	UU	1		<0.0200	mg/	Kg	1	0.0200
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.98	mg/Kg	1	2.00	99	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			1.86	mg/Kg	1	2.00	93	70.6 - 179

#### Sample: 286958 - CS-3 North (AH-8)

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 88084 74793	Date An	al Method: alyzed: Preparation:	SM 4500-Cl B 2012-01-26 2012-01-24	Prep Method: Analyzed By: Prepared By:	ÁR
			RL			
Parameter	$\mathbf{Flag}$	Cert	Result	Units	Dilution	$\mathbf{RL}$
Chloride			710	mg/Kg	50	4.00

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Sample: 28	6958 - CS-3 No	rth (AH-	8)								
Laboratory:	Midland										
Analysis:	sis: TPH DRO - NEW			Analytical Method: S 8015 D				Prep Method: N/A Analyzed By: tc			
QC Batch:	87961	Dat	Date Analyzed: 2012-01-21			01-21	Analyz	ed By:	tc		
Prep Batch:	74693		San	nple Prepa	ration:	2012-	01-20	Prepar	ed By:	tc	
					$\mathbf{RL}$						
Parameter		Flag	Cert	]	Result		Units	Dilution		$\mathbf{RL}$	
DRO		T	1		112		mg/Kg	1		50.0	
							Spike	Percent	Reco	overy	
Surrogate	Flag	Cert	Result	Units	Dih	ition	Amount	Recovery	$\operatorname{Lin}$	nits	
n-Tricosane			97.4	mg/Kg	· · ·	1	100	97	53.5 -	147.1	

# Sample: 286958 - CS-3 North (AH-8)

Laboratory: Midland Analysis: TPH GRO QC Batch: 87980 Prep Batch: 74696			Date Ar	al Metho alyzed: Preparatio	2012-0	01-23		Prep Meth Analyzed H Prepared H	By: DA
					$\mathbf{RL}$				
Parameter	Flag		Cert		Result	Uni	ts	Dilution	$\mathbf{RL}$
GRO			1		8.97	mg/ł	ζg	1	2.00
							Spike	Percent	Recovery
Surrogate	E	Flag	$\operatorname{Cert}$	$\mathbf{Result}$	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				2.09	mg/Kg	1	2.00	104	30 - 134.6
4-Bromofluorobenzene (4-BFB)				1.85	mg/Kg	1	2.00	92	22.4 - 149

# Sample: 286959 - CS-3 South (AH-8)

Laboratory: Analysis: QC Batch: Prep Batch:	Midland BTEX 87979 74696		Analytical Me Date Analyze Sample Prepa	d: 2012-01-2		Prep Method: Analyzed By: Prepared By:	S 5035 DA DA
				$\mathbf{RL}$			
Parameter		Flag	Cert	Result	Units	Dilution	$\mathbf{RL}$
Benzene		U	1	< 0.0200	mg/Kg	1	0.0200
Toluene		U	1	< 0.0200	mg/Kg	1	0.0200
Ethylbenzene	e	U	1	< 0.0200	mg/Kg	1	0.0200

continued ...

Report Date 114-6400857	e: January 26, 20	)12	C		rder: 1201 ose Fed. <i>‡</i>			Page Nu	mber: 1 Eddy C	
sample 2869	59 continued									
					$\mathbf{RL}$					
Parameter		Flag	Cert		Result		Units	Dilution		RL
Xylene		U	1		< 0.0200	m	g/Kg	11		0.0200
							Spike	Percent	Rece	overy
Surrogate		Fla	g Cert	Result	Units	Dilution	-	Recovery		nits
Trifluorotolu	ene (TFT)		<u> </u>	2.05	mg/Kg	1	2.00	102	82.8 -	143.1
4-Bromofluo	robenzene (4-BF	B)		1.91	mg/Kg	1	2.00	96	70.6	- 179
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titra 88084 74793	ation)	Dat	Analytical Method: SM 4500-Cl B Date Analyzed: 2012-01-26 Sample Preparation: 2012-01-24 RL			Prep Method: Analyzed By: Prepared By:		N/A AR AR	
Parameter		Flag	Cert		Result	ī	Units	Dilution		RL
Chloride					1310	m	g/Kg	100		4.00
Sample: 28 Laboratory: Analysis: QC Batch: Prep Batch:	8 <b>6959 - CS-3 S</b> Midland TPH DRO - N 87961 74693		An Da	alytical A te Analyz nple Prep	zed:	S 8015 D 2012-01-2 2012-01-20		Prep M Analyz Prepar	ed By:	N/A tc tc
					DI					
Parameter		Flag	Cert		RL Result	1	Units	Dilution		$\mathbf{RL}$
DRO			1		151		g/Kg	1		50.0
							Spike	Percent		overy
Surrogate n-Tricosane	Flag	Cert	Result 98.4	Units mg/Kg		ition A	100	Recovery 98		nits 147.1

#### Sample: 286959 - CS-3 South (AH-8)

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	87980	Date Analyzed:	2012-01-23	Analyzed By:	DA
Prep Batch:	74696	Sample Preparation:	2012-01-21	Prepared By:	DA

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Parameter	Flag		Cert		RL Result	Uni	its	Dilution	RL		
GRO	-		1	10.2		mg/ł	ζg	1	2.00		
Surrogate		Flag	$\operatorname{Cert}$	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits		
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)			***	2.14 1.90	mg/Kg mg/Kg	1 1	$\begin{array}{c} 2.00 \\ 2.00 \end{array}$	107 95	30 - 134.6 22.4 - 149		

#### Sample: 286960 - CS-3 Bottom Hole 1' (AH-8)

Laboratory:MidlandAnalysis:BTEXQC Batch:87979Prep Batch:74696		Date Ana	al Method alyzed: Preparatio	2012-0	01-23		Prep Met Analyzed Prepared	By: DA
				$\mathbf{RL}$				
Parameter	Flag	Cert		Result	U	nits	Dilution	$\operatorname{RL}$
Benzene	υ	1		< 0.0200	mg/	'Kg	1	0.0200
Toluene	υ	1		< 0.0200	mg/	ΊKg	1	0.0200
Ethylbenzene	υ	1		< 0.0200	mg/	ΊKg	1	0.0200
Xylene	U	1		< 0.0200	mg/	Kg	1	0.0200
Surrogate	Flag	cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	¥		2.07	mg/Kg	1	2.00	104	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			1.90	mg/Kg	1	2.00	95	70.6 - 179

#### Sample: 286960 - CS-3 Bottom Hole 1' (AH-8)

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 88084 74793	Date An	al Method: alyzed: Preparation:	SM 4500-Cl B 2012-01-26 2012-01-24	Prep Method: Analyzed By: Prepared By:	ÁR
			$\operatorname{RL}$			
Parameter	$\mathbf{Flag}$	Cert	Result	Units	Dilution	$\mathbf{RL}$
Chloride		· · · · · · · · · · · · · · · · · · ·	573	mg/Kg	50	4.00

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# Sample: 286960 - CS-3 Bottom Hole 1' (AH-8)

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NI 87961 74693	EW	Da	alytical Me te Analyzec mple Prepa	ł: 2012	15 D -01-21 -01-20	Analyz	Method: zed By: red By:	N/A tc tc
			_		RL				
Parameter		Flag	Cert	F	lesult	Units	Dilution		RL
DRO			1		65.8	mg/Kg	1		50.0
						Spike	Percent	Reco	overy
Surrogate	Flag	$\mathbf{Cert}$	$\mathbf{Result}$	Units	Dilution	Amount	Recovery	Lin	nits
n-Tricosane			99.0	mg/Kg	1	100	99	53.5 -	147.1

# Sample: 286960 - CS-3 Bottom Hole 1' (AH-8)

Laboratory: Midland Analysis: TPH GRO QC Batch: 87980 Prep Batch: 74696		Date Ar	cal Metho nalyzed: Preparatio	2012-	01-23		Prep Meth Analyzed E Prepared E	By: DA
				$\mathbf{RL}$				
Parameter	Flag	Cert		Result	Uni	ts	Dilution	$\mathbf{RL}$
GRO		1		9.78	mg/ł	۲g	1	2.00
Surrogate	Fla	ag Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.12	mg/Kg	1	2.00	106	30 - 134.6
4-Bromofluorobenzene (4-BFB)	)		1.90	mg/Kg	1	2.00	95	22.4 - 149

# Sample: 286961 - T-3 2' (AH-8)

Laboratory: Analysis: QC Batch: Prep Batch:	Midland BTEX 87979 74696		Analytical Me Date Analyzed Sample Prepa	l: 2012-01-	-23	Prep Method: Analyzed By: Prepared By:	S 5035 DA DA
				$\mathbf{RL}$			
Parameter		Flag	Cert	Result	Units	Dilution	$\mathbf{RL}$
Benzene			1	3.39	mg/Kg	5	0.0200
Toluene		Je	1	48.8	mg/Kg	5	0.0200
Ethylbenzene			1	21.2	mg/Kg	5	0.0200

continued ...

Report Date: 114-6400857	January 26, 2012				Work Or OG/Moo			Page Nu	1 of 43 o., NM		
sample 28696	1 continued										
						$\mathbf{RL}$					
Parameter		Flag		Cert		Result		Jnits	Dilution		RL
Xylene				1	·····	64.5	mg	g/Kg	5	<b>.</b>	0.0200
Surrogate			Flag	Cert	Result	Units	Dilutio	Spike n Amount	Percent Recovery		overy nits
Trifluorotoluer	ne (TFT)	Qar	Qar		4.02	mg/Kg		5.00	80		143.1
4-Bromofluoro	benzene (4-BFB)				6.74	mg/Kg		5.00 )	135	70.6	- 179
Analysis: QC Batch:	Midland Chloride (Titratic 88084 74793	on)		Date	lytical Me 2 Analyze ple Prepa	d:	SM 4500-C 2012-01-26 2012-01-24		Prep M Analyz Prepar	ed By:	N/A AR AR
Parameter		Flag		Cert		Result		Units	Dilution		$\mathbf{RL}$
Chloride						375		g/Kg	50		4.00
Laboratory: Analysis: QC Batch:	<b>961 - T-3 2' (A)</b> Midland TPH DRO - NEV 87961 74693			Dat	alytical M je Analyz aple Prep	ed:	S 8015 D 2012-01-2 2012-01-24		Prep M Analyz Prepar	ed By:	N/A tc tc
						DI					
Parameter		Flag		Cert		RL Result	1	Units	Dilution		RL
ORO				1		1420	m	g/Kg	1		50.0
Surrogate	Flag	Cert		sult 146	Units mg/Kg		ution A	Spike Amount 100	Percent Recovery 146	Lin	overy nits 147.1
n-Tricosane											

# Sample: 286961 - T-3 2' (AH-8)

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	87980	Date Analyzed:	2012-01-23	Analyzed By:	DA
Prep Batch:	74696	Sample Preparation:	2012-01-21	Prepared By:	DA

Report Date: January 26, 2012 114-6400857			Work Order: 12012003 COG/Moose Fed. #23 TB						
Flag		Cert	3	RL Result	Uni	ts	Dilution	RL	
		1	697		mg/Kg		5	2.00	
	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits	
Q8r	Qar		4.28 9.44	mg/Kg mg/Kg	5 5	5.00 5.00	86 189	30 - 134.6 22.4 - 149	
	Flag	Flag Flag	Flag Cert I Flag Cert	Flag Cert I Flag Cert Result 4.28	COG/Moose Fed. #23 RL Flag Cert Result 1 697 Flag Cert Result Units 4.28 mg/Kg	COG/Moose Fed. #23 TB RL Flag Cert Result Uni <b>i 697</b> mg/K Flag Cert Result Units Dilution 4.28 mg/Kg 5	COG/Moose Fed. #23 TB RL Flag Cert Result Units 1 697 mg/Kg Flag Cert Result Units Dilution Amount 4.28 mg/Kg 5 5.00	COG/Moose Fed. #23 TB     Ec       RL       Flag     Cert     Result     Units     Dilution       1     697     mg/Kg     5       Flag     Cert     Result     Units     Dilution       Flag     Cert     Result     Units     Dilution       4.28     mg/Kg     5     5.00     86	

# Sample: 286962 - T-3 4' (AH-8)

Laboratory:MidlandAnalysis:BTEXQC Batch:88045Prep Batch:74757		Date An	al Method: alyzed: Preparation	2012-0	)1-24		Prep Met Analyzed Prepared	By: tc
				$\mathbf{RL}$				
Parameter	Flag	Cert	t	Result	Ur	its	Dilution	$\mathbf{RL}$
Benzene		1		0.412	mg/	Kg	1	0.0200
Toluene		1		4.27	mg/	Kg	1	0.0200
Ethylbenzene		1		1.73	mg/	Kg	1	0.0200
Xylene		1		5.45	mg/	Kg	1	0.0200
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.84	mg/Kg	1	2.00	92	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			2.31	mg/Kg	1	2.00	116	70.6 - 179

.

# Sample: 286964 - CS-4 North (AH-9)

Laboratory: Analysis: QC Batch: Prep Batch:	Midland BTEX 87979 74696		Analytical Me Date Analyzed Sample Prepa	1:	S 8021B 2012-01-23 2012-01-21		Prep Method: Analyzed By: Prepared By:	S 5035 DA DA
					RL			
Parameter		Flag	Cert	Re	sult	Units	Dilution	$\mathbf{RL}$
Benzene		υ	1	< 0.0	200	mg/Kg	1	0.0200
Toluene		υ	1	<0.0	200	mg/Kg	1	0.0200
Ethylbenzene	e	υ	1	<0.0	200	mg/Kg	1	0.0200
Xylene		UU	1	<0.0	200	mg/Kg	1	0.0200

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits		
Trifluorotoluene (TFT)			2.05	mg/Kg	1	2.00	102	82.8 - 143.1		
4-Bromofluorobenzene (4-BFB)			1.95	mg/Kg	1	2.00	98	70.6 - 179		

#### Sample: 286965 - CS-4 South (AH-9)

,

Laboratory: Midland Analysis: BTEX QC Batch: 87979 Prep Batch: 74696			Analytical Method: Date Analyzed: Sample Preparation:		S 8021B 2012-01-23 : 2012-01-21		Prep Met Analyzed Prepared	By: DA
				$\mathbf{RL}$				
Parameter	Flag	Cert		Result	Ui	nits	Dilution	$\mathbf{RL}$
Benzene	υ	1		< 0.0200	mg/	Kg	1	0.0200
Toluene	υ	1		< 0.0200	mg/	′Kg	1	0.0200
Ethylbenzene	U	1		< 0.0200	mg/	'Kg	1	0.0200
Xylene	U	1	•	<0.0200		mg/Kg		0.0200
						Spike	Percent	Recovery
Surrogate	Flag	cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.02	mg/Kg	1	2.00	101	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			1.87	mg/Kg	1	2.00	94	70.6 - 179

# Sample: 286966 - CS-4 West (AH-9)

Laboratory: M	lidland									
· · · · · ·	BTEX		Analytical Method:		: S 802	S 8021B			hod: S 5035	
QC Batch: 8	7979		Date Analyzed:		2012-(	2012-01-23			By: DA	
Prep Batch: 7	4696		Sample F	Preparation	n: 2012-0	1-21		Prepared	By: DA	
					$\mathbf{RL}$					
Parameter		Flag	Cert		Result Units		nits	Dilution	$\mathbf{RL}$	
Benzene		U	1	•	< 0.0200	mg/	Kg	1	0.0200	
Toluene		U	1		< 0.0200	mg/	mg/Kg		0.0200	
Ethylbenzene		U	1		< 0.0200	mg/	mg/Kg		0.0200	
Xylene		U	1	•	<0.0200	mg/	mg/Kg		0.0200	
							Spike	Percent	Recovery	
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits	
Trifluorotoluene	e (TFT)			2.02	mg/Kg	1	2.00	101	82.8 - 143.1	
				continued						

Report Date: January 26, 2012	Work Order: 12012003		Page Number: 24 of 43		
114-6400857	COG/Moose Fed. #23 TB		Eddy Co., NM		
sample continued		Spike	Percent	Recovery	

						Spino	1 01 00110	100001019
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
4-Bromofluorobenzene (4-BFB)			1.85	mg/Kg	1	2.00	92	70.6 - 179

### Sample: 286967 - CS-4 Bottom Hole 2' (AH-9)

Laboratory: Midland Analysis: BTEX QC Batch: 87979 Prep Batch: 74696		Date Ana	al Method: alyzed: Preparation	2012-0	)1-23		Prep Met Analyzed Prepared	By: DA
				RL				
Parameter	Flag	Cert		Result	Ur	lits	Dilution	$\mathbf{RL}$
Benzene	U	1		< 0.100	mg/	Kg	5	0.0200
Toluene		1		0.381	mg/	Kg	5	0.0200
Ethylbenzene		1		0.383	mg/	Kg	5	0.0200
Xylene		1		1.46	mg/	Kg	5	0.0200
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			4.60	mg/Kg	5	5.00	92	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			5.12	mg/Kg	5	5.00	102	70.6 - 179

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# Method Blanks

Method Blank (1)	QC	Batch: 8796	1					
QC Batch: 87961			Date	Analyzed:	2012-01-21		Anal	yzed By: t
Prep Batch: 74693			QC I	Preparation:	2012-01-20		Prep	ared By: t
						MDL		
Parameter		Fla	g	Cert		Result	Units	R
DRO				1		<14.5	mg/Kg	5
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			82.0	mg/Kg	1	100	82	52.7 - 133
QC Batch: 87963 Prep Batch: 74695				Analyzed: reparation:	2012-01-23 2012-01-20		-	zed By: DA red By: DA
						MDL		
Parameter		Fl	ag	Cert		Result	Units	R
Benzene			<u> </u>	1		<0.0118	mg/Kg	0.0
Toluene				1	<	0.00600	mg/Kg	0.0
Ethylbenzene				1	<	0.00850	mg/Kg	0.0
Xylene				1	<	0.00613	mg/Kg	0.0
						Spil	e Percent	Recovery
Surrogate		Flag	g Cert	Result	Units Di	lution Amo	unt Recovery	Limits

Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.80	mg/Kg	1	2.00	90	65.9 - 111.8
4-Bromofluorobenzene (4-BFB)			1.37	mg/Kg	1	2.00	68	48.4 - 123.1

Method Blank (	1)	QC Batch:	87964

QC Batch:	87964	Date Analyzed:	2012-01-23	Analyzed By:	DA
Prep Batch:	74695	QC Preparation:	2012-01-20	Prepared By:	DA

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<b>D</b>					MDL		<b>TT</b> 1/	DI
Parameter	Flag	· · ·	$\operatorname{Cert}$		Result		Units	
GRO			1		0.983		mg/Kg	2
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.87	mg/Kg	1	2.00	94	67.6 - 150
4-Bromofluorobenzene (4-BFB)			1.38	mg/Kg	1	2.00	69	52.4 - 130
Method Blank (1) QC Batc	h: 87979							
Method Blank (1) QC Bate QC Batch: 87979 Prep Batch: 74696	h: 87979		nalyzed:	2012-01- 2012-01-	-		Analyz Prepar	•
QC Batch: 87979	h: 87979				20		•	•
QC Batch: 87979 Prep Batch: 74696			eparation:		20 MDL		Prepare	ed By: DA
QC Batch: 87979 Prep Batch: 74696 Parameter	h: 87979 Flag				20 MDL Result		Prepar	ed By: DA
QC Batch: 87979 Prep Batch: 74696 Parameter Benzene			eparation: Cert		20 MDL		Prepare Units mg/Kg	ed By: DA <u>RL</u> 0.02
QC Batch: 87979 Prep Batch: 74696 Parameter Benzene Toluene			eparation: Cert		20 MDL Result <0.0118		Prepare Units mg/Kg mg/Kg	ed By: DA
QC Batch: 87979 Prep Batch: 74696 Parameter Benzene Toluene Ethylbenzene			eparation: Cert		20 MDL Result <0.0118 <0.00600		Prepare Units mg/Kg	ed By: DA RL 0.02 0.02
QC Batch: 87979 Prep Batch: 74696 Parameter Benzene Toluene Ethylbenzene			Cert		20 MDL Result <0.0118 <0.00600 <0.00850	Spike	Prepar Units mg/Kg mg/Kg mg/Kg	ed By: DA RL 0.02 0.02 0.02 0.02
QC Batch: 87979 Prep Batch: 74696 Parameter Benzene Toluene Ethylbenzene Xylene			Cert		20 MDL Result <0.0118 <0.00600 <0.00850	Spike Amount	Prepare Units mg/Kg mg/Kg mg/Kg mg/Kg	ed By: DA RL 0.02 0.02 0.02
QC Batch: 87979	Flag	QC Pro	Cert 1 1 1 1	2012-01-	20 MDL Result <0.0118 <0.00600 <0.00850 <0.00613		Prepare Units mg/Kg mg/Kg mg/Kg mg/Kg Percent	ed By: DA <u>RL</u> 0.02 0.02 0.02 0.02 0.02 Recovery

Method Blank (1)	QC Batch: 87980

QC Batch: 87980 Prep Batch: 74696			nalyzed: eparation:	2012-01-2 2012-01-2			d By: DA d By: DA	
Parameter	Flag		Cert		MDL Result		Units	RL
GRO			1	• • • •	2.04		mg/Kg	2
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.83	mg/Kg	1	2.00	92	67.6 - 150
4-Bromofluorobenzene (4-BFB)			1.46	mg/Kg	1	2.00	73	52.4 - 130

Report Date: January 26, 2012 114-6400857									
Method Blank (1) QC Batch:	88045								
QC Batch: 88045		Date	Analyzed:	2012-01	L-24		Anal	yzed By:	$\mathbf{tc}$
Prep Batch: 74757		QC P	reparation:	2012-01	L-24		Prep	ared By:	$\mathbf{tc}$
					MDL				
Parameter	Flag		Cert		Result		Units		$\mathbf{RL}$
Benzene			1		< 0.0118		mg/Kg		0.02
Toluene			1		< 0.00600		mg/Kg		0.02
Ethylbenzene			1		< 0.00850		mg/Kg		0.02
Xylene			1		< 0.00613		mg/Kg		0.02
						Spike	Percent	Recov	ery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limi	ts
Trifluorotoluene (TFT)			1.83	mg/Kg	1	2.00	92	65.9 - 1	11.8
4-Bromofluorobenzene (4-BFB)			1.48	mg/Kg	1	2.00	74	48.4 - 1	23.1

Method	Blank	(1)	QC	Batch:	88083
Meenou	Diama	(-)	~~~	17000111	00000

.

QC Batch: 88083 Prep Batch: 74739		Date Analyzed: QC Preparation:		Analyzed By: Prepared By:	
			MDL		
Parameter	Flag	Cert	Result	Units	$\mathbf{RL}$
Chloride			<3.85	mg/Kg	4

### Method Blank (1) QC Batch: 88084

QC Batch: Prep Batch:	88084 74793		Date Analyzed: QC Preparation:	2012-01-26 2012-01-24	Analyzed By: Prepared By:	
				MDL		
Parameter		Flag	Cert	Result	Units	RL
Chloride				<3.85	mg/Kg	4

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## Laboratory Control Spikes

#### Laboratory Control Spike (LCS-1)

Toluene

Xylene

Ethylbenzene

QC Batch: 87961 Prep Batch: 74693			Date Anal QC Prepa	•	2012-01-21 2012-01-20				lyzed B pared B	•
			LCS			Spike	Mat			lec.
Param	F	C	Result	Units	Dil.	Amount				imit
DRO		1	196	mg/Kg	1	250	<14	4.5 78	64.5	- 146.9
Percent recovery is based on	the spike res	ult. R	PD is bas	ed on the	spike and	spike dup	licate res	sult.		
		LCS	D		Spike	Matrix		Rec.		RPD
Param	FC	Resu	lt Unit	s Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO	1	204	mg/ł	Kg 1	250	<14.5	82 (	64.5 - 146.9	4	20
Percent recovery is based on	the spike res	ult. R	PD is bas	ed on the	spike and	spike dup	licate res	sult.		
	LCS	LC	SD			Spike	LCS	LCSD	F	lec.
Surrogate	Result	Re	sult	Units	Dil.	Amount	Rec.	Rec.	$\mathbf{L}$	mit
n-Tricosane	86.5	92	2.6 r.	ng/Kg	1	100	86	93	65.3	- 135.8
Laboratory Control Spik	e (LCS-1)									
QC Batch: 87963		л	ate Analy	mod of	)12-01-23			Anole	zed By:	DA
Prep Batch: 74695			C Prepar		)12-01-23				red By:	
r rep Daten. 14090		4	O r lepai	a	512-01-20			riepa	пец ру.	DA
			LCS			Spike	Matr	rix	R	.ec.
Param	F	С	Result	Units	Dil.	Amount	Resu	ılt Rec.	Li	mit
Benzene		1	1.91	mg/Kg	1	2.00	< 0.01	18 96	77.4	- 121.7

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

1

1

1

1.84

1.71

5.14

Param	F	С	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.95	mg/Kg	1	2.00	< 0.0118	98	77.4 - 121.7	2	20
Toluene		1	1.87	mg/Kg	1	2.00	< 0.00600	94	88.6 - 121.6	2	20
Ethylbenzene		1	1.75	mg/Kg	1	2.00	< 0.00850	88	74.3 - 117.9	2	20
Xylene		1	5.24	mg/Kg	1	6.00	< 0.00613	87	73.4 - 118.8	2	20

mg/Kg

mg/Kg

mg/Kg

1

1

1

2.00

2.00

6.00

< 0.00600

< 0.00850

< 0.00613

92

86

86

88.6 - 121.6

74.3 - 117.9

73.4 - 118.8

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

Report Date: January 26, 2012 114-6400857						r: 1201200 Fed. #23				Page Nu	mber: 2 Eddy C	
Surrogate			L( Res	sult F	LCSD Result	Units	Dil	Spike Amount		LCSD Rec.	Li	ec. mit
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)			1.0			mg/Kg mg/Kg	1 1	2.00 2.00	83 78	86 78		- 116.7 - 132.1
Laboratory Control Spike (LC QC Batch: 87964 Prep Batch: 74695	cs-	1)		e Anal Prepar		2012-01-23 2012-01-20					zed By: red By:	
Param		F	C	LCS Result	Unit	s Dil.		ike ount	Matrix Result	Rec.		ec. mit
GRO		-	1	15.6	mg/k			0.0	<0.753	78		- 105.4
Percent recovery is based on the s	pik	e res	ult. RPI					duplicat	te result.	Rec.		RPD
Param	$\mathbf{F}$	С	Result	Uni	ts Dil.	Amoun	t Res	ult Re	c. L	imit	RPD	Limit
GRO		1	15.1	mg/I	Kg 1	20.0	<0.'	753 70	60.9	- 105.4	3	20
Percent recovery is based on the s	pik	e res	ult. RPI	D is bas	ed on th	ie spike an	d spike	duplicat	te result.			
	-					-	•	-				-
Surragata					LCSD	TInita	D:1	Spike				Rec.
Surrogate Trifluorotoluene (TFT)				83	Result 1.84	Units mg/Kg	Dil. 1	Amour 2.00	t Rec 92	. Rec. 92		imit 9 - 142
4-Bromofluorobenzene (4-BFB)				40	1.45	mg/Kg	1	2.00	92 70	92 72		2 - 132
Laboratory Control Spike (LC		- `										
QC Batch: 87979 Prep Batch: 74696		1)		e Analy Prepar		2012-01-23 2012-01-20				+	zed By: red By:	
Prep Batch: 74696			QC	Prepar	ation:	2012-01-20	) Spik		Matrix	Prepa	red By: R	DA .ec.
Prep Batch: 74696 Param		1) F	QC C R	Prepar LCS esult	ation: Units	2012-01-20 Dil.	Spik Amou	ınt	Result	Prepa	red By: R Li	DA ec. mit
Prep Batch: 74696 Param Benzene				Prepar LCS esult 2.05	ation: Units mg/Kg	2012-01-20 	Spik Amou 2.0(	int ) <	Result (0.0118	Prepa Rec. 102	red By: R Li 77.4 -	DA ec. mit - 121.7
Prep Batch: 74696 Param			QC C R 1	Prepar LCS esult	ation: Units	2012-01-20 Dil. g 1 g 1	Spik Amou	int () ) <	Result	Prepa	red By: R Li 77.4 - 88.6 -	DA ec. mit
Prep Batch: 74696 Param Benzene Toluene				Prepar LCS Lesult 2.05 1.94	Units Mg/Kg mg/Kg	Dil. g 1 g 1 g 1 g 1 g 1	Spik Amou 2.00 2.00	int ) < ) <	Result (0.0118 0.00600	Prepa Rec. 102 97	red By: R Li 77.4 - 88.6 - 74.3 -	DA ec. mit · 121.7 · 121.6
Prep Batch: 74696 Param Benzene Toluene Ethylbenzene		F		Prepar LCS esult 2.05 1.94 1.82 5.42	units mg/Kg mg/Kg mg/Kg mg/Kg	Dil. g 1 g 1 g 1 g 1 g 1 g 1 g 1	Spik Amou 2.00 2.00 2.00 6.00	unt ) < ) < ) <	Result (0.0118 0.00600 0.00850 0.00613	Prepa Rec. 102 97 91	red By: R Li 77.4 - 88.6 - 74.3 -	DA ec. <u>mit</u> - 121.7 - 121.6 - 117.9
Prep Batch: 74696 Param Benzene Toluene Ethylbenzene Xylene		F		Prepar LCS esult 2.05 1.94 1.82 5.42	units mg/Kg mg/Kg mg/Kg mg/Kg	Dil. g 1 g 1 g 1 g 1 g 1 g 1 g 1	Spik Amou 2.00 2.00 2.00 6.00	unt ) < ) < ) < duplicat	Result (0.0118 0.00600 0.00850 0.00613 ce result.	Prepa Rec. 102 97 91	red By: R Li 77.4 - 88.6 - 74.3 -	DA ec. <u>mit</u> - 121.7 - 121.6 - 117.9
Prep Batch: 74696 Param Benzene Toluene Ethylbenzene Xylene		F	QC	Prepar LCS esult 2.05 1.94 1.82 5.42	Units mg/Kg mg/Kg mg/Kg mg/Kg	Dil. g 1 g 1 g 1 g 1 g 1 g 1 g 1 g 1 g 1 g 1	Spik Amou 2.00 2.00 2.00 6.00 d spike	unt ) < ) < ) < duplicat	Result (0.0118 0.00600 0.00850 0.00613 ce result.	Prepa Rec. 102 97 91 90	red By: R Li 77.4 - 88.6 - 74.3 -	DA ec. mit 121.7 121.6 117.9 - 118.8

continued ...

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control spikes continued													
-			LCSD			Spike	Ma	trix		F	lec.		RPD
Param	F	С	Result	Units		Amount		sult	Rec.		imit	RPD	Limit
Toluene		1	2.00	mg/K		2.00		0600	100		- 121.6	3	20
Ethylbenzene		1	$1.91 \\ 5.65$	mg/K		2.00		0850	96 04		- 117.9	5 4	20 20
Xylene Percent recovery is based on the	anile	1		mg/K		6.00		0613	94		- 118.8		20
recent recovery is based on the	spik	eres	uit. rri			ne spike ai	iu spik	e aup	licate	resuit.			
_					CSD			Spil		LCS	LCSD		.ec.
Surrogate			Res		lesult	Units	Dil.	Amo		Rec.	Rec.		mit
Trifluorotoluene (TFT)			1.9		1.98	mg/Kg	1	2.0		100	99		- 116.7
4-Bromofluorobenzene (4-BFB)			1.7	(5	1.81	mg/Kg	1	2.0	0	88	90	56.2	- 132.1
LaboratoryControl Spike (LQC Batch:87980Prep Batch:74696	CS-	1)		e Analy Prepar		2012-01-2 2012-01-2					•	zed By: red By:	
Param		F		LCS Result	Unit	ts Dil.		pike nount		atrix esult	Rec.		.ec. mit
GRO			1	16.2	mg/ł			20.0		0.753	81		- 105.4
Percent recovery is based on the	spike	e res	ult. RPI	) is bas			nd spike	e dupl	icate	result.			
	•		LCSD			-	-	trix			.ec.		RPD
Param	$\mathbf{F}$	С	Result	Unit	s Dil	Spike . Amoun		sult	Rec.		.ec. mit	RPD	Limit
GRO	<u>.</u>	1	16.8	mg/k		<u>20.0</u>		.753	84		- 105.4	4	20
Percent recovery is based on the	spike												
								-			T GGT		-
Surrogata					LCSD Result	Units	Dil.	. •	oike	LCS	LCSI Rec.		Rec. imit
Surrogate Trifluorotoluene (TFT)				78	1.90	mg/Kg	<u></u>		$\frac{\text{ount}}{00}$	Rec. 89	<u></u>		) - 142
4-Bromofluorobenzene (4-BFB)				54	1.59	mg/Kg	1		00	77	80		2 - 132
Laboratory Control Spike (L QC Batch: 88045 Prep Batch: 74757	CS-:	1)		te Anal Prepa	•	2012-01-2 2012-01-2						lyzed B	
Param		F		LCS esult	Units	Dil.	Spi Amo			trix sult	Rec.		ec. mit

mg/Kg

1

1.93

1

2.00

< 0.0118

96

77.4 - 121.7

continued ...

Benzene

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control spikes continued ...

			LCS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	С	$\mathbf{Result}$	Units	Dil.	Amount	Result	Rec.	Limit
Toluene		1	1.81	mg/Kg	1	2.00	< 0.00600	90	88.6 - 121.6
Ethylbenzene		1	1.68	mg/Kg	1	2.00	< 0.00850	84	74.3 - 117.9
Xylene		1	4.99	mg/Kg	1	6.00	< 0.00613	83	73.4 - 118.8

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	1.98	mg/Kg	1	2.00	< 0.0118	99	77.4 - 121.7	3	20
Toluene		1	1.86	mg/Kg	1	2.00	< 0.00600	93	88.6 - 121.6	3	20
Ethylbenzene		1	1.75	mg/Kg	1	2.00	< 0.00850	88	74.3 - 117.9	4	20
Xylene		1	5.18	mg/Kg	1	6.00	<0.00613	86	73.4 - 118.8	4	20

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

	$\mathbf{LCS}$	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.75	1.93	mg/Kg	1	2.00	88	96	65.5 - 116.7
4-Bromofluorobenzene (4-BFB)	1.69	1.84	mg/Kg	1	2.00	84	92	56.2 - 132.1

#### Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch:	88083 74739			ate Analyze C Preparat	ed: 2012- ion: 2012-				•	By: AR By: AR
Param		F	С	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride				94.8	mg/Kg	1	100	<3.85	95	85 - 115

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride			104	mg/Kg	1	100	<3.85	104	85 - 115	9	20

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

#### Laboratory Control Spike (LCS-1)

QC Batch:	88084	Date Analyzed:	2012-01-26	Analyzed By:	AR
Prep Batch:	74793	QC Preparation:	2012-01-24	Prepared By:	$\mathbf{AR}$

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Param	F	C	LCS Result	Units		Spike Amour	nt Re		ec.	Rec. Limit
Chloride			95.7	mg/K		100			6 8	85 - 115
Percent recovery is based on th	e spike res	ult. RI	PD is base	ed on the s	spike and a	spike dupli	cate resu	ılt.		
		LCS	5D		Spike	Matrix		Rec.		RPD
Param	FC			its Dil.	Amount		Rec.	Limit	RPD	Limit
Chloride		10			100	<3.85	104	85 - 115	8	20
Percent recovery is based on th	e spike res	ult. RI					cate rest			
Matric Crite (MC 1) Cri	Irod Samal	<u>9</u> 960	EQ							
Matrix Spike (MS-1) Spi	ked Sampl	e: 2009	56							
QC Batch: 87961		Γ	ate Anal	yzed: 20	)12-01-21			Ana	lyzed F	By: tc
Prep Batch: 74693		Ç	C Prepar	ation: 20	)12-01-20			Pre	pared E	By: tc
			MS			Spike	Matri	v	1	Rec.
	-	С	Result	Units	Dil.	Amount	Resul			.imit
Param	н.					mound	roou			
	F			mg/Kg	1	250	<14.	5 114	38.8	- 153.3
DRO		1	285	mg/Kg	1 spike and s	250 spike dupli	<14.		38.8	- 153.3
DRO		ı ult. RI	285 PD is base					ılt.	38.8	
DRO Percent recovery is based on th	e spike res	ult. RI MSD	285 PD is base	ed on the s	spike and s Spike	spike dupli Matrix	cate resu	ılt. Rec.		- 153.3 RPD
DRO Percent recovery is based on th Param	e spike res F C	ı ult. RI MSD Resul	285 PD is base t Units	ed on the s	spike and s Spike Amount	spike dupli Matrix Result	cate resu Rec.	ılt. Rec. Limit	RPD	RPD Limit
DRO Percent recovery is based on th Param DRO	e spike res F C	1 ult. RH MSD Resul 281	285 PD is base t Units mg/K	ed on the s s Dil. g 1	spike and s Spike Amount 250	spike dupli Matrix Result <14.5	cate resu Rec. 112 38	llt. Rec. Limit 3.8 - 153.3		RPD
DRO Percent recovery is based on th Param DRO	e spike res F C	1 ult. RH MSD Resul 281	285 PD is base t Units mg/K	ed on the s s Dil. g 1	spike and s Spike Amount 250	spike dupli Matrix Result <14.5	cate resu Rec. 112 38	llt. Rec. Limit 3.8 - 153.3	RPD	RPD Limit
DRO Percent recovery is based on th Param DRO	e spike res F C 1 e spike res	1 ult. RH MSD Resul 281 ult. RH	285 PD is base t Units mg/K PD is base	ed on the s s Dil. g 1	spike and s Spike Amount 250	spike dupli Matrix Result <14.5 spike dupli	cate resu Rec. 112 38 cate resu	ılt. Rec. Limit 3.8 - 153.3 ılt.	RPD 1	RPD Limit 20
DRO Percent recovery is based on th Param DRO Percent recovery is based on th	e spike res F C	ı ult. RH MSD Resul 281 ult. RH	285 PD is base t Units mg/K PD is base SD	ed on the s s Dil. g 1 ed on the s	spike and s Spike Amount 250 spike and s	spike dupli Matrix Result <14.5 spike dupli Spike	cate resu Rec. 112 38 cate resu MS	ult. Rec. Limit 3.8 - 153.3 ult. MSD	RPD 1	RPD Limit 20 Rec.
DRO Percent recovery is based on th Param DRO Percent recovery is based on th Surrogate	e spike res F C 1 e spike res MS	ı ult. RH MSD Resul 281 ult. RH	285 PD is base t Units mg/K PD is base SD sult	ed on the s s Dil. g 1	spike and s Spike Amount 250 spike and s	spike dupli Matrix Result <14.5 spike dupli	cate resu Rec. 112 38 cate resu	ılt. Rec. Limit 3.8 - 153.3 ılt.	RPD 1 I L	RPD Limit 20
Param         DRO         Percent recovery is based on th         Param         DRO         Percent recovery is based on th         Surrogate         n-Tricosane         Matrix Spike (MS-1)         QC Batch:       87963         Prep Batch:       74695	e spike res F C 1 e spike res MS Result	1 ult. RH Resul 281 ult. RH Mi Res 90 e: 2868	285 PD is base t Units mg/K PD is base SD sult 0.1 n	ed on the s s Dil. g 1 ed on the s Units ng/Kg zed: 201	spike and s Spike Amount 250 spike and s Dil.	spike dupli Matrix Result <14.5 spike dupli Spike Amount	cate resu Rec. 112 38 cate resu MS Rec.	ult. Rec. Limit 3.8 - 153.3 ult. MSD Rec. 90	RPD 1 I L	RPD Limit 20 Rec. .imit - 149.8
DRO Percent recovery is based on th Param DRO Percent recovery is based on th Surrogate n-Tricosane Matrix Spike (MS-1) Spi QC Batch: 87963	e spike res F C • e spike res MS Result 86.5	1 ult. RH Resul 281 ult. RH Mi Res 90 e: 2868	285 PD is base t Units mg/K PD is base SD sult 0.1 m 64 ate Analy C Prepara	ed on the s s Dil. g 1 ed on the s Units ng/Kg zed: 201	spike and s Spike Amount 250 spike and s Dil. 1	spike dupli Matrix Result <14.5 spike dupli Spike Amount 100	cate resu Rec. 112 38 cate resu MS Rec. 86	Ilt. Rec. Limit 3.8 - 153.3 Ilt. MSD Rec. 90 Anal Prep.	RPD 1 L 54.6 yzed By	RPD Limit 20 Rec. .imit - 149.8 r: DA : DA
DRO Percent recovery is based on th Param DRO Percent recovery is based on th Surrogate n-Tricosane Matrix Spike (MS-1) Spi QC Batch: 87963 Prep Batch: 74695	e spike res F C • e spike res MS Result 86.5	1 ult. RH Resul 281 ult. RH Mi Res 90 e: 2868 Q4	285 PD is base t Units mg/K PD is base SD sult 0.1 n 64 ate Analy C Prepara MS	ed on the s s Dil. g 1 ed on the s Units ng/Kg zed: 201 ution: 201	spike and s Spike Amount 250 spike and s Dil. 1 1 1 1 2-01-23 12-01-20	spike dupli Matrix Result <14.5 spike dupli Spike Amount 100 Spike	Cate resu Rec. 112 38 Cate resu MS Rec. 86	ult. Rec. Limit 3.8 - 153.3 ult. MSD Rec. 90 90	RPD 1 L 54.6 yzed By ared By	RPD Limit 20 Rec. .imit - 149.8 r: DA : DA Rec.
DRO Percent recovery is based on th Param DRO Percent recovery is based on th Surrogate n-Tricosane Matrix Spike (MS-1) Spi QC Batch: 87963 Prep Batch: 74695 Param	e spike res F C • e spike res MS Result 86.5	1 ult. RH MSD 281 ult. RH Mi Res 90 e: 2868 Di Qu	285 PD is base t Units mg/K PD is base SD sult 0.1 n 64 ate Analy C Prepara MS Result	ed on the s s Dil. g 1 ed on the s Units ng/Kg zed: 201 ution: 201 Units	Spike and s Spike Amount 250 Spike and s Dil. 1 1 1 2-01-23 12-01-20 Dil.	spike dupli Matrix Result <14.5 spike dupli Spike Amount 100 Spike Amount	Cate resu Rec. 112 38 Cate resu MS Rec. 86 Matrix Result	Ilt. Rec. Limit 3.8 - 153.3 Ilt. MSD Rec. 90 90 Anal Prep.	RPD 1 L 54.6 yzed By ared By	RPD Limit 20 Rec. imit - 149.8 r: DA : DA Rec. imit
DRO Percent recovery is based on th Param DRO Percent recovery is based on th Surrogate n-Tricosane Matrix Spike (MS-1) Spi QC Batch: 87963	e spike res F C • e spike res MS Result 86.5	1 ult. RH MSD Resul 281 ult. RH Mi Res 90 e: 2868 Di Qu C	285 PD is base mg/K PD is base SD sult 0.1 m 64 ate Analy C Prepara MS Result 2.05	ed on the s s Dil. g 1 ed on the s Units ng/Kg zed: 201 ution: 201 Units mg/Kg	Spike and s         Amount         250         spike and s         Dil.         1         12-01-23         12-01-20         Dil.         Another and s         Dil.         1         1	Spike dupli Matrix Result <14.5 Spike dupli Spike Amount 100 Spike Amount 2.00	Cate resu Rec. 112 38 Cate resu MS Rec. 86 Matrix Result <0.011	llt. Rec. Limit 3.8 - 153.3 llt. MSD Rec. 90 Anal Prep. 5 Rec. 8 102	RPD 1 L 54.6 yzed By ared By I L 69.4	RPD Limit 20 Rec. imit - 149.8 r: DA : DA : DA Rec. imit - 123.6
DRO Percent recovery is based on th Param DRO Percent recovery is based on th Surrogate n-Tricosane Matrix Spike (MS-1) Spi QC Batch: 87963 Prep Batch: 74695 Param Benzene	e spike res F C • e spike res MS Result 86.5	1 ult. RH MSD 281 ult. RH Mi Res 90 e: 2868 Di Qu	285 PD is base t Units mg/K PD is base SD sult 0.1 n 64 ate Analy C Prepara MS Result	ed on the s s Dil. g 1 ed on the s Units ng/Kg zed: 201 ution: 201 Units	Spike and s Spike Amount 250 Spike and s Dil. 1 1 1 2-01-23 12-01-20 Dil.	spike dupli Matrix Result <14.5 spike dupli Spike Amount 100 Spike Amount	Cate resu Rec. 112 38 Cate resu MS Rec. 86 Matrix Result	ult. Rec. Limit 3.8 - 153.3 ult. MSD Rec. 90 Anal Prep. 5 Rec. 8 102 00 100	RPD 1 L 54.6 yzed By yzed By l L 69.4 75.4	RPD Limit 20 Rec. imit - 149.8 r: DA : DA Rec. imit

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

ParamFCResultUnitsDil.AmountResultRec.LimitRPDLimitBenzene12.04rng/Kg12.00<0.01181026.9.4123.6020Ethylbenzene12.05mg/Kg12.00<0.0060010075.4134.3020Mathematical System16.00<0.0061310257.7134.2120Percent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.SurrogateResultResultUnitsDil.AmountRec.Rec.LimitThifuorotoluene (TFT)2.062.02mg/Kg1210310179.4141.4-4-Bromofluorobenzene (4-BFB)1.961.93mg/Kg12989671-167Matrix Spike (MS-1)Spiked Sample:286946202Preparation:2012-01-23Analyzed By:DAParamFCResultUnitsDil.AmountResultRec.LimitGROi1.81.1mg/Kg120.02.848261.8-11ParamFCResultUnitsDil.AmountResultRec.LimitGROi1.9.2mg/Kg120.02.848261.8-11ParamFCResultUnitsDil.AmountRec.LimitRec. </th <th>114-6400857</th> <th></th> <th></th> <th></th> <th>/ork Orc G/Moos</th> <th>]</th> <th colspan="4">Page Number: 33 of 43 Eddy Co., NM</th>	114-6400857				/ork Orc G/Moos	]	Page Number: 33 of 43 Eddy Co., NM								
Benzene       i $2.04$ mg/Kg       1 $2.00$ $< 0.0118$ 102 $69.4 - 123.6$ 0 $200$ Toluene       i $1.99$ mg/Kg       1 $2.00$ $< 0.00600$ $100$ $75.4 - 134.3$ 0 $200$ Ethylbenzene       i $6.12$ mg/Kg       1 $2.00$ $< 0.00613$ $102$ $57 - 134.2$ 1 $200$ Yercent recovery is based on the spike result.       RPD is based on the spike duplicate result.       MS       MSD       Spike       MSD       Rec.       Exercise         Surrogate       Result       Result       Result       Units       Dil.       Amount       Rec.       Limit         Trifluorotoluene (TFT) $2.06$ $2.02$ mg/Kg       1 $2$ $98$ $96$ $71 - 167$ Matrix Spike (MS-1)       Spiked Sample: 286946       QC       Preparation: $2012-01-23$ Analyzed By: DA         Prep Batch:       74695       QC Preparation: $2012-01-23$ Analyzed By: DA         Param       F       C       Result       Units       Dil.       Amount       Result       Eec.       Limit <td< th=""><th></th><th></th><th></th><th>MSD</th><th></th><th></th><th>Spike</th><th>Ma</th><th>atrix</th><th></th><th>F</th><th>lec.</th><th></th><th>RPD</th></td<>				MSD			Spike	Ma	atrix		F	lec.		RPD	
Toluene       i       1.99 $mg/Kg$ 1       2.00       <0.00600       100       75.4       -134.3       0       20         Ethylbenzene       i       2.05 $mg/Kg$ 1       2.00       <0.00850       102       58.8       -133.7       0       20         Percent recovery is based on the spike result.       RPD is based on the spike and spike duplicate result.       30       Precent recovery is based on the spike and spike duplicate result.         Surrogate       Result       Result       Units       Dil.       Amount       Rec.       Limit         Tifluorotoluene (TFT)       2.06       2.02 $mg/Kg$ 1       2       98       96       71 - 167         Matrix Spike (MS-1)       Spiked Sample: 286946       Date Analyzed:       2012-01-23       Analyzed By:       DA         Prep Batch:       74695       QC Preparation:       2012-01-23       Analyzed By:       DA         Param       F       C       Result       Units       Dil.       Amount       Result       Rec.       Limit         GRO       i       18.1 $mg/Kg$ 1       20.0       2.84       76       618 - 11         Param       F       C <td< th=""><th>Param</th><th>$\mathbf{F}$</th><th>С</th><th>Result</th><th>Unit</th><th>ts Dil</th><th>. Amount</th><th>Re</th><th>sult</th><th>Rec.</th><th>Li</th><th>imit</th><th>RPD</th><th>Limit</th></td<>	Param	$\mathbf{F}$	С	Result	Unit	ts Dil	. Amount	Re	sult	Rec.	Li	imit	RPD	Limit	
Ethylbenzene       i $2.05 \text{ mg/Kg}$ 1 $2.00 < <0.00850$ $102$ $58.8 - 133.7$ 0 $20$ Xylene       i $6.12 \text{ mg/Kg}$ 1 $6.00 < <0.00613$ $102  57.134.2$ 1 $20$ Percent recovery is based on the spike result.       RPD is based on the spike and spike duplicate result.       Surrogate       Result       NSD       Spike       MSD       Rec.       Limit       Limit       Limit       Dil.       Amount       Rec.       Limit       101 $79.4 - 141.$ 4-Bromofluorobenzene (4-BFB)       1.96       1.93 mg/Kg       1       2       103 $101$ $79.4 - 141.$ 4-Bromofluorobenzene (4-BFB)       1.96       1.93 mg/Kg       1       2       98       96 $71 - 167.$ Matrix Spike (MS-1)       Spiked Sample: 286946       QC Preparation: 2012-01-23       Analyzed By: DA       Prep Batch: 74695       QC Preparation: 2012-01-20       Prepared By: DA         Param       F       C       Result       Units       Dil.       Amount       Result       Rec.       Limit         GRO       1       1.81 mg/Kg       1       20.0       2.84       26       6.18-11       Percent       Prece	Benzene		1				2.00						0		
Xyienei6.12mg/Kg16.00<0.0061310257 - 134.2120Percent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.MSMSDSpikeMSMSDRec.SurrogateResultUnitsDilAmountRec.Rec.LimitTifluorotoluene (TFT)2.062.02mg/Kg12989671 - 1674-Bromofluorobenzene (4-BFB)1.961.93mg/Kg12989671 - 167Matrix Spike (MS-1)Spiked Sample: 286946QC Batch:87964Date Analyzed:2012-01-23Analyzed By:DAPrep Batch:74695QC Preparation:2012-01-20Prepared By:DAParamFCResultUnitsDilAmountResultRec.LimitGRO118.1mg/Kg120.02.847661.8 - 11Percent recovery is based on the spike result.RPD is based on the spike mesult.RPD is based on the spike mesult.RPD LimitGRO119.2mg/Kg120.02.847661.8 - 114ParamFCResultUnitsDilAmountRec.LimitGRO119.2mg/Kg120.02.847661.8 - 114ParamFCResultUnitsDilAmountRec.LimitGRO119.2 <td></td> <td></td> <td>1</td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>			1			-									
Percent recovery is based on the spike result.SurrogateMSMSDSpikeMSMSDSpikeMSMSDSpikeMSMSDSpikeMSMSDSpikeMSMSDSpikeMSDSpikeMSDSpikeMATIXRec.LimitTifluorotoluene (TFT)2.062.02mg/Kg12989671 - 1414-Bromofluorobenzene (4-BFB)1.961.93mg/Kg12989671 - 1414-Bromofluorobenzene (4-BFB)1.961.9112989671 - 167Matrix Spike (MS-1)Spike Sample: 286946QC Batch: 87964Date Analyzed: 2012-01-23Analyzed By: DAParamFCResultUnitsDiMSSpikeMatrixRec.RPIParamFC <td colspa<="" td=""><td>•</td><td></td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td></td>	<td>•</td> <td></td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td>	•		1										-	
SurrogateMS ResultMSD ResultSpike ResultMS DilMSD AmountRec. Rec.Limit 	Xylene		1	6.12	mg/K	Kg 1	6.00	<0.0	00613	102	57 -	134.2	1	20	
SurrogateResultResultUnitsDil.AmountRec.Rec.LimitTrifluorotoluene (TFT)2.062.02 $mg/Kg$ 1210310179.4 - 141.4-Bromofluorobenzene (4-BFB)1.961.93 $mg/Kg$ 12989671 - 167Matrix Spike (MS-1)Spiked Sample: 286946QC Batch:87964Date Analyzed:2012-01-23Analyzed By: DAPrep Batch:74695QC Preparation:2012-01-20Prepared By: DAParamFCResultUnitsDil.AmountResultRec.Image: Result generation:18.1 $mg/Kg$ 120.02.847661.8 - 11Percent recovery is based on the spike result.RPDis based on the spike and spike duplicate result.MSDSpikeMatrixRec.RPDLimitGRO119.2 $mg/Kg$ 120.02.848261.8 - 11ParamFCResultDil.AmountResultRec.RPDGRO119.2 $mg/Kg$ 120.02.848261.8 - 114620Percent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.ExecLimitGRO202.848261.8 - 114620Percent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.ExecLimitGRO202.94161.4 </td <td>Percent recovery is based on the</td> <td>spik</td> <td>e res</td> <td>ult. RPI</td> <td>D is ba</td> <td>ased on</td> <td>the spike ar</td> <td>ıd spil</td> <td>œ dupli</td> <td>icate</td> <td>result.</td> <td></td> <td></td> <td></td>	Percent recovery is based on the	spik	e res	ult. RPI	D is ba	ased on	the spike ar	ıd spil	œ dupli	icate	result.				
Trifluorotoluene (TFT)2.062.02 $mg/Kg$ 1210310179.4 - 141.4-Bromofluorobenzene (4-BFB)1.961.93 $mg/Kg$ 12989671 - 167Matrix Spike (MS-1)Spiked Sample: 286946QC Batch:87964Date Analyzed:2012-01-23Analyzed By:DAPrep Batch:74695QC Preparation:2012-01-20Prepared By:DAParamFCResultUnitsDil.AmountResultRec.IGRO118.1 $mg/Kg$ 120.02.847661.8 - 11Percent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.MSDSpikeMatrixRec.RPDParamFCResultUnitsDil.AmountResultRPDLimitGRO,19.2 $mg/Kg$ 120.02.848261.8 - 114620Percent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.MSDRec.Rec.Rec.SurrogateMSMSDSpikeMSMSDRec.Rec.LimitTrifluorotoluene (TFT)2.112.18mg/Kg12989737.3 - 162Matrix Spike (MS-1)Spiked Sample:286964202-01-23Analyzed By:DAQC Batch:8799Date Analyzed:2012-01-23Analyzed By:DA <td></td> <td></td> <td></td> <td>Μ</td> <td>IS</td> <td>MSD</td> <td></td> <td></td> <td>Spi</td> <td>ke</td> <td>MS</td> <td>MSD</td> <td>R</td> <td>lec.</td>				Μ	IS	MSD			Spi	ke	MS	MSD	R	lec.	
4-Bromofluorobenzene (4-BFB)       1.96       1.93       mg/Kg       1       2       98       96       71 - 167         Matrix Spike (MS-1)       Spiked Sample: 286946         QC Batch:       87964       Date Analyzed: 2012-01-23       Analyzed By: DA         Prep Batch:       74695       QC Preparation: 2012-01-20       Prepared By: DA         Param       F       C       Result       Units       Dil.       Amount       Result       Rec.       Limit         GRO       1       18.1       mg/Kg       1       20.0       2.84       76       61.8 - 11         Param       F       C       Result       Units       Dil.       Amount       Result       Rec.       RPI         Percent recovery is based on the spike result.       RPD is based on the spike and spike duplicate result.       RPD       Limit         GRO       1       19.2       mg/Kg       1       20.0       2.84       82       61.8 - 114       20         Percent recovery is based on the spike result.       RPD is based on the spike and spike duplicate result.       RPD       Limit         GRO       1       19.2       mg/Kg       1       20.0       2.84       82       61.8 - 114       6	Surrogate			Rea	sult	Result	Units	Dil.	Amo	unt	Rec.	Rec.	$\mathbf{L}$ i	mit	
Matrix Spike (MS-1)       Spiked Sample: 286946         QC Batch:       87964       Date Analyzed:       2012-01-23       Analyzed By:       DA         Prep Batch:       74695       QC Preparation:       2012-01-20       Prepared By:       DA         Param       F       C       Result       Units       Dil.       Amount       Result       Rec.       Limit         GRO       1       18.1       mg/Kg       1       20.0       2.84       76       61.8 - 11.         Percent recovery is based on the spike result.       RPD is based on the spike and spike duplicate result.       RPD       Limit         Param       F       C       Result       Units       Dil.       Amount       Rec.       RPI         Param       F       C       Result       Units       Dil.       Amount       Rec.       Imp       Limit         GRO       1       19.2       mg/Kg       1       20.0       2.84       82       61.8 - 114       6       20         Percent recovery is based on the spike result.       RPD is based on the spike and spike duplicate result.       Surrogate       MS       MSD       Spike       MS       MSD       Rec.       Limit         Surrogate	Trifluorotoluene (TFT)			2.	06	2.02	mg/Kg	1	2		103	101	79.4	- 141.1	
QC Batch:87964 Prep Batch:Date Analyzed:2012-01-23 QC Preparation:Analyzed By:DA Prepared By:DA Prepared By:DAParamFCResultUnitsDil.AmountResultRec.LimitGRO118.1mg/Kg120.02.847661.8 - 11.Percent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.Rec.RPIParamFCResultUnitsDil.AmountResultRPDLimitGROi19.2mg/Kg120.02.848261.8 - 11.4620ParamFCResultUnitsDil.AmountResultRec.RPDLimitGROi19.2mg/Kg120.02.848261.8 - 11.4620Percent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.SurrogateMSMSDSpikeMSMSDRec.SurrogateResultResultUnitsDil.AmountRec.LimitTrifluorobluene (TFT)2.112.18mg/Kg12989737.3 - 162Matrix Spike (MS-1)Spiked Sample:286964202989737.3 - 162Matrix Spike (MS-1)Spiked Sample:2869642012-01-23Analyzed By:DA	4-Bromofluorobenzene (4-BFB)			1.	96	1.93	mg/Kg	1	2		98	96	71	- 167	
GRO       1       18.1       mg/Kg       1       20.0       2.84       76       61.8 - 11.         Percent recovery is based on the spike result.       MSD       Spike       Matrix       Rec.       RPI         Param       F       C       Result       Units       Dil.       Amount       Result       RPD       Limit         GRO       1       19.2       mg/Kg       1       20.0       2.84       82       61.8 - 11.4       6       20         Param       F       C       Result       Units       Dil.       Amount       Result       Rec.       RPD       Limit         GRO       1       19.2       mg/Kg       1       20.0       2.84       82       61.8 - 114       6       20         Percent recovery is based on the spike result.       RPD is based on the spike and spike duplicate result.       MS       MSD       Rec.         Surrogate       MS       MSD       Rec.       Rec.       Limit         Trifluorotoluene (TFT)       2.11       2.18       mg/Kg       1       2       98       97       37.3 - 162         Matrix Spike (MS-1)       Spiked Sample:       286964       QC       Bate Analyzed:       2012-01-23<	Frep Batch: 74695			QC	Prepa	aration:	2012-01-20	U				Prepa	red By:	DA	
Or of the spike result. RPD is based on the spike and spike duplicate result.         Percent recovery is based on the spike result.       MSD       Spike       Matrix       Rec.       RPD       Limit       Rec.       Rec.       RPD       Limit         GRO       1       19.2       mg/Kg       1       20.0       2.84       82       61.8 - 114       6       20         Percent recovery is based on the spike result.       RPD is based on the spike and spike duplicate result.       MS       MSD       Rec.       Limit         Surrogate       Result       Result       Units       Dil.       Amount       Rec.       Rec.       Limit         Trifluorotoluene (TFT)       2.11       2.18       mg/Kg       1       2       98       97       37.3 - 162         Ma	Param		F	C		- TT	aita Dil	,	~			Poo			
Param       F       C       Result       Units       Dil.       Amount       Result       Rec.       Limit       RPD       Limit         GRO       1       19.2       mg/Kg       1       20.0       2.84       82       61.8 - 114       6       20         Percent recovery is based on the spike result.       RPD is based on the spike and spike duplicate result.       MS       MSD       Spike       MS       MSD       Rec.         Surrogate       Result       Result       Units       Dil.       Amount       Rec.       Rec.         Surrogate       Result       Result       Units       Dil.       Amount       Rec.       Rec.         Surrogate       Result       Result       Units       Dil.       Amount       Rec.       Rec.         Matrix Spike (MS-1)       2.11       2.18       mg/Kg       1       2       98       97       37.3 - 162         Matrix Spike (MS-1)       Spiked Sample: 286964       Materia       2012-01-23       Analyzed By:       DA			F		Result			. 4	Amount		Result		L	imit	
GRO         1         19.2         mg/Kg         1         20.0         2.84         82         61.8 - 114         6         20           Percent recovery is based on the spike result.         RPD is based on the spike and spike duplicate result.         MS         MSD         Spike         MS         MSD         Rec.           Surrogate         Result         Result         Units         Dil.         Amount         Rec.         Limit           Trifluorotoluene (TFT)         2.11         2.18         mg/Kg         1         2         106         109         29.4 - 161.7           4-Bromofluorobenzene (4-BFB)         1.96         1.94         mg/Kg         1         2         98         97         37.3 - 162           Matrix Spike (MS-1)         Spiked Sample: 286964         202         2012-01-23         Analyzed By: DA	GRO	spike		1	Result 18.1	mg	/Kg 1		Amount 20.0	. ]	Result 2.84		L	imit	
Percent recovery is based on the spike result.         MS       MSD       Spike       MS       MSD       Rec.         Surrogate       Result       Result       Units       Dil.       Amount       Rec.       Rec.         Trifluorotoluene (TFT)       2.11       2.18       mg/Kg       1       2       106       109       29.4 - 161.'         4-Bromofluorobenzene (4-BFB)       1.96       1.94       mg/Kg       1       2       98       97       37.3 - 162         Matrix Spike (MS-1)       Spiked Sample:       286964       QC Batch:       87979       Date Analyzed:       2012-01-23       Analyzed By:       DA	GRO Percent recovery is based on the	spike	e res	ı ult. RPI	Result 18.1	mg	/Kg 1 the spike ar Spike	ıd spik e M	Amount 20.0 ce dupli fatrix	. ]	Result 2.84 result. F	76 lec.	L 61.4	imit 8 - 114 RPD	
MSMSDSpikeMSMSDRec.SurrogateResultResultUnitsDil.AmountRec.Rec.LimitTrifluorotoluene (TFT)2.112.18mg/Kg1210610929.4 - 161.'4-Bromofluorobenzene (4-BFB)1.961.94mg/Kg12989737.3 - 162Matrix Spike (MS-1)Spiked Sample:286964Z012-01-23Analyzed By:DA	GRO Percent recovery is based on the Param		e res	ı ult. RPI MSD Result	Result 18.1 D is ba Un	mg used on nits D	/Kg 1 the spike ar Spike Dil. Amou	ıd spik e M nt F	Amount 20.0 ce dupli Aatrix Result	cate Rec	Result 2.84 result. F . Li	76 Rec. imit	I 61.3 RPD	imit 8 - 114 RPD Limit	
Surrogate       Result       Result       Units       Dil.       Amount       Rec.       Rec.       Limit         Trifluorotoluene (TFT)       2.11       2.18       mg/Kg       1       2       106       109       29.4 - 161.'         4-Bromofluorobenzene (4-BFB)       1.96       1.94       mg/Kg       1       2       98       97       37.3 - 162         Matrix Spike (MS-1)       Spiked Sample:       286964       QC Batch:       87979       Date Analyzed:       2012-01-23       Analyzed By:       DA	GRO Percent recovery is based on the Param		e res C	ı ult. RPI MSD Result	Result 18.1 D is ba Un	mg used on nits D	/Kg 1 the spike ar Spike Dil. Amou	ıd spik e M nt F	Amount 20.0 ce dupli Aatrix Result	cate Rec	Result 2.84 result. F . Li	76 Rec. imit	I 61.3 RPD	imit 8 - 114 RPD Limit	
Trifluorotoluene (TFT)       2.11       2.18       mg/Kg       1       2       106       109       29.4 - 161.'         4-Bromofluorobenzene (4-BFB)       1.96       1.94       mg/Kg       1       2       98       97       37.3 - 162         Matrix Spike (MS-1)       Spiked Sample: 286964         QC Batch:       87979       Date Analyzed: 2012-01-23       Analyzed By: DA	GRO Percent recovery is based on the Param GRO	F	e res C	ı ult. RPI MSD Result 19.2	Result 18.1 D is ba Un mg/	mg nsed on nits D /Kg	/Kg 1 the spike an Spike Dil. Amou 1 20.0	nd spil e M nt F	Amount 20.0 æ dupli Aatrix Result 2.84	icate Rec 82	Result 2.84 result. F . Li 61.8	76 Rec. imit	I 61.3 RPD	imit 8 - 114 RPD Limit	
4-Bromofluorobenzene (4-BFB)       1.96       1.94       mg/Kg       1       2       98       97       37.3 - 162         Matrix Spike (MS-1)       Spiked Sample: 286964         QC Batch:       87979       Date Analyzed: 2012-01-23       Analyzed By: DA	GRO Percent recovery is based on the Param GRO Percent recovery is based on the	F	e res C	ı ult. RPI MSD Result 19.2 ult. RPI	Result 18.1 D is ba Un mg/ D is ba	mg nits D /Kg nits O SD	/Kg 1 the spike an Spike Dil. Amou 1 20.0 the spike an	nd spil e M nt F nd spil	Amount 20.0 ce dupli Aatrix Cesult 2.84 ce dupli Spil	cate Rec 82 cate ke	Result 2.84 result. . Li 61.8 result. MS	76 Rec. imit - 114 MSD	I 61.3 RPD 6 R	imit 8 - 114 RPD Limit 20 ec.	
Matrix Spike (MS-1) Spiked Sample: 286964 QC Batch: 87979 Date Analyzed: 2012-01-23 Analyzed By: DA	GRO Percent recovery is based on the Param GRO Percent recovery is based on the Surrogate	F	e res C	1 ult. RPI MSD Result 19.2 ult. RPI M Res	Result 18.1 D is ba Un mg/ D is ba	mg nits D /Kg nsed on MSD Result	/Kg 1 the spike an Spike Dil. Amou 1 20.0 the spike an Units	nd spik e M nt F nd spik Dil.	Amount 20.0 ce dupli Aatrix Result 2.84 ce dupli Spil Amo	Rec 82 cate ke unt	Result 2.84 result. F . Li 61.8 result. MS Rec.	76 Rec. imit - 114 MSD Rec.	L 61. RPD 6 R Li	imit 8 - 114 RPD Limit 20 ec. mit	
QC Batch: 87979 Date Analyzed: 2012-01-23 Analyzed By: DA	GRO Percent recovery is based on the Param GRO Percent recovery is based on the Surrogate Trifluorotoluene (TFT)	F	e res C	1 ult. RPI MSD Result 19.2 ult. RPI M Res 2.1	Result 18.1 D is ba Un mg/ D is ba S sult 11	mg ased on hits D /Kg ased on Besult 2.18	/Kg 1 the spike an Spike Dil. Amou 1 20.0 the spike an Units mg/Kg	nd spik e M nt F nd spik Dil. 1	Amount 20.0 ce dupli Aatrix Result 2.84 ce dupli Spil Amo 2	Rec 82 cate ke unt	Result 2.84 result. F . Li 61.8 result. MS Rec. 106	76 Rec. imit - 114 MSD Rec. 109	L 61.4 RPD 6 R Li 29.4	imit 8 - 114 RPD Limit 20 ec. mit - 161.7	
QC Batch: 87979 Date Analyzed: 2012-01-23 Analyzed By:	GRO Percent recovery is based on the Param GRO	F	e res C	ı ult. RPI MSD Result 19.2	Result 18.1 D is ba Un mg/	mg nsed on nits D /Kg	/Kg 1 the spike an Spike Dil. Amou 1 20.0	nd spil e M nt F	Amount 20.0 æ dupli Aatrix Result 2.84	icate Rec 82	Result 2.84 result. F . Li 61.8	76 Rec. imit	I 61.3 RPD	/in 8 - F	
•	GRO Percent recovery is based on the Param GRO Percent recovery is based on the Surrogate Trifluorotoluene (TFT)	F	e res C	1 ult. RPI MSD Result 19.2 ult. RPI M Res 2.1	Result 18.1 D is ba Un mg/ D is ba S sult 11	mg ased on hits D /Kg ased on Besult 2.18	/Kg 1 the spike an Spike Dil. Amou 1 20.0 the spike an Units mg/Kg	nd spik e M nt F nd spik Dil. 1	Amount 20.0 ce dupli Aatrix Result 2.84 ce dupli Spil Amo 2	Rec 82 cate ke unt	Result 2.84 result. F . Li 61.8 result. MS Rec. 106	76 Rec. imit - 114 MSD Rec. 109	L 61.4 RPD 6 R Li 29.4	imit 8 - 11 RP Lim 20 ec. mit - 161	
Prep Batch: 74696 QC Preparation: 2012-01-20 Prepared By: DA	GRO Percent recovery is based on the Param GRO Percent recovery is based on the Surrogate Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)	F	C 1 e res	1 ult. RPI MSD Result 19.2 ult. RPI M Res 2. 1.5	Result 18.1 D is ba Un mg/ D is ba S sult 11 96	mg ased on hits D /Kg ased on Besult 2.18	/Kg 1 the spike an Spike Dil. Amou 1 20.0 the spike an Units mg/Kg	nd spik e M nt F nd spik Dil. 1	Amount 20.0 ce dupli Aatrix Result 2.84 ce dupli Spil Amo 2	Rec 82 cate ke unt	Result 2.84 result. F . Li 61.8 result. MS Rec. 106	76 Rec. imit - 114 MSD Rec. 109	L 61.4 RPD 6 R Li 29.4	Aimit 8 - 114 RPD Limi 20 ec. mit - 161.7	
	GRO Percent recovery is based on the Param GRO Percent recovery is based on the Surrogate Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 87979	F	C 1 e res	1 ult. RPI MSD Result 19.2 ult. RPI M Res 2. 1.9 e: 286964 Dat	Result 18.1 D is ba Un mg/ D is ba S sult 11 96 4 e Anal	mg ased on f hits I /Kg ased on f MSD Result 2.18 1.94	/Kg 1 the spike an Spike Dil. Amou 1 20.0 the spike an Units mg/Kg mg/Kg 2012-01-23	nd spik e M nt F nd spik Dil. 1 1	Amount 20.0 ce dupli Aatrix Result 2.84 ce dupli Spil Amo 2	Rec 82 cate ke unt	Result 2.84 result. F . Li 61.8 result. MS Rec. 106	76 Rec. imit - 114 MSD Rec. 109 97 Analy	L 61.4 RPD 6 R Li 29.4 37.3 zed By:	imit 8 - 114 RPD Limit 20 ec. mit - 161.7 - 162	

			$\mathbf{MS}$			Spike	Matrix		Rec.
Param	$\mathbf{F}$	С	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	1.97	mg/Kg	1	2.00	< 0.0118	98	69.4 - 123.6

continued ...

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114-6400857	COG/Moose Fed. #23 TB	Eddy Co., NM

matrix spikes continued ...

maira spices continueu			MS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Toluene		1	1.92	mg/Kg	1	2.00	< 0.00600	96	75.4 - 134.3
Ethylbenzene		1	1.96	mg/Kg	1	2.00	< 0.00850	98	58.8 - 133.7
Xylene		1	5.84	mg/Kg	1	6.00	< 0.00613	97	57 - 134.2

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

			MSD			Spike	Matrix		Rec.		RPD
Param	F	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	2.02	mg/Kg	1	2.00	< 0.0118	101	69.4 - 123.6	2	20
Toluene		1	1.96	mg/Kg	1	2.00	< 0.00600	98	75.4 - 134.3	2	20
Ethylbenzene		1	1.99	mg/Kg	1	2.00	< 0.00850	100	58.8 - 133.7	2	20
Xylene		1	5.88	mg/Kg	_1	6.00	< 0.00613	98	57 - 134.2	1	20

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

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	2.03	2.03	mg/Kg	1	2	102	102	79.4 - 141.1
4-Bromofluorobenzene (4-BFB)	2.01	1.93	mg/Kg	1	2	100	96	71 - 167

#### Matrix Spike (MS-1) Spiked Sample: 286952

QC Batch:	87980	Date Analyzed:	2012-01-23	Analyzed By:	DA
Prep Batch:	74696	QC Preparation:	2012-01-20	Prepared By:	DA

			MS			Spike	Matrix		Rec.
Param	F	С	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		1	19.2	mg/Kg	1	20.0	3.64	78	61.8 - 114

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

			MSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO		1	20.4	mg/Kg	1	20.0	3.64	84	61.8 - 114	6	20
Percent recovery is based on the s	spike	e rest	ılt. RPD	is based o	on the	spike and s	pike dupl	icate re	sult.		

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	$\mathbf{Result}$	$\mathbf{Result}$	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	2.15	2.18	mg/Kg	1	2	108	109	29.4 - 161.7
4-Bromofluorobenzene (4-BFB)	1.99	2.02	mg/Kg	1.	2	100	101	37.3 - 162

QC Batch: Prep Batch: 74757Date Analyzed: QC Preparation: 2012-01-242012-01-24Analyzed By: to Prepared By: to Prepared By: to Prepared By: toParamFCResult 2.10mg/Kg12.00<0.0118105 $69.4 - 123.6$ Benzenei2.10mg/Kg12.00<0.0118105 $69.4 - 123.6$ Dutenei2.02mg/Kg12.00<0.00600101 $75.4 - 134.2$ Ethylbenzenei2.06mg/Kg16.00<0.00613103 $57 - 134.2$ Percent recovery is based on the spike result.RPDSpikeMatrixRec.RPDParamFCResultUnitsDil.AmountResultRec.RPDParamFCResultUnitsDil.AmountResultRec.RPDDate Analyzed2.06mg/Kg12.00<0.00613103 $57 - 134.2$ 220Chylenei1.97mg/Kg12.00<0.00613100 $57 - 134.2$ 220SurgateMSDmg/Kg12.00<0.00613100 $57 - 134.2$ 320Valenei5.98mg/Kg12.00<0.00613100 $57 - 134.2$ 320Percent recovery is based on the spike result.RPDis based on the spike mg/Kg12102106 $79.4 - 141.1$ SurrogateMSMSDSpike	Report Date: January 26 114-6400857		Work Order: 12012003 COG/Moose Fed. #23 TB						Page Number: 35 of 43 Eddy Co., NM				
Prep Batch:74757QC Preparation:2012-01-24Prepared By: toParamFCResultUnitsDil.AmountResultRec.LimitBenzene12.10mg/Kg12.00<0.011810569.4-123.6Toluene12.02mg/Kg12.00<0.0060010175.4-134.3Ethylbenzene12.06mg/Kg12.00<0.0060110358.8<-133.7Xylene16.16mg/Kg12.00<0.0061310358.8<-133.7Percent recovery is based on the spike result.RPDSpikeMatrixRec.RPDBenzene12.06mg/Kg12.00<0.006009875.4134.3220Toluene11.97mg/Kg12.00<0.006009875.4134.3220Toluene11.97mg/Kg12.00<0.0061310057.7134.2320Percent recovery is based on the spike result.RPDbased on the spike and spike duplicate result.SurrogateResultResultUnitsDil.AmountRec.LimitThifloorotoluene (TFT)2.032.01mg/Kg1210210679.4-141.14-Bromofluorobenzene (4-BFB)2.032.04mg/Kg1210210679.4-141.14-Bromofluorobenzene (4-BFB)2.03	Matrix Spike (MS-1)	Spiked S	ampl	e: 2871	12								
MS         Spike         Matrix         Rec.           Param         F         C         Result         Units         Dil.         Amount         Result         Limit           Benzene         1         2.10         mg/Kg         1         2.00         <0.0118         105         694-123.6           Toluene         1         2.02         mg/Kg         1         2.00         <0.00600         101         75.4 - 134.2           Ethylbenzene         1         2.06         mg/Kg         1         2.00         <0.00613         103         58.8 - 133.7           Xylene         1         6.16         mg/Kg         1         6.00         <0.00613         103         57.4 - 134.2           Percent recovery is based on the spike result.         RPD         is based on the spike may/Kg         1         6.00         <0.00613         103         5.8 - 133.7           Param         F         C         Result         Units         Dil.         Amount         Result         Rec.         RPD         Limit           Benzene         1         2.06         mg/Kg         1         2.00         <0.00850         100         5.8 - 133.7         2         20	•			-								-	-
Param         F         C         Result         Units         Dil.         Amount         Result         Rec.         Limit           Benzene         1         2.00         mg/Kg         1         2.00         <0.0118	Prep Batch: 74757			Q	C Prepar	ation:	2012-01-2	4			Pre	bared B	y: tc
Benzene         :         2.10         mg/Kg         1         2.00         <0.0118         105         69.4 - 123.6           Toluene         :         2.02         mg/Kg         1         2.00         <0.00600					MS			Spike	e N	latrix		R	lec.
Toluene       i       2.02 $mg/Kg$ 1       2.00       <0.00600       101       75.4 - 134.3         Ethylbenzene       i       2.06 $mg/Kg$ 1       2.00       <0.00850	Param		F	$\mathbf{C}$ ]	Result	Units	Dil.		nt F	lesult	Rec.	Li	mit
Ethylbenzenei $2.06$ $mg/Kg$ 1 $2.00$ $< 0.00850$ $103$ $58.8 - 133.7$ Xylenei $6.16$ $mg/Kg$ 1 $6.00$ $< 0.00613$ $103$ $57 - 134.2$ Percent recovery is based on the spikeresult.RPDis based on the spike and spike duplicate result.ParamFCResultUnitsDil.AmountRec.RPDBenzenei $2.06$ $mg/Kg$ $12.00$ $< 0.00613$ $103$ $57 - 134.2$ Toluenei $2.06$ $mg/Kg$ $12.00$ $< 0.0118$ $103$ $69.4 - 123.6$ $22.00$ Toluenei $2.06$ $mg/Kg$ $12.00$ $< 0.00600$ $98$ $75.4 - 134.3$ $22.00$ Toluenei $2.01$ $mg/Kg$ $12.00$ $< 0.00613$ $100$ $57 - 134.2$ $32.00$ Percent recovery is based on the spikeresult.RPDis based on the spike and spike duplicate result.SurrogateMSMSDSpikeMSMSDRec.SurrogateResultResultUnitsDil.AmountRec.Rec.LimitLinit $2.03$ $2.04$ $mg/Kg$ $1$ $2$ $102$ $106$ $79.4 - 141.3$ 4-Bromofluorobenzene (4-BFB) $2.03$ $2.04$ $mg/Kg$ $1$ $2$ $102$ $106$ $79.4 - 123.6$ QC Batch: $80883$ Date Analyzed: $2012-01-25$ Analyzed By: ARPrepared By:ARQC Preparation: $2012-0$	Benzene			1				2.00			105	69.4	- 123.6
Xylenei $6.16$ mg/Kg1 $6.00$ $<0.00613$ $103$ $57 - 134.2$ Percent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.MSDSpikeMatrixRec.RPDParamFCResultUnitsDil.AmountResultRec.LimitRPDBenzenei2.06mg/Kg12.00 $<0.0118$ 103 $69.4 + 123.6$ 220Toluenei1.97mg/Kg12.00 $<0.00600$ 98 $75.4 + 134.3$ 220Ethylbenzenei2.01mg/Kg12.00 $<0.00613$ 100 $57.4 + 134.3$ 220Yelenei5.98mg/Kg16.00 $<0.00613$ 100 $57.4 + 134.3$ 220Yelenei5.98mg/Kg16.00 $<0.00613$ 100 $57.4 + 134.3$ 220Yelenei5.98mg/Kg16.00 $<0.00613$ 100 $57.4 + 134.3$ 220Percent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.Size320Percent recovery is based on the spike result.ResultResultUnitsDil.AmountRec.LimitTrifluorotoluene (TFT)2.032.04mg/Kg1210210271 - 167Matrix Spike (MS-1)Spiked Sample:286954QCPreparation:2012-01-25	Toluene			1		mg/Kg	ç 1	2.00	<0	.00600	101	75.4	- 134.3
Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.ParamFCResultUnitsDil.AmountResultRec.RPDLimitBenzenei2.06mg/Kg12.00<0.0118				1				2.00					
ParamFCResultUnitsDil.AmountResultRec.RPDLimitBenzenei2.06mg/Kg12.00<0.0118	Xylene			1	6.16	_mg/Kg	<u>, 1</u>	6.00	<(	0.00613	103	57 -	134.2
ParamFCResultUnitsDil.AmountResultRec.LimitRPDLimitBenzene12.06mg/Kg12.00<0.0118	Percent recovery is based	on the spik	te res	ult. RF	D is base	ed on th	e spike an	d spike o	duplicate	e result.			
Benzene       1       2.06       mg/Kg       1       2.00       <0.0118				MSD			Spike	Matri	x	]	Rec.		RPD
Toluene       i       1.97       mg/Kg       1       2.00 $< 0.00600$ 98       75.4 - 134.3       2       20         Ethylbenzene       i       2.01       mg/Kg       1       2.00 $< 0.00600$ 98       75.4 - 134.3       2       20         Xylene       i       5.98       mg/Kg       1       6.00 $< 0.00613$ 100       57.4 - 134.2       3       20         Percent recovery is based on the spike result.       RPD is based on the spike and spike duplicate result.       MS       MSD       Rec.       Limit         Surrogate       Result       Result       Units       Dil.       Amount       Rec.       Rec.       Limit         Trifluorotoluene (TFT)       2.03       2.04       mg/Kg       1       2       102       106       79.4 - 141.1         4-Bromofluorobenzene (4-BFB)       2.03       2.04       mg/Kg       1       2       102       102       102       71 - 167         Matrix Spike (MS-1)       Spiked Sample:       286954       2012-01-25       Analyzed By: AR       Prepared By: AR         Prep Batch:       74739       QC Preparation:       2012-01-25       Analyzed By: AR       Rec.         Param <td>Param</td> <td>F</td> <td>C</td> <td></td> <td></td> <td></td> <td>Amount</td> <td></td> <td></td> <td>c. L</td> <td>/imit</td> <td>RPD</td> <td>Limit</td>	Param	F	C				Amount			c. L	/imit	RPD	Limit
Ethylbenzene1 $2.01 \text{ mg/Kg}$ $1$ $2.00 < <0.00850$ $100$ $58.8 - 133.7$ $2$ $20$ Xylene1 $5.98 \text{ mg/Kg}$ 1 $6.00 < <0.00613$ $100$ $57 - 134.2$ $3$ $20$ Percent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.SurrogateMSMSDSpikeMSMSDRec.ResultResultUnitsDil.AmountRec.Rec.LimitTrifluorotoluene (TFT) $2.03$ $2.11 \text{ mg/Kg}$ 1 $2$ $102$ $106$ $79.4 - 141.1$ 4-Bromofluorobenzene (4-BFB) $2.03$ $2.04 \text{ mg/Kg}$ 1 $2$ $102$ $102$ $71 - 167$ Matrix Spike (MS-1)Spiked Sample: $286954$ $2012-01-25$ Analyzed By:ARPrep Batch:74739QC Preparation: $2012-01-25$ Analyzed By:ARParamFCResultUnitsDil.AmountResultRec.LimitUnitsDil.AmountResultRec.LimitChloride10300 mg/Kg10010000 $<385$ 101 $79.4 - 120.6$ Percent recovery is based on the spike result.RPDSpikeMatrixRec.RPD			1										
Xylene1 $5.98$ mg/Kg1 $6.00$ $< 0.00613$ $100$ $57 - 134.2$ 3 $20$ Percent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.MSMSDRec.SurrogateResultResultUnitsDil.AmountRec.LimitTrifluorotoluene (TFT) $2.03$ $2.11$ mg/Kg1 $2$ $102$ $106$ $79.4 - 141.1$ 4-Bromofluorobenzene (4-BFB) $2.03$ $2.04$ mg/Kg1 $2$ $102$ $102$ $71 - 167$ Matrix Spike (MS-1)Spiked Sample: 286954QC Batch: $88083$ Date Analyzed: $2012-01-25$ Analyzed By:ARPrep Batch: $74739$ QC Preparation: $2012-01-24$ Prepared By:ARParamFCResultUnitsDil.AmountResultRec.LimitChloride10300mg/Kg10010000 $<385$ 101 $79.4 - 120.6$ Precent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.MSSpikeMatrixRec.ResultUnitsDil.AmountResultRec.MSSpikeMatrixRec.LimitChoride10300mg/Kg10010000 $<385$ 101 $79.4 - 120.6$ Precent recovery is based on the spike result.RPDSpike <td></td> <td></td> <td>1</td> <td></td>			1										
Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.         MS       MSD       Spike       MS       MSD       Rec.         Surrogate       Result       Result       Units       Dil.       Amount       Rec.       Limit         Trifluorotoluene (TFT)       2.03       2.11       mg/Kg       1       2       102       106       79.4 - 141.1         4-Bromofluorobenzene (4-BFB)       2.03       2.04       mg/Kg       1       2       102       102       71 - 167         Matrix Spike (MS-1)       Spiked Sample:       286954       QC       Prep Batch:       74739       Date Analyzed:       2012-01-25       Analyzed By:       AR         Perep Batch:       74739       QC Preparation:       2012-01-24       Prepared By:       AR         Param       F       C       Result       Units       Dil.       Amount       Result       Rec.       Limit         Chloride       10300       mg/Kg       100       10000       <385			1										
MS       MSD       Spike       MS       MSD       Rec.         Surrogate       Result       Result       Units       Dil.       Amount       Rec.       Limit         Trifluorotoluene (TFT)       2.03       2.11       mg/Kg       1       2       102       106       79.4 - 141.1         4-Bromofluorobenzene (4-BFB)       2.03       2.04       mg/Kg       1       2       102       102       71 - 167         Matrix Spike (MS-1)       Spiked Sample:       286954       2012-01-25       Analyzed By:       AR         QC Batch:       88083       Date Analyzed:       2012-01-25       Analyzed By:       AR         Prep Batch:       74739       QC Preparation:       2012-01-24       Prepared By:       AR         Param       F       C       Result       Units       Dil.       Amount       Result       Rec.         Chloride       10300       mg/Kg       100       10000       <385	Xylene		1	5.98	mg/Kg	1	6.00	<0.006	513 100	J 57	- 134.2	3	20
Surrogate       Result       Result       Units       Dil.       Amount       Rec.       Rec.       Limit         Trifluorotoluene (TFT)       2.03       2.11       mg/Kg       1       2       102       106       79.4 - 141.1         4-Bromofluorobenzene (4-BFB)       2.03       2.04       mg/Kg       1       2       102       102       71 - 167         Matrix Spike (MS-1)       Spiked Sample:       286954       QC Batch:       88083       Date Analyzed:       2012-01-25       Analyzed By:       AR         Prep Batch:       74739       QC Preparation:       2012-01-24       Prepared By:       AR         Param       F       C       Result       Units       Dil.       Amount       Result       Rec.       Limit         Chloride       10300       mg/Kg       100       10000       <385	Percent recovery is based	on the spik	e res	ult. RP	D is base	ed on th	e spike an	d spike o	duplicate	e result.			
Trifluorotoluene (TFT) $2.03$ $2.11$ $mg/Kg$ $1$ $2$ $102$ $106$ $79.4$ - $141.1$ $4$ -Bromofluorobenzene (4-BFB) $2.03$ $2.04$ $mg/Kg$ $1$ $2$ $102$ $102$ $71$ - $167$ Matrix Spike (MS-1)Spiked Sample: 286954QC Batch:88083Date Analyzed: $2012-01-25$ Analyzed By: ARPrep Batch:74739QC Preparation: $2012-01-24$ Prepared By: ARParamFCResultUnitsDil.AmountResultRec.Chloride10300mg/Kg10010000 $<385$ 101 $79.4$ - $120.6$ Percent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.RPD				1	MS N	ASD			Spike	MS	MSD	R	lec.
4-Bromofluorobenzene (4-BFB)       2.03       2.04       mg/Kg       1       2       102       102       71 - 167         Matrix Spike (MS-1)       Spiked Sample: 286954         QC Batch:       88083       Date Analyzed: 2012-01-25       Analyzed By: AR         Prep Batch:       74739       QC Preparation: 2012-01-24       Prepared By: AR         Param       F       C       Result       Units       Dil.       Amount       Result       Rec.         Chloride       10300       mg/Kg       100       10000       <385	Surrogate			Re	esult R	esult	Units	Dil. A	Amount	Rec.	Rec.	Li	mit
Matrix Spike (MS-1)       Spiked Sample: 286954         QC Batch:       88083       Date Analyzed: 2012-01-25       Analyzed By: AR         Prep Batch:       74739       QC Preparation: 2012-01-24       Prepared By: AR         Param       F       C       Result       Units       Dil.       Amount       Result       Rec.         Chloride       10300       mg/Kg       100       10000       <385	Trifluorotoluene (TFT)			2	.03 2	2.11	mg/Kg	1	2	102	106	79.4	- 141.1
QC Batch:       88083       Date Analyzed:       2012-01-25       Analyzed By:       AR         Prep Batch:       74739       QC Preparation:       2012-01-24       Prepared By:       AR         Param       F       C       Result       Units       Dil.       Amount       Result       Rec.       Limit         Chloride       10300       mg/Kg       100       10000       <385	4-Bromofluorobenzene (4-	BFB)		2	.03 5	2.04	mg/Kg	1	2	102	102	71	- 167 _
MS     Spike     Matrix     Rec.       Param     F     C     Result     Units     Dil.     Amount     Result     Rec.     Limit       Chloride     10300     mg/Kg     100     10000     <385     101     79.4 - 120.6       Percent recovery is based on the spike result.     RPD is based on the spike and spike duplicate result.     MSD     Spike     Matrix     Rec.     RPD	Matrix Spike (MS-1) QC Batch: 88083	Spiked S	ample			zed: 2	2012-01-25	ō			Analy	zed By:	AR
Param       F       C       Result       Units       Dil.       Amount       Result       Rec.       Limit         Chloride       10300       mg/Kg       100       10000       <385	Prep Batch: 74739			Q	_	tion: 2	2012-01-24			<i></i>	Prepa	-	
Chloride10300 mg/Kg10010000<38510179.4 - 120.6Percent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.MSDSpikeMatrixRec.RPD	Param		F	С		Unite	s Dil	*			Rec		
Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result. MSD Spike Matrix Rec. RPD			<b>-</b>										
		on the spik	e res	ult. RP			<u> </u>						
Param F C Result Units Dil. Amount Result Rec. Limit RPD Limit				MSD			Spike	Matri	ix	F	lec.		RPD
	Param	$\mathbf{F}$	С	Result	t Units	Dil.	Amount	t Resu	lt Rec	. L	imit	RPD	Limit

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

mg/Kg

100

10000

<385

105

79.4 - 120.6

4

20

10700

Chloride

Report Date: January 26, 201 114-6400857	4-6400857					Work Order: 12012003 COG/Moose Fed. #23 TB						
Matrix Spike (MS-1) SI	oiked S	ampl	e: 28696	1								
QC Batch: 88084			Dat	e Analyze	ed: 2	012-01-26			Ar	alyzed By	r: AR	
Prep Batch: 74793			QC	Preparat	ion: 2	012-01-24			Pr	epared By	: AR	
				MS			Spike	M	atrix	]	Rec.	
Param		F	C J	Result	Units	Dil.	Amount	Re	esult Re	c. L	imit	
Chloride				11500	mg/Kg	100	10000	1	530 10	0 79.4	- 120.6	
Percent recovery is based on t	he spik	e res	ult. RPI	) is based	on the	spike and	spike dup	licate 1	result.			
			MSD			Spike	Matrix		Rec.		RPD	
Param	$\mathbf{F}$	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit	
Chloride			12000	mg/Kg	100	10000	1530	105	79.4 - 120	.6 4	20	

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

Report Date: January 26, 2012 114-6400857

# **Calibration Standards**

Standard (CCV-1)

QC Batch:	87961		Date	Analyzed:	2012-01-21		Analyzed By: tc		
				CCVs	CCVs	CCVs	Percent	_	
				True	Found	Percent	Recovery	Date	
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
DRO		1	mg/Kg	250	208	83	80 - 120	2012-01-21	

### Standard (CCV-2)

QC Batch:	87961			Date	Analyzed:	2012-01-21		Analyzed By: to		
					CCVs	CCVs	CCVs	Percent		
					True	Found	Percent	Recovery	Date	
Param	Fl	ag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
DRO			1	mg/Kg	250	211	84	80 - 120	2012-01-21	

#### Standard (CCV-3)

QC Batch:	87961			Date	e Analyzed:	2012-01-21		Analyzed By: tc		
					CCVs	CCVs	CCVs	Percent		
					True	Found	Percent	Recovery	Date	
Param	]	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
DRO			1	mg/Kg	250	204	82	80 - 120	2012-01-21	

### Standard (CCV-4)

True Found Percent Recovery Da	Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
CCVa CCVa CCVa Bereart			_				$\operatorname{CCVs}$ Percent		Date

Report Date: January 2 114-6400857	6, 2012			Vork Order: G/Moose F	Page Number: 38 of 43 Eddy Co., NM			
Standard (CCV-2)								
QC Batch: 87963			Date Ana	lyzed: 201	.2-01-23		Analy	zed By: DA
				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/Kg	0.100	0.102	102	80 - 120	2012-01-23
Toluene		1	mg/Kg	0.100	0.0977	98	80 - 120	2012-01-23
Ethylbenzene		1	mg/Kg	0.100	0.0893	89	80 - 120	2012-01-23
Xylene		1	mg/Kg	0.300	0.266	89	80 - 120	2012-01-23

## Standard (CCV-3)

QC Batch: 87963	QC Batch: 87963				Date Analyzed: 2012-01-23					
				CCVs	CCVs	CCVs	Percent			
				True	Found	Percent	Recovery	Date		
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed		
Benzene		1	mg/Kg	0.100	0.102	102	80 - 120	2012-01-23		
Toluene		1	mg/Kg	0.100	0.0972	97	80 - 120	2012-01-23		
Ethylbenzene		1	mg/Kg	0.100	0.0921	92	80 - 120	2012-01-23		
Xylene		1	mg/Kg	0.300	0.276	92	80 - 120	2012-01-23		

### Standard (CCV-2)

QC Batch:	87964		Date Analy		2012-01-23		Analy	zed By: DA
				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	$\mathbf{Flag}$	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	0.924	92	80 - 120	2012-01-23

## Standard (CCV-3)

QC Batch:	87964		Date	Analyzed:	2012-01-23		Analyzed By: DA		
				CCVs	CCVs	CCVs	Percent		
				True	Found	Percent	Recovery	Date	
Param	Flag	; Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
GRO		1	mg/Kg	1.00	1.18	118	80 - 120	2012-01-23	

Report Date: January 2 114-6400857	6, 2012			Vork Order: G/Moose F		Page Number: 39 of 43 Eddy Co., NM		
Standard (CCV-1)								
QC Batch: 87979			Date Ana	lyzed: 201	2-01-23		Analy	zed By: DA
				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/Kg	0.100	0.104	104	80 - 120	2012-01-23
Toluene		1	mg/Kg	0.100	0.100	100	80 - 120	2012-01-23
Ethylbenzene		1	mg/Kg	0.100	0.0958	96	80 - 120	2012-01-23
Xylene		1	mg/Kg	0.300	0.284	95	80 - 120	2012-01-23

## Standard (CCV-2)

QC Batch: 87979	QC Batch: 87979				Date Analyzed: 2012-01-23				
				CCVs	CCVs Found	CCVs Democrat	Percent	Data	
				True	Found	Percent	Recovery	Date	
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
Benzene		1	mg/Kg	0.100	0.105	105	80 - 120	2012-01-23	
Toluene		1	mg/Kg	0.100	0.101	101	80 - 120	2012-01-23	
Ethylbenzene		1	mg/Kg	0.100	0.0921	92	80 - 120	2012-01-23	
Xylene		1	mg/Kg	0.300	0.275	92	80 - 120	2012-01-23	

## Standard (CCV-3)

QC Batch: 87979			Date Ana	alyzed: 201	2-01-23		Analy	zed By: DA
				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery         Date           Limits         Analy           80 - 120         2012-0           80 - 120         2012-0           80 - 120         2012-0           80 - 120         2012-0	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/Kg	0.100	0.103	103	80 - 120	2012-01-23
Toluene		1	mg/Kg	0.100	0.0983	98	80 - 120	2012-01-23
Ethylbenzene		1	mg/Kg	0.100	0.0920	92	80 - 120	2012-01-23
Xylene		1	mg/Kg	0.300	0.274	91	80 - 120	2012-01-23

Standard (CCV-1)

QC Batch: 87980

Date Analyzed: 2012-01-23

Analyzed By: DA

Report Date: 114-6400857	January 26, 2	2012		Work Ord COG/Moose	Page Number: 40 of 43 Eddy Co., NM				
114-6400857	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	
GRO		1	mg/Kg	1.00	1.05	105	80 - 120	2012-01-23	

### Standard (CCV-2)

QC Batch:	87980			Date	Analyzed:	2012-01-23		Analy	zed By: DA
					CCVs	CCVs	CCVs	Percent	-
					True	Found	Percent	Recovery	Date
Param	F	lag	$\mathbf{Cert}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO			1	mg/Kg	1.00	0.886	89	80 - 120	2012-01-23

## Standard (CCV-3)

QC Batch:	87980			Date	Analyzed:	2012-01-23		Analy	zed By: DA
					CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
_	_		~	<b>.</b> .				•	
Param	1	Flag	$\operatorname{Cert}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO			1	mg/Kg	1.00	0.841	84	80 - 120	2012-01-23

### Standard (CCV-2)

QC Batch: 88045	h: 88045 Date Analyzed: 2012-01-24									
				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date		
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed		
Benzene		1	mg/Kg	0.100	0.100	100	80 - 120	2012-01-24		
Toluene		1	mg/Kg	0.100	0.0951	95	80 - 120	2012-01-24		
Ethylbenzene		1	mg/Kg	0.100	0.0867	87	80 - 120	2012-01-24		
Xylene		1	mg/Kg	0.300	0.258	86	80 - 120	2012-01-24		

### Standard (CCV-3)

QC Batch: 88045

Date Analyzed: 2012-01-24

Analyzed By: tc

Report Date: Janu 114-6400857	ary 26, 2012		-	Vork Order: G/Moose F	Page Number: 41 of 43 Eddy Co., NM					
Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed		
Benzene	<u>×</u>	1	mg/Kg	0.100	0.101	101	80 - 120	2012-01-24		
Toluene		1	mg/Kg	0.100	0.0941	94	80 - 120	2012-01-24		
Ethylbenzene		1	mg/Kg	0.100	0.0880	88	80 - 120	2012-01-24		
Xylene		1	mg/Kg	0.300	0.262	87	80 - 120	2012-01-24		

### Standard (ICV-1)

QC Batch:	88083			Date A	alyzed:	2012-01-25		Analy	zed By: AR
					ICVs	ICVs	ICVs	Percent	
				True	Found	Percent	Recovery	Date	
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride				mg/Kg	100	99.1	99	85 - 115	2012-01-25

## Standard (CCV-1)

QC Batch:	88083			Date A	nalyzed: 2	2012-01-25		Analy	zed By: AR
					CCVs	CCVs	CCVs	Percent	
					True	Found	Percent	Recovery	Date
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride				mg/Kg	100	101	101	85 - 115	2012-01-25

## Standard (ICV-1)

QC Batch:	88084			Date A	nalyzed:	2012-01-26		Analy	zed By: AR
					ICVs	ICVs	ICVs	Percent	
					True	Found	Percent	Recovery	Date
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride				mg/Kg	100	101	101	85 - 115	2012-01-26

## Standard (CCV-1)

QC Batch: 88084

Date Analyzed: 2012-01-26

Analyzed By: AR

Report Date: J. 114-6400857	anuary 26, 20	)12	(	Work Orde COG/Moose	Page Number: 42 of 43 Eddy Co., NM					
Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed		
Chloride			mg/Kg	100	99.4	99	85 - 115	2012-01-26		

.

Work Order: 12012003 COG/Moose Fed. #23 TB Page Number: 43 of 43 Eddy Co., NM

# Appendix

## **Report Definitions**

NameDefinitionMDLMethod Detection LimitMQLMinimum Quantitation LimitSDLSample Detection Limit

## Laboratory Certifications

	Certifying	Certification	Laboratory
С	Authority	Number	Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-11-3	Midland

## **Standard Flags**

- F Description
- B Analyte detected in the corresponding method blank above the method detection limit
- H Analyzed out of hold time
- J Estimated concentration
- Jb The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
- Je Estimated concentration exceeding calibration range.
- Qc Calibration check outside of laboratory limits.
- Qr RPD outside of laboratory limits
- Qs Spike recovery outside of laboratory limits.
- Qsr Surrogate recovery outside of laboratory limits.
- U The analyte is not detected above the SDL

## Attachments

The scanned attachments will follow this page.

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

#12012000

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## **Summary Report**

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

Report Date: February 8, 2012

Work Order: 12013120

Project Location:Eddy Co., NMProject Name:COG/Moose Fed. #23 TBProject Number:114-6400857

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
287910	CS-3 Bottomhole 2'	soil	2012-01-30	00:00	2012-01-31

		]	BTEX	
	Benzene	Toluene	Ethylbenzene	Xylene
Sample - Field Code	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
287910 - CS-3 Bottomhole 2'	< 0.0200	< 0.0200	<0.0200	< 0.0200



200 East Sunset Road, Suite E 5002 Basin Street, Suite A1 6015 Barris Parkway, Suite 110 - Ft. Worth, Texas 76132

NCTRCA

Midland, Jexas 79703

NELAP

DBE

E-Mail, lab@traceanalysis.com

FAX 915+585+4944 432 • 689 • 6301 FAX 432+689+6313 817+201+5264

Kansas

Oklahoma ISO 17025

## Analytical and Quality Control Report

Certifications

DoD LELAP

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

HUB

WBE

Report Date: February 8, 2012

Work Order: 12013120 

Project Location: Eddy Co., NM **Project Name:** COG/Moose Fed. #23 TB Project Number: 114-6400857

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
287910	CS-3 Bottomhole 2'	soil	2012-01-30	00:00	2012-01-31

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 al

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

# F Report Contents

Case Narrative	3
Analytical Report Sample 287910 (CS-3 Bottomhole 2')	<b>4</b> 4
Method Blanks QC Batch 88313 - Method Blank (1)	<b>5</b> 5
Laboratory Control Spikes           QC Batch 88313 - LCS (1)           QC Batch 88313 - MS (1)	6 6 6
Calibration Standards	8
QC Batch 88313 - CCV (1)	8
QC Batch 88313 - CCV (2)	8
	9
Report Definitions	9
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Standard Flags	
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# **Case Narrative**

Samples for project COG/Moose Fed. #23 TB were received by TraceAnalysis, Inc. on 2012-01-31 and assigned to work order 12013120. Samples for work order 12013120 were received intact at a temperature of 6.0 C.

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

		Prep	Prep	$\mathbf{QC}$	Analysis
Test	Method	Batch	Date	Batch	Date
BTEX	S 8021B	74984	2012-02-03 at 09:15	88313	2012-02-03 at 16:56

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 12013120 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

# **Analytical Report**

#### Sample: 287910 - CS-3 Bottomhole 2'

Laboratory: Midland Analysis: BTEX QC Batch: 88313 Prep Batch: 74984		Date Ana	al Method alyzed: Preparatio:	2012-0	2-03		Prep Met Analyzed Prepared	By: tc
				$\mathbf{RL}$				
Parameter	Flag	Cert		Result	Ur	nits	Dilution	RL
Benzene	υ	1		< 0.0200	mg/	Kg	1	0.0200
Toluene	U	1		< 0.0200	mg/	Kg	1	0.0200
Ethylbenzene	U	1		< 0.0200	mg/	Kg	1	0.0200
Xylene	υ	1		< 0.0200	mg/		1	0.0200
						Spike	Percent	Recovery
Surrogate	$\mathbf{Flag}$	Cert	$\mathbf{Result}$	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.08	mg/Kg	1	2.00	104	75 - 135.4
4-Bromofluorobenzene (4-BFB)			1.92	mg/Kg	1	2.00	96	63.6 - 158.9

Work Order: 12013120 COG/Moose Fed. #23 TB Page Number: 5 of 9 Eddy Co., NM

# Method Blanks

Method Blank (1)	QC Batch: 88313							
QC Batch: 88313		Date A	nalyzed:	2012-02	-03		Anal	yzed By: tc
Prep Batch: 74984		QC Pre	eparation:	2012-02	2-03		Prep	ared By: tc
					MDL			
Parameter	Flag		Cert		Result		Units	$\mathbf{RL}$
Benzene	· · · · · · · · · · · · · · · · · · ·		1		< 0.00470		mg/Kg	0.02
Toluene			1		<0.00980		mg/Kg	0.02
Ethylbenzene			1		< 0.00500		mg/Kg	0.02
Xylene			1		< 0.0170	· · · · · · · · · · · · · · · · · · ·	mg/Kg	0.02
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.97	mg/Kg	1	2.00	98	78 - 113.6
4-Bromofluorobenzene (4	-BFB)		1.64	mg/Kg	1	2.00	82	55.9 - 112.4

# Laboratory Control Spikes

#### Laboratory Control Spike (LCS-1)

QC Batch: 88313	Date Analyzed: 2012-02-03	Analyzed By: tc
Prep Batch: 74984	QC Preparation: 2012-02-03	Prepared By: tc

			LCS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	С	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	2.27	mg/Kg	1	2.00	< 0.00470	114	86.5 - 118.9
Toluene		1	2.19	mg/Kg	1	2.00	< 0.00980	110	84.7 - 112.5
Ethylbenzene		1	2.10	mg/Kg	1	2.00	< 0.00500	105	79.4 - 108.9
Xylene		1	6.28	mg/Kg	1	6.00	< 0.0170	105	79.5 - 108.9

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	С	$\mathbf{Result}$	Units	Dil.	Amount	$\operatorname{Result}$	Rec.	Limit	RPD	Limit
Benzene		1	2.17	mg/Kg	1	2.00	< 0.00470	108	86.5 - 118.9	4	20
Toluene		1	2.14	mg/Kg	1	2.00	< 0.00980	107	84.7 - 112.5	2	20
Ethylbenzene		1	2.05	mg/Kg	1	2.00	< 0.00500	102	79.4 - 108.9	2	20
Xylene		1	6.10	mg/Kg	1	6.00	< 0.0170	102	79.5 - 108.9	3	20

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

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	2.10	2.03	mg/Kg	1	2.00	105	102	73.9 - 117
4-Bromofluorobenzene (4-BFB)	1.92	1.86	mg/Kg	1	2.00	96	93	70.4 - 119

#### Matrix Spike (MS-1) Spiked Sample: 288061

QC Batch: 88313 Prep Batch: 74984			Date Ana QC Prepa		yzed By: tc ared By: tc				
Param	F	С	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.38	mg/Kg	1	2.00	< 0.00470	119	69.3 - 159.2
Toluene		1	2.40	mg/Kg	1	2.00	< 0.00980	120	68.7 - 157
Ethylbenzene		1	2.48	mg/Kg	1	2.00	< 0.00500	124	71.6 - 158.2
Xylene		1	7.41	mg/Kg	1	6.00	< 0.0170	124	70.8 - 159.8

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

Report Date: February 8, 2012 114-6400857				Wor COG/		Page Number: 7 of 9 Eddy Co., NM							
Param	F	С	MSD Result	Units	Dil.	Spike Amount		trix sult	Rec.		lec. imit	RPD	RPD Limit
Benzene			2.43	mg/Kg	1	2.00		<0.00470			- 159.2	2	20
Toluene		1	2.45	mg/Kg	1	2.00	<0.0	< 0.00980		68.7 - 157		2	20
Ethylbenzene		1	2.55	mg/Kg	1	2.00	<0.0	)0500	128	71.6	- 158.2	3	20
Xylene		1	7.63	mg/Kg	1	6.00	<0.	0170	127	70.8	- 159.8	3	20
Percent recovery is based on the	spik	e re				ne spike ar	nd spik	_				-	
			Ν	IS M	SD			Spike		MS MSD			lec.
Surrogate			$\mathbf{Re}$	sult Re	$\mathbf{sult}$	Units	Dil.	Amo	ount	Rec.	e. Rec.		imit
Trifluorotoluene (TFT)			2.	11 2	.10	mg/Kg	1	2	2	106 105		71.4	- 133.9
4-Bromofluorobenzene (4-BFB)			2.	03 2.	.04	mg/Kg	1	2	2	102	102	72.6	- 144.1

Work Order: 12013120 COG/Moose Fed. #23 TB Page Number: 8 of 9 Eddy Co., NM .

# **Calibration Standards**

Standard (CCV-1)

QC Batch: 88313			Anal	yzed By: tc				
				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		I	mg/Kg	0.100	0.0912	91	80 - 120	2012-02-03
Toluene		1	mg/Kg	0.100	0.0877	88	80 - 120	2012-02-03
Ethylbenzene		1	mg/Kg	0.100	0.0857	86	80 - 120	2012-02-03
Xylene		1	mg/Kg	0.300	0.256	85	80 - 120	2012-02-03

### Standard (CCV-2)

QC Batch: 88313			Date An	alyzed: 20	12-02-03		Anal	yzed By: tc
				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/Kg	0.100	0.105	105	80 - 120	2012-02-03
Toluene		1	mg/Kg	0.100	0.102	102	80 - 120	2012-02-03
Ethylbenzene		1	mg/Kg	0.100	0.0985	98	80 - 120	2012-02-03
Xylene		1	mg/Kg	0.300	0.293	98	80 - 120	2012-02-03

Work Order: 12013120 COG/Moose Fed. #23 TB Page Number: 9 of 9 Eddy Co., NM

## Appendix

## **Report Definitions**

NameDefinitionMDLMethod Detection LimitMQLMinimum Quantitation LimitSDLSample Detection Limit

## Laboratory Certifications

	Certifying	Certification	Laboratory
С	Authority	Number	Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-11-3	Midland

## Standard Flags

- F Description
- B Analyte detected in the corresponding method blank above the method detection limit
- H Analyzed out of hold time
- J Estimated concentration
- Jb The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
- Je Estimated concentration exceeding calibration range.
- Qc Calibration check outside of laboratory limits.
- Qr RPD outside of laboratory limits
- Qs Spike recovery outside of laboratory limits.
- Qsr Surrogate recovery outside of laboratory limits.
- U The analyte is not detected above the SDL

## Attachments

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The scanned attachments will follow this page.

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

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