### SITE INFORMATION

Report Type: Work Plan

		пер	ort type: w	OFK Pla	n.			
<b>General Site Info</b>	rmation.	Methodal Brites		Con Strat	EX ST			
Site:		RJU South	Fank Battery	and and a state of				
Company:		COG Operat	ting LLC					
Section, Townsh	ip and Range	Unit C	Sec 35	T17S	R29E			
Lease Number:		API-30-015-0	03783					
County:		Eddy Count	у					
GPS:	•		32.79415° N			104.05	5014° W	
Surface Owner:		Federal			···			
Mineral Owner:	· · · · · · · · · · · · · · · · · · ·				·			
Directions:		From Hwy 82 right and trave	and CR213 travel s I 0.1 miles to site.	outh on CR2	213 for 1.7 n	niles, turn left	and travel 0.3 mil	es, turn
Release Data:								
Date Released:		12/22/2010						
Type Release:		Produced Flu	ıid					
Source of Contam	ination:	Flowline failu	re					
Fluid Released:		9 bbls						
Fluids Recovered	•	8 bbls						
Official Commun	ication:							an back
Name:	Pat Filis				Ike Tavare	7		
Company <sup>,</sup>					Tetra Tech	<u></u>		
Address:	EEO W. Toxos Avo. Sto. 1200		†		1010 N D			
DO Pay	JUU W. TEXAS AVE.	516. 1500				ig opning		
		701						· .
	ivilaland Lexas, 797	101			Midland, T	exas		
Phone number:	(432) 686-3023				(432) 425-3878			
Fax:	(432) 684-7137		ļ					
Email:	pellis@conchoreso	urces.com		ike.tavarez@tetratech.com				
Ranking Criteria						A Start and March		in a constant a trada a constant a a constant a
Depth to Groundwa	ater:		Ranking Score			Site Data		
<50 ft			20					
50-99 ft			10					
>100 ft.			10			0		
WellHead Protectio	on:		Ranking Score			Site Data		
Water Source <1,00	00 ft., Private <200 f	t.	20					
Water Source >1,00	00 ft., Private >200 f	t.	0		<b>_</b> . , , , ,	0		
Surface Body of W	ater:	·	Ranking Score			Site Data		
<200 ft.			20					
200 ft - 1,000 ft.			10					
>1,000 ft.		· 0	·0					
Tota	Total Ranking Score					REC	DEIVED	
			ible Soil BBAI (n	na/ka)		JUL	<b>03</b> 2011	
		Renzene		TDH	7			
		10	50	5,000		NMOC	D ARTESIA	
			L		4			



April 19, 2011

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

#### Re: Work Plan for the COG Operating LLC., RJU South Tank Battery, Unit C, Section 35, Township 17 South, Range 29 East, Eddy County, New Mexico.

#### Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the RJU South Tank Battery located in Unit C, Section 35, Township 17 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.79415°, W 104.05014°. The site location is shown on Figures 1 and 2.

#### Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on December 22, 2010, from a steel flow line, releasing approximately nine (9) barrels of produced fluid in the pasture. Eight (8) barrels of standing fluids were recovered. To alleviate the problem, COG personnel repaired the flow line. The spill initiated in the pasture south of the tank battery and affected an area approximately 15' x 40' and 5' x 110' (tapering to 1.0'). The initial and final C-141 forms are enclosed in Appendix A.

#### Groundwater

According to the NMOCD groundwater map, one well is shown with a reported depth to water at 153'. Based on the groundwater data, the average depth to groundwater in this area is greater than 100' below surface. The depth to groundwater data is shown in Appendix B.



#### Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 5,000 mg/kg.

#### **Soil Assessment and Analytical Results**

On February 9, 2011, Tetra Tech personnel inspected and sampled the spill area. Three (3) auger holes (AH-1, AH-2 and AH-3) were installed using a stainless steel hand auger to assess the impacted soils. Select samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The results of the sampling are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, auger hole (AH-2) exceeded the TPH RRAL at 0-1' of 19,570 mg/kg and at 1-1.5' of 11,320 mg/kg, which declined below the RRAL at 2-2.5' below surface. Auger hole (AH-3) also exceeded the TPH RRAL at 0-1 of 8,000 mg/kg and declined below the RRAL at 1-1.5' below surface. In addition, auger holes (AH-2 and AH-3) also exceeded either benzene or total BTEX concentrations, but declined at 1.0' to 2.0' below surface.

Chloride concentrations were detected in all of the auger holes. Auger hole (AH-1) showed a chloride high of 3,090 mg/kg at 0-1' and significantly declined to 504 mg/kg at 3.5-4.0' below surface. Auger holes (AH-2 and AH-3) have concentrations that increase with depth, which suggests that historical contamination has affected the spill foot print in this area. AH-2 and AH-3 were not vertically defined.



#### Work Plan

COG proposes to remove impacted material as highlighted (green) in Table 1 and shown on Figure 4. The area of AH-1 will be excavated to depth of 2.0' to 3.0' below surface. With regards to AH-2, once the material has been removed approximately (4.0'), a backhoe trench will be installed to attempt to delineate the chloride impact. In addition, the area of AH-3 will be excavated (1.0') and a backhoe trench installed to define the chloride impact encountered in the deeper soils. Once defined and excavated to the appropriate depths, the excavations will be backfilled with clean soil.

If deeper impact is encountered, the proposed excavation depths may not be reached due to wall cave ins and safety concerns for onsite personnel. In addition, impacted soil around oil and gas equipment, structures or lines may not be feasible or practicable to be removed due to safely concerns. As such, Tetra Tech will excavate the soils to the maximum extent practicable. If the depths are not reached, a 40 mil liner will be installed at depth of 4' to 5' below surface to cap the impacted area.

Upon completion, a final report will be submitted to the NMOCD. If you have any questions or comments concerning the assessment or the proposed remediation activities for this site, please call me at (432) 682-4559.

Respectfully submitted,

TETRATECH fke Tavarez

Senior Project Manager

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

# Figures



![](_page_6_Figure_0.jpeg)

![](_page_7_Figure_0.jpeg)

![](_page_8_Figure_0.jpeg)

Photos

COG Operating LLC RJU South Tank Battery Eddy County, New Mexico

![](_page_10_Picture_1.jpeg)

View East – AH-1

![](_page_10_Picture_3.jpeg)

View South East – AH-2

### COG Operating LLC RJU South Tank Battery Eddy County, New Mexico

![](_page_11_Figure_1.jpeg)

TETRA TECH

![](_page_11_Picture_2.jpeg)

View North West - AH-3

Site info and picture details

Tables

/

# Table 1COG Operating LLC.RJU SOUTH TANK BATTERYEDDY COUNTY, NEW MEXICO

Sample	Sample	Sample	Soi	I Status	ТР	'H (mg/k	(g)	Benzene	Toluene	Ethlybenzene	Xylene	Chloride
ID	Date	Depth (ft)	In-Situ	Removed	GRO	DRO	Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
AH-1	2/9/2011	0-1'	X		180	2,130	2,310					3,090
	n	<b>1-1.5'</b>	<u>,</u> Х.,		1,440	3,000	4,440				X	2,480
	11	2-2.5'	X		1,040	1,100	2,140					1,600
	11	3-3.5'	Х		435	1,350	1,785	-	-	-	-	731
	u	3.5-4'	Х		636	2,660	3,296	-	-	-	÷	504
	0/0/0011	0.1			F 070	14:000	10.570	1.00	4.00	0.70	100	0.100
Ап-2	2/9/2011	.0-1	<b>∧</b>		5,270	14,300	19,570	<1.00	4.33	8.73	138	2,120
	ű	1-1.5	X	18 - 14 - 14 - 14 - 14 - 14 - 14 - 14 -	2,920	8,400	11,320	14.1	103	74.3	90.9	1,460
	11	2-2.5'	X		344	637	981	0.220	4.58	6.89	9.42	1,020
		2.5-3'	<b>X</b>		1,960 :	648	2,608					2,840
	n											
		r		(							· · · · · · · · · · · · · · · · · · ·	
AH-3	2/9/2011	0-1	X ≺,		3,070	4,930	8,000	<0.200	, 1.05	3.49	,70.0-	410
	n	1-1.5'	Х		302	<b>1</b> ,170	1,472	0.905	19.9	12.9	13.4	880
	n	2-2.5'	Х		29.8	136	165.8	-	-	-	-	836
	u	3-3.5'	Х		4.18	<50.0	4.18	-	-	-	-	1,250
	11	4-4.5'	X		-	-	-	-		-	~	1,090

BEB Below Excavation Bottom

(--) Not Analyzed

Pro

Proposed Excavation Depths

# Appendix A

#### State of New Mexico Energy Minerals and Natural Resources

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

	Release Notification and Corrective Action											
						<b>OPERA</b>	FOR		🛛 Initi	al Report		Final Report
Name of Co	ompany	COG OP	ERATIN	G LLC		Contact	P	Pat Ellis	20			
Address Facility Nat	<u>350 W.</u>	RIU Sout	h Tank F	diand, 1X /9/0 lattery	1	Facility Tyr	<u>NO. 432-</u> e Tan	-230-00	rv		·	
								Dutte	· <u>y</u>		20.01	
Surface Ow	mer Fede	ral		Mineral C	Jwner				Lease N	No. (API#	30-01	5-03783
	u.			LOCA	TIO	N OF REI	LEASE	_				
Unit Letter C	Section 35	Township 17S	Range 29E	Feet from the	North	/South Line	Feet from the	East/\	West Line	County	Eddy	
		• <u>•</u> ••••••••••••••••••••••••••••••••••	<b>L</b>	Latitude 32 4	47.647	Longitu	<b>ide</b> 104 03.004	· · · ·				
				NAT	URE	OF REL	EASE	·				
Type of Rele	ase Prod	uced fluid				Volume of	Release 9bbls	<u>.</u>	Volume F	Recovered	8bbls	
Source of Re	icase Di	set nowine				12/22/2010		Le .	12/22/201		covery	
Was Immedia	ate Notice (	Given?	Yes 🛛	No 🖾 Not Re	equired	If YES, To	Whom?					
By Whom?						Date and H	lour			TOF	CE	VED
Was a Watercourse Reached?						If YES, volume impacting the watercourse.			3 2011			
If a Watercou	If a Watercourse was Impacted, Describe Fully.*											
Describe Cau	ise of Probl	em and Reme	dial Action	n Taken.*						IAIAIC	00.	
A steel flowli is going to be	ine ruptured replaced fi	l at the RJU Se om the well to	outh Tank o the head	Battery Location er.	. A cla	mp has been p	laced over the ru	iptured p	art in the fl	owline and	the enti	re flowline
Describe Are	a Affected	and Cleanup A	ction Tak	en.*								
Initially 9bbl on the pad loc contamination	s of produce cation and a n from the r	ed fluid was re in additional a release and we	eleased fro rea of 3' x will prese	m the flowline and 25' that ran off t ent a remediation	d we w he pad work p	rere able to rec location. Tetr lan to the NM	over 8bbls with a a Tech will samp OCD for approva	a vacuur ble the sp al prior to	n truck. Th bill site area o any signif	ne spill area 1 to delineat ficant remed	measure e and po liation v	ed 8' x 15' ossible vork.
I hereby certi regulations al public health should their o or the environ federal, state,	fy that the i l operators or the envir perations h iment. In a or local law	nformation gi are required to conment. The ave failed to a ddition, NMO vs and/or regu	ven above o report an acceptanc dequately CD accep lations.	is true and compl d/or file certain re e of a C-141 repo investigate and re tance of a C-141 r	ete to t elease r rt by th emediat eport d	he best of my notifications and NMOCD mate contamination of the contamination loes not relieve	knowledge and u ad perform correct arked as "Final R on that pose a thr e the operator of	understar ctive act Report" d reat to gr responsi	nd that purs ions for rele loes not reli round water bility for co	tuant to NM eases which eve the ope , surface wa ompliance v	OCD ru may en rator of iter, hur vith any	iles and danger liability nan health other
Signature:	70	~ ~ ~	75				<u>OIL CON</u>	<u>SERV</u>	<u>ATION</u>	DIVISIO	<u>DN</u>	
Printed Name	1	Josh	Russo			Approved by	District Supervis	or:				
Title:		HSE Co	ordinator			Approval Dat	e:		Expiration	Date:		
E-mail Addre	ss:	jrusso@concl	noresource	es.com		Conditions of	Approval:			Attached		
Date: 01/0	04/2011	Phone:	432-212-2	2399								

\* Attach Additional Sheets If Necessary

# Appendix B

1

#### Water Well Data Average Depth to Groundwater (ft) COG - RJU South Tank Battery Eddy County, New Mexico

29 East

16 South

	16 Sc	outh	28	East	
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21 61	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

	17	South	1	28 East		
6	5	4	3	2	1	
7	8	9	10	11	12	
18	17	16	15	14	13	
19	20	21	22 <b>79</b>	23	24	
30	29	28	27	26	25	
31	32	33	34 53	35	36	

	18 Sc	outh	28	East	
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35 65	36

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19 110	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

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

	17 Se	outh		29 East		
6	5	4	3	2	1	
7	8	9	10	11	12	
18	17	16	15	14	13	
19	20	21	22	80 23	24	
30	29 210 208'	28	27	26	25	
31	32	33	34	35 153	36	

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

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

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

88 New Mexico State Engineers Well Reports

105 USGS Well Reports

**90** Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6) Geology and Groundwater Resources of Eddy County, NM (Report 3)

34 NMOCD - Groundwater Data

123 Field water level

143 NMOCD Groundwater map well location

# Appendix C

# **Summary Report**

Jeff Kindley Tetra Tech 1910 N. Big Spring Street Midland, TX 79705

Report Date: February 28, 2011

Work Order: 11021118

Project Location:	Eddy Co., NM
Project Name:	COG/RJU South TB
Project Number:	114-6400815

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
257285	AH-1 0-1'	soil	2011-02-09	00:00	2011-02-11
257286	AH-1 1-1.5'	soil	2011-02-09	00:00	2011-02-11
257287	AH-1 2-2.5'	soil	2011-02-09	00:00	2011-02-11
257288	AH-1 3-3.5'	soil	2011-02-09	00:00	2011-02-11
257289	AH-1 3.5-4'	soil	2011-02-09	00:00	2011-02-11
257290	AH-2 0-1'	soil	2011-02-09	00:00	2011-02-11
257291	AH-2 2-2.5'	soil	2011-02-09	00:00	2011-02-11
257292	AH-2 2.5-3'	soil	2011-02-09	00:00	2011-02-11
257293	AH-3 0-1'	soil	2011-02-09	00:00	2011-02-11
257294	AH-3 1-1.5'	soil	2011-02-09	00:00	2011-02-11
257295	AH-3 2-2.5'	soil	2011-02-09	00:00	2011-02-11
257296	AH-3 3-3.5'	soil	2011-02-09	00:00	2011-02-11
257297	AH-3 4-4.5'	soil	2011-02-09	00:00	2011-02-11
257298	AH-2 1-1.5'	soil	2011-02-09	00:00	2011-02-11

		]	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)
257285 - AH-1 0-1'					2130	180
257286 - AH-1 1-1.5'					3000	1440
257287 - AH-1 2-2.5'					1100	1040
257288 - AH-1 3-3.5'					1350	435
257289 - AH-1 3.5-4'					2660	636
257290 - AH-2 0-1'	<1.00	4.33	8.73	138	14300	5270
257291 - AH-2 2-2.5'	0.220	4.58	6.89	9.42	637	344
257292 - AH-2 2.5-3'					648	1960
257293 - AH-3 0-1'	< 0.200	1.05	3.49	70.0	4930	3070
257294 - AH-3 1-1.5'	0.905	19.9	12.9	13.4	1170	302
257295 - AH-3 2-2.5'					136	29.8

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: February 28, 2011

#### $\dots$ continued

Benzene           Sample - Field Code         (mg/Kg)           257296 - AH-3 3-3.5'         257298 - AH-2 1-1.5'           257298 - AH-2 1-1.5'         14.1           Sample:         257285 - AH-1 0-1'           Param         Flag           Chloride	Toluene (mg/Kg) 103	Ethylbenzene <sup>(mg/Kg)</sup> 74.3	Xylene (mg/Kg)	DRO (mg/Kg) <50.0	GRO (mg/Kg)
Sample - Field Code         (mg/Kg)           257296 - AH-3 3-3.5'         257298 - AH-2 1-1.5'           257298 - AH-2 1-1.5'         14.1           Sample:         257285 - AH-1 0-1'           Param         Flag           Chloride         Flag	(mg/Kg) 103	(mg/Kg) 74.3	(mg/Kg)	(mg/Kg) < 50 ()	(mg/Kg)
257296 - AH-3 3-3.5'         257298 - AH-2 1-1.5'         14.1         Sample: 257285 - AH-1 0-1'         Param       Flag         Chloride	103	74.3	00.0	< 50.0	4 10
257298 - AH-2 1-1.5'       14.1         Sample: 257285 - AH-1 0-1'         Param       Flag         Chloride	103	74.3	00 0	200.0	4.18
Sample: 257285 - AH-1 0-1' Param Flag Chloride			90.9	8400	2920
Sample: 257285 - AH-1 0-1'ParamFlagChloride					
Param Flag Chloride					
Chloride		Result		Units	RL
		3090		mg/Kg	4.00
Sample: 257286 - AH-1 1-1.5'					
Param Flag		Result		Units	RL
Chloride		2480		mg/Kg	4.00
Sample: 257287 - AH-1 2-2.5'					
Param Flag		Result		Units	RL
Chloride	·····	1600		mg/Kg	4.00
Sample: 257288 - AH-1 3-3.5'					
Param Flag		Result		Units	$\operatorname{RL}$
Chloride		731		mg/Kg	4.00
Sample: 257289 - AH-1 3.5-4'					
Param Flag		Result		Units	RL
Chloride		504	······ ·······························	mg/Kg	4.00
Sample: 257200 AH 2 0 1					
Sample: 201200 - All-2 0-1		- ·			<b>.</b> -
Param Flag		Result		Units	<u></u>
		414U		ng/ng	4.00

Sample: 257291 - AH-2 2-2.5'

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Report Date: February 28, 2011		Work Order: 11021118	B Page	Number: 3 of 3
Param	Flag	Result	Units	BL
Chloride	1 105	1020	mg/Kg	4.00
			<u> </u>	
Sample: 257292	- AH-2 2.5-3'			
Param	Flag	Result	Units	$\operatorname{RL}$
Chloride		2840	mg/Kg	4.00
Sample: 257293	- AH-3 0-1'			
Param	Flag	Result	Units	$\operatorname{RL}$
Chloride		410	mg/Kg	4.00
Sample: 257294	- AH-3 1-1.5'			
Param	Flag	Result	Units	RL
Chloride		880	mg/Kg	4.00
Sample: 257295	- AH-3 2-2.5'			
Param	Flag	Result	Units	RL
Chloride		836	mg/Kg	4.00
Sample: 257296	- AH-3 3-3.5'			
Param	Flag	Result	Units	$\operatorname{RL}$
Chloride	······································	1250	mg/Kg	4.00
Sample: 257297	- AH-3 4-4.5'			
Param	Flag	Result	Units	RL
Chloride		1090	mg/Kg	4.00
Sample: 257298	- AH-2 1-1.5'			
Param	Flag	Result	Units	$\mathbf{RL}$
Chloride	···O	1460	mg/Kg	4.00
		n na hara na ha		

-

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.

![](_page_22_Picture_0.jpeg)

6701 Aberdeen Avenue, Suite 9 200 East Sunset Road, Suite E 5002 Basin Street, Suite A1 6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132

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

806 • 794 • 1296 915+585+3443 432 • 689 • 6301 817 • 201 • 5260

FAX 806 • 794 • 1298 FAX 915•585•4944 FAX 432 • 689 • 6313

**WBENC:** 237019

HUB: 1752439743100-86536 NCTRCA WFWB38444Y0909

**DBE:** VN 20657

### **NELAP** Certifications

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

Megan Beard Tetra Tech 1910 N. Big Spring Street Midland, TX, 79705

Report Date: February 28, 2011

Work Order: 11021118 

Project Location: Eddy Co., NM COG/RJU South TB **Project** Name: 114-6400815 **Project Number:** 

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

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
257285	AH-1 0-1'	soil	2011-02-09	00:00	2011-02-11
257286	AH-1 1-1.5'	soil	2011-02-09	00:00	2011-02-11
257287	AH-1 2-2.5'	soil	2011-02-09	00:00	2011-02-11
257288	AH-1 3-3.5'	soil	2011-02-09	00:00	2011-02-11
257289	AH-1 3.5-4'	soil	2011-02-09	00:00	2011-02-11
257290	AH-2 0-1'	soil	2011-02-09	00:00	2011-02-11
257291	AH-2 2-2.5'	soil	2011-02-09	00:00	2011-02-11
257292	AH-2 2.5-3'	soil	2011-02-09	00:00	2011-02-11
257293	AH-3 0-1'	soil	2011-02-09	00:00	2011-02-11
257294	AH-3 1-1.5'	soil	2011-02-09	00:00	2011-02-11

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
257295	AH-3 2-2.5'	soil	2011-02-09	00:00	2011-02-11
257296	AH-3 3-3.5'	soil .	2011-02-09	00:00	2011-02-11
257297	AH-3 4-4.5'	soil	2011-02-09	00:00	2011-02-11
257298	AH-2 1-1.5'	soil	2011-02-09	00:00	2011-02-11

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

This report consists of a total of 40 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

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

Samples for project COG/RJU South TB were received by TraceAnalysis, Inc. on 2011-02-11 and assigned to work order 11021118. Samples for work order 11021118 were received intact at a temperature of 10.1 C.

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

		$\mathbf{Prep}$	Prep	$\mathbf{QC}$	Analysis
Test	Method	Batch	Date	Batch	Date
BTEX	S 8021B	66561	2011-02-14 at 12:44	77767	2011-02-14 at 12:44
BTEX	S 8021B	66683	2011-02-17 at 14:21	77746	2011-02-18 at 14:34
BTEX	S 8021B	66777	2011-02-23 at 10:44	77858	2011-02-23 at 10:44
Chloride (Titration)	SM 4500-Cl B	66550	2011-02-14 at 12:32	77628	2011-02-15 at 15:31
Chloride (Titration)	SM 4500-Cl B	66550	2011-02-14 at 12:32	77629	2011-02-15 at 15:32
TPH DRO - NEW	S 8015 D	66584	2011-02-15 at 10:10	77634	2011-02-15 at 10:10
TPH DRO - NEW	S 8015 D	66796	2011-02-23 at 09:00	77882	2011-02-23 at 10:07
TPH DRO - NEW	S 8015 D	66844	2011-02-25 at 09:40	77932	2011-02-25 at 09:40
TPH GRO	S 8015 D	66561	2011-02-14 at 12:44	77597	2011-02-14 at 12:44
TPH GRO	S 8015 D	66683	2011-02-17 at 14:21	77748	2011-02-18 at 14:34
TPH GRO	S 8015 D	66777	2011-02-23 at 10:44	77859	2011-02-23 at 10:44
TPH GRO	S 8015 D	66842	2011-02-25 at 08:21	77929	2011-02-25 at 09:15

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 11021118 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: 257285 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	77628	Date Analyzed:	2011-02-15	Analyzed By:	$\mathbf{AR}$
Prep Batch:	66550	Sample Preparation:	2011-02-14	Prepared By:	AR
		RL			
Parameter	Flag	Result	Units	Dilution	$\mathbf{RL}$
Chloride		3090	mg/Kg	100	4.00

#### Sample: 257285 - AH-1 0-1'

Laboratory: Midland Analysis: TPH DRO - NEW QC Batch: 77634 Prep Batch: 66584		Analytical Method: Date Analyzed: Sample Preparation:		S 8015 D 2011-02-15 2011-02-15	Prep M Analyz Prepar	lethod: N/A ed By: kg ed By: kg	
D	D	1	RL		TT '/		DI
Parameter	F	lag	Result		Units	Dilution	RL
DRO			2130	m	g/Kg	5	50.0
					Spike	Percent	Recovery
Surrogate	Flag	$\operatorname{Result}$	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	1	312	mg/Kg	5	100	312	70 - 130

#### Sample: 257285 - AH-1 0-1'

Laboratory:	Midland							
Analysis:	TPH GRO		Analytica	l Method:	S 8015 D		Prep Me	thod: S 5035
QC Batch:	77597		Date Ana	lyzed:	2011-02-14		Analyzed	d By: ME
Prep Batch:	66561		Sample P	reparation:	2011-02-14		Prepareo	l By: ME
			RL					
Parameter	$\mathbf{Flag}$		Result		Units		Dilution	$\operatorname{RL}$
GRO	·····		180		mg/Kg		5	2.00
						Spike	Percent	Recovery
Surrogate		Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotolue	ene (TFT)		5.75	mg/Kg	5	5.00	115	36.3 - 158.9
4-Bromofluor	obenzene (4-BFB)		6.12	mg/Kg	5	5.00	122	22.2 - 160.2

<sup>1</sup>High surrogate recovery due to peak interference.

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#### Sample: 257286 - AH-1 1-1.5'

Chloride		2480	mg/Kg	100	4.00
Parameter	Flag	RL Result	Units	Dilution	RL
Prep Batch:	66550	Sample Preparation:	2011-02-14	Prepared By:	AR
QC Batch:	77628	Date Analyzed:	2011-02-15	Analyzed By:	AR
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Laboratory:	Midland				

#### Sample: 257286 - AH-1 1-1.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - N 77882 66796	NEW	Analyti Date An Sample	cal Method: nalyzed: Preparation:	S 8015 D 2011-02-23 2011-02-23	Prep M Analyz Prepar	lethod: N/A ed By: kg ed By: kg
Parameter	F	lag	RL Besult		Units	Dilution	BL
DRO			3000	m	g/Kg	5	50.0
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	2	333	mg/Kg	5	100	333	70 - 130

#### Sample: 257286 - AH-1 1-1.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH GRO 77859 66777		Analytica Date Ana Sample P	l Method: lyzed: reparation:	S 8015 D 2011-02-23 2011-02-23		Prep Me Analyze Preparec	thod: S 5035 d By: ME d By: ME
			$\mathbf{RL}$					
Parameter	$\mathbf{Flag}$		Result		Units		Dilution	$\operatorname{RL}$
GRO			1440		mg/Kg		50	2.00
Surrogate		Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotolue	ene (TFT)		56.5	mg/Kg	50	50.0	113	36.3 - 158.9
4-Bromofluor	obenzene (4-BFB)		73.0	mg/Kg	50	50.0	146	22.2 - 160.2

<sup>2</sup>High surrogate recovery due to peak interference.

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				7287 - AH-1 2-2.5'	Sample: 257	
				Midland	Laboratory:	
N/A	Prep Method:	SM 4500-Cl B	Analytical Method:	Chloride (Titration)	Analysis:	
AR	Analyzed By:	2011-02-15	Date Analyzed:	77628	QC Batch:	
AR	Prepared By:	2011-02-14	Sample Preparation:	66550	Prep Batch:	
			$\mathbf{RL}$			
RL	Dilution	Units	Result	Flag	Parameter	
4.00	100	ng/Kg	<b>1600</b> n	· · · · · · · · · · · · · · · · · · ·	Chloride	
	Dilution 100	Units ng/Kg	RL Result 1600 n	Flag	Parameter Chloride	

#### Sample: 257287 - AH-1 2-2.5'

n-Tricosane	3	171	mg/Kg	5	100	171	70 -	130
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Reco Lir	overy nits
DRO			1100	m	g/Kg	5		50.0
Parameter	F	lag	RL Result	I	Units	Dilution		RL
Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NEW 77882 66796		Analytic Date Ar Sample	cal Method: nalyzed: Preparation:	S 8015 D 2011-02-23 2011-02-23	Prep Method: Analyzed By: Prepared By:		N/A kg kg

#### Sample: 257287 - AH-1 2-2.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH GRO 77859 66777		Analytica Date Ana Sample P	l Method: lyzed: reparation:	S 8015 D 2011-02-23 2011-02-23		Prep Me Analyze Prepared	ethod: S 5035 d By: ME d By: ME
			$\operatorname{RL}$					
Parameter	Flag		Result		Units		Dilution	$\operatorname{RL}$
GRO			1040		mg/Kg		5	2.00
Surrogate		Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotolue	ene (TFT)	······································	5.83	mg/Kg	5	5.00	117	36.3 - 158.9
4-Bromofluor	obenzene (4-BFB)	4	11.1	mg/Kg	5	5.00	222	22.2 - 160.2

<sup>3</sup>High surrogate recovery due to peak interference. <sup>4</sup>High surrogate recovery due to peak interference.

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#### Sample: 257288 - AH-1 3-3.5'

Chloride		731	mg/Kg	50	4.00
Parameter	Flag	RL Result	Units	Dilution	RL
Prep Batch:	66550	Sample Preparat	ion: 2011-02-14	Prepared By:	AR
QC Batch:	77628	Date Analyzed:	2011-02-15	Analyzed By:	AR
Analysis:	Chloride (Titration)	Analytical Metho	od: SM 4500-Cl B	Prep Method:	N/A
Laboratory:	Midland				

#### Sample: 257288 - AH-1 3-3.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NEW 77932 66844		Analyti Date An Sample	cal Method: nalyzed: Preparation:	S 8015 D 2011-02-25 2011-02-25	Prep Method: Analyzed By: Prepared By:		N/A kg kg
Parameter		Flag	$\operatorname{RL}$ Result		Units	Dilution		RL
DRO			1350	m	g/Kg	1		50.0
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Rece Lir	overy nits
n-Tricosane	5	221	mg/Kg	1	100	221	70 -	· 130

#### Sample: 257288 - AH-1 3-3.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH GRO 77929 66842		Analytica Date Ana Sample P	l Method: lyzed: reparation:	S 8015 D 2011-02-25 2011-02-25		Prep Me Analyze Prepareo	ethod: S 5035 d By: ME d By: ME
			$\mathbf{RL}$					
Parameter	Flag		Result		Units		Dilution	$\operatorname{RL}$
GRO			435		mg/Kg	·····	10	2.00
Surrogate		Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotolue 4-Bromofluor	ene (TFT) obenzene (4-BFB)	6	$\begin{array}{c} 11.6\\ 16.4\end{array}$	mg/Kg mg/Kg	10 10	10.0 10.0	116 164	36.3 - 158.9 22.2 - 160.2

<sup>5</sup> High surrogate recovery due to peak interference. <sup>6</sup> High surrogate recovery due to peak interference.

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#### Sample: 257289 - AH-1 3.5-4'

Chloride		<b>504</b>	mg/Kg	50	4.00
Parameter	Flag	RL Result	Units	Dilution	RL
Prep Batch:	66550	Sample Preparation:	2011-02-14	Prepared By:	AR
QC Batch:	77628	Date Analyzed:	2011-02-15	Analyzed By:	AR
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Laboratory:	Midland				

#### Sample: 257289 - AH-1 3.5-4'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NEW 77932 66844		Analytic Date An Sample	cal Method: nalyzed: Preparation:	S 8015 D 2011-02-25 2011-02-25	Prep Method: Analyzed By: Prepared By:		N/A kg kg
Parameter	F	lag	$\operatorname{RL}$ Result	1	Units	Dilution	R	٢L
DRO			2660	m	g/Kg	5	50	.0
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recover Limits	ry 3
n-Tricosane	7	430	mg/Kg	5	100	430	70 - 13	0

#### Sample: 257289 - AH-1 3.5-4'

4-Bromofluor	obenzene (4-BFB)	8	19.6	mg/Kg	10	10.0	196	22.2 - 160.2
Trifluorotolue	ene (TFT)		10.6	mg/Kg	10	10.0	106	36.3 - 158.9
Surrogate		Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
GRO			636		mg/Kg		10	2.00
Parameter	Flag		RL Result		Units		Dilution	RL
Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH GRO 77929 66842		Analytica Date Ana Sample Pi	l Method: lyzed: reparation:	S 8015 D 2011-02-25 2011-02-25		Prep Me Analyze Preparec	ethod: S 5035 d By: ME d By: ME

<sup>7</sup>High surrogate recovery due to peak interference. <sup>8</sup>High surrogate recovery due to peak interference.

#### Sample: 257290 - AH-2 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland BTEX 77767 66561			Analytical Date Analy Sample Pro	Method: /zed: eparation:	S 8021B 2011-02-14 2011-02-14		Prep Me Analyzec Preparec	thod: 1 By: 1 By:	S 5035 ME ME
				RL						
Parameter		Flag		Result		Units		Dilution		$\operatorname{RL}$
Benzene		······································		<1.00		mg/Kg	·······················	50		0.0200
Toluene				4.33		mg/Kg		50		0.0200
Ethylbenzene				8.73		mg/Kg		50		0.0200
Xylene				138		mg/Kg		50		0.0200
							Spike	Percent	Re	covery
Surrogate			Flag	Result	Units	Dilution	Amount	Recovery	L	imits
Trifluorotolue	me (TFT)			72.1	mg/Kg	50	50.0	144	51.6	- 149.2
4-Bromofluor	obenzene (4-B	FB)		77.3	mg/Kg	50	50.0	155	35.7	- 159.6

#### Sample: 257290 - AH-2 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 77629 66550	Analytical Method: Date Analyzed: Sample Preparation:	SM 4500-Cl B 2011-02-15 2011-02-14	Prep Method: Analyzed By: Prepared By:	N/A AR AR
		RL	<b>TT</b>		DI
Parameter	Flag	Result	Units	Dilution	RL
Chloride		2120	mg/Kg	100	4.00

#### Sample: 257290 - AH-2 0-1'

Laboratory:	Midland						
Analysis:	TPH DRO - N	NEW	Analyti	cal Method:	S 8015 D	Prep M	lethod: N/A
QC Batch:	77634		Date A	nalyzed:	2011-02-15	Analyz	ed By: kg
Prep Batch:	66584		Sample	Preparation:	2011-02-15	Prepare	ed By: kg
			RL				
Parameter	$\mathbf{F}$	lag	Result		Units	Dilution	$\mathbf{RL}$
DRO			14300	m	g/Kg	10	50.0
					Spike	Percent	Recovery
Surrogate	Flag	$\mathbf{Result}$	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	9	1250	mg/Kg	10	100	1250	70 - 130

<sup>9</sup>High surrogate recovery due to peak interference.

#### Sample: 257290 - AH-2 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH GRO 77597 66561		Analytical Date Ana Sample Pi	l Method: lyzed: reparation:	S 8015 D 2011-02-14 2011-02-14		Prep Me Analyzee Preparee	thod: S 5035 l By: ME l By: ME
			$\operatorname{RL}$					
Parameter	Flag		Result		Units		Dilution	$\mathbf{RL}$
GRO			5270		mg/Kg		50	2.00
Surrogate		Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotolue	ene (TFT)		58.7	mg/Kg	50	50.0	117	36.3 - 158.9
4-Bromofluor	obenzene (4-BFB)		69.9	mg/Kg	50	50.0	140	22.2 - 160.2

#### Sample: 257291 - AH-2 2-2.5'

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Laboratory: Analysis: QC Batch: Prep Batch:	Midland BTEX 77858 66777		Analytical Date Analy Sample Pre	Method: vzed: eparation:	S 8021B 2011-02-23 2011-02-23		Prep Me Analyzed Prepared	thod: S 5035 d By: ME d By: ME
			$\operatorname{RL}$					
Parameter	Fla	g	Result		Units	]	Dilution	$\operatorname{RL}$
Benzene			0.220		mg/Kg		1	0.0200
Toluene			4.58		mg/Kg		1	0.0200
Ethylbenzene	9		6.89		mg/Kg		1	0.0200
Xylene			9.42		mg/Kg		1	0.0200
						Spike	Percent	Recovery
Surrogate		Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotolu	ene (TFT)		2.32	mg/Kg	1	2.00	116	51.6 - 149.2
4-Bromofluor	obenzene (4-BFB)	10	4.92	mg/Kg	1	2.00	246	35.7 - 159.6

#### Sample: 257291 - AH-2 2-2.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 77629 66550	Analytical Method: Date Analyzed: Sample Preparation:	SM 4500-Cl B 2011-02-15 2011-02-14	Prep Method: Analyzed By: Prepared By:	N/A AR AR
		RL			
Parameter	Flag	Result	Units	Dilution	$\mathbf{RL}$
Chloride		1020	mg/Kg	100	4.00

<sup>10</sup>High surrogate recovery due to peak interference.

#### Sample: 257291 - AH-2 2-2.5'

Laboratory:	Midland							
Analysis:	TPH DRO - NI	$\mathbb{E}\mathbf{W}$	Ana	lytical Meth	od: S 801	5 D	Prep I	Method: N/A
QC Batch:	77882		$\operatorname{Date}$	e Analyzed:	2011-	02-23	Analy	zed By: kg
Prep Batch:	66796		Sam	ple Prepara	tion: 2011-	02-23	Prepa	red By: kg
			RL					
Parameter	Fla	ıg	Result		Units		Dilution	$\mathbf{RL}$
DRO			637		mg/Kg		5	50.0
						Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilu	tion	Amount	Recovery	Limits
n-Tricosane	11	152	mg/Kg	Ę	5	100	152	70 - 130
Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH GRO 77859 66777		Analytica Date Ana Sample P	l Method: lyzed: reparation:	S 8015 D 2011-02-23 2011-02-23	3	Prep Me Analyze Prepare	ethod: S 5035 d By: ME d By: ME
Paramotor	Fla	œ	RL Besult		Unite		Dilution	BI.
GRO	110	-6	344		mg/Kg		1	2.00
							_	_
						Spike	Percent	Recovery
Surrogate	(7777)	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Triffuorotolue	ene (TFT)		2.38	mg/Kg	1	2.00	119	36.3 - 158.9
4-Bromotluor	obenzene (4-BFE	3) 12	4.52	mg/Kg	1	2.00	226	22.2 - 160.2

#### Sample: 257292 - AH-2 2.5-3'

Chloride		2840	mg/Kg	100	4.00
Parameter	Flag	RL Result	Units	Dilution	RL
Prep Batch:	66550	Sample Preparation:	2011-02-14	Prepared By:	AR
QC Batch:	77629	Date Analyzed:	2011-02-15	Analyzed By:	AR
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Laboratory:	Midland				

<sup>11</sup>High surrogate recovery due to peak interference. <sup>12</sup>High surrogate recovery due to peak interference.

#### Sample: 257292 - AH-2 2.5-3'

	windiand								
Analysis:	TPH DRO - NE	W	Anal	ytical Meth	od: S 801	5 D	Prep l	Method: N/	'A
QC Batch:	77882		Date	Analyzed:	2011-	02-23	Analy	zed By: kg	
Prep Batch:	66796		Samp	ole Preparat	tion: 2011-	02-23	Prepa	red By: kg	
			זמ						
Parameter	Floor		Rogult		Unito		Dilution	a	эт
	I'lag		648		ma/Ka		1		
			040		mg/ rrg		1		.0
						Spike	Percent	Recover	ry
Surrogate	Flag	Result	Units	Dilu	tion	Amount	Recovery	Limits	s
n-Tricosane	13	161	mg/Kg	1		100	161	70 - 13	<b>60</b>
Laboratory:	Midland								
Analysis: QC Batch: Prep Batch:	TPH GRO 77859 66777		Analytical Date Anal Sample Pi	Method: yzed: reparation:	S 8015 D 2011-02-23 2011-02-23	5	Prep Me Analyze Prepared	ethod: S 503 d By: ME d By: ME	35
Analysis: QC Batch: Prep Batch: Parameter	TPH GRO 77859 66777		Analytical Date Anal Sample Pr RL Begult	Method: yzed: reparation:	S 8015 D 2011-02-23 2011-02-23	i i	Prep Me Analyzed Prepared Dilution	ethod: S 503 d By: ME d By: ME By: B	35
Analysis: QC Batch: Prep Batch: Parameter GBO	TPH GRO 77859 66777 Flag		Analytical Date Anal Sample Pr RL Result 1960	Method: lyzed: reparation:	S 8015 D 2011-02-23 2011-02-23 Units mg/Kg	<b>}</b>	Prep Me Analyze Prepared Dilution 20	ethod: S 503 d By: ME d By: ME R R	35 <u>(L</u>
Analysis: QC Batch: Prep Batch: Parameter GRO	TPH GRO 77859 66777 Flag		Analytical Date Anal Sample Pr RL Result <b>1960</b>	Method: lyzed: reparation:	S 8015 D 2011-02-23 2011-02-23 Units mg/Kg	\$ \$	Prep Me Analyze Prepared Dilution 20	ethod: S 503 d By: ME d By: ME <u>R</u> 2.0	35 L D0
Analysis: QC Batch: Prep Batch: Parameter GRO	TPH GRO 77859 66777 Flag		Analytical Date Anal Sample Pr RL Result <b>1960</b>	Method: lyzed: reparation:	S 8015 D 2011-02-23 2011-02-23 Units mg/Kg	Spike	Prep Me Analyzed Prepared Dilution 20 Percent	ethod: S 503 d By: ME d By: ME <u>Recovery</u>	35 <u>L</u> )0
Analysis: QC Batch: Prep Batch: Parameter GRO Surrogate	TPH GRO 77859 66777 Flag	Flag	Analytical Date Anal Sample Pr RL Result <b>1960</b> Result	Method: lyzed: reparation: Units	S 8015 D 2011-02-23 2011-02-23 Units mg/Kg Dilution	Spike Amount	Prep Me Analyze Prepared Dilution 20 Percent Recovery	ethod: S 503 d By: ME d By: ME <u>Recovery</u> Limits	35 :L :00
Analysis: QC Batch: Prep Batch: Parameter GRO Surrogate Trifluorotolue	TPH GRO 77859 66777 Flag	Flag	Analytical Date Anal Sample Pr RL Result <b>1960</b> Result 21.5	Method: yzed: reparation: <u>Units</u> mg/Kg	S 8015 D 2011-02-23 2011-02-23 Units mg/Kg Dilution 20	Spike Amount 20.0	Prep Me Analyze Prepared Dilution 20 Percent Recovery 108	ethod: S 503 d By: ME d By: ME R 2.0 Recovery Limits 36.3 - 158.	35 L )0 ,

#### Sample: 257293 - AH-3 0-1'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland BTEX 77767 66561		Analytical Method: Date Analyzed: Sample Preparation:	S 8021B 2011-02-14 2011-02-14	Prep Method: Analyzed By: Prepared By:	S 5035 ME ME
Parameter		Flag	RL Result	Units	Dilution	RL
Benzene			< 0.200	mg/Kg	10	0.0200
Toluene			1.05	mg/Kg	10	0.0200
Ethylbenzene			3.49	mg/Kg	10	0.0200
Xylene			70.0	mg/Kg	10	0.0200

<sup>13</sup>High surrogate recovery due to peak interference.
<sup>14</sup>High surrogate recovery due to peak interference.

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Surrogate		Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recove Limit	ery s
Trifluorotolu	ene (TFT)		6.84	mg/Kg	10	10.0	68	51.6 - 14	49.2
4-Bromofluor	obenzene (4-BI	<sup>7</sup> B) <sup>15</sup>	32.8	mg/Kg	10	10.0	328	35.7 - 1	59.6
Sample: 25	7293 - AH-3 (	0-1'							
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titr 77629 66550	ration)	Anal Date Samp	ytical Metho Analyzed: Dle Preparatio	d: SM 45 2011-0 on: 2011-0	00-Cl B 2-15 2-14	Prep I Analy Prepa	Method: M zed By: A red By: A	V/A AR AR
			$\operatorname{RL}$						
Parameter	F	lag	Result		Units		Dilution		RL
Chloride			410		mg/Kg		50		4.00
Laboratory: Analysis: QC Batch:	Midland TPH DRO - N 77634	₩EW	Ana Date	lytical Metho e Analyzed:	od: S 801 2011-	5 D 02-15	Prep I Analy	Method: 1 zed By: k	N/A g
Prep Batch:	66584		Sam	ple Preparat	ion: 2011-	02-15	Prepa	red By: k	g
Parameter	F	lag	$\operatorname{RL}$ Result		Units		Dilution		RL
DRO			4930		mg/Kg		5		50.0
Surrogate	Flag	Result	Units	Dilu	tion	Spike Amount	Percent Recovery	Recov Lim	very its
n-Tricosane	16	490	mg/Kg	5		100	490	70 -	130
Sample: 25 Laboratory: Analysis: QC Batch: Prop. Batch:	7293 - AH-3 ( Midland TPH GRO 77597 66561	)-1'	Analytica Date Ana Sample P	l Method: lyzed:	S 8015 D 2011-02-14 2011-02-14	L	Prep Me Analyze Prepare	ethod: S 5 d By: MH d By: MH	6 <b>03</b> 5 E
r top Daton.	00001		Sampie I	reparation.	2011-02-14		Tichare		~

7

		$\operatorname{RL}$			
Parameter	Flag	Result	Units	Dilution	$\operatorname{RL}$
GRO		3070	mg/Kg	10	2.00

<sup>15</sup> High surrogate recovery due to peak interference.
 <sup>16</sup> High surrogate recovery due to peak interference.

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	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
	17	12.9	mg/Kg	10	10.0	129	36.3 - 158.9
BF B)			mg/Kg	10	10.0	233	22.2 - 160.2
8 1-1.5'							
		Analytical	Method:	S 8021B		Prep Mo	ethod: S 5035
		Date Anal	yzed:	2011-02-18		Analyze	d By: ME
		Sample Pr	eparation:	2011-02-17		Prepare	d By: ME
		RL					
Flag		Result		Units	D	lution	$\mathbf{RL}$
¥		0.905		mg/Kg		1	0.0200
18		19.9		mg/Kg		1	0.0200
19		12.9		mg/Kg		1	0.0200
		13.4		mg/Kg	1	1	0.0200
					Spike	Percent	Recovery
	Flag	Result	Units	Dilution	Amount	Recovery	Limits
		2.45	mg/Kg	1	2.00	122	51.6 - 149.2
3FB)	20	3.39	mg/Kg	1	2.00	170	35.7 - 159.6
	3FB) <b>; 1-1.5'</b> Flag 18 19 3FB)	Flag 3FB) <sup>17</sup> 3FB) <sup>17</sup> 3FB) <sup>17</sup> Flag Flag 5FB) <sup>20</sup>	Flag         Result           12.9         12.9           3FB)         17         53.3           Analytical         Date Analy           Date Analy         Sample Pr           RL         Flag         Result           18         19.9         12.9           19         12.9         13.4           Flag         Result         2.45           3FB)         20         3.39	$\begin{tabular}{ c c c c c } \hline Flag & Result & Units \\ \hline 12.9 & mg/Kg \\ \hline 3FB) & $^{17}$ & $53.3 & mg/Kg \\ \hline $3FB) & $^{17}$ & $53.3 & mg/Kg \\ \hline $1-1.5' & $$Analytical Method: Date Analyzed: Sample Preparation: $$ RL & $$RL & $$ RL & $$ Sample Preparation: $$ RL & $$ Flag & $$ Result & $$ 0.905$ \\ \hline $18 & $$ 19.9$ & $$ 19.9$ \\ \hline $19 & $$ 12.9$ & $$ 13.4$ \\ \hline $Flag & $$ Result & $$ Units & $$ $$ 2.45 & $mg/Kg $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$$		$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 77629 66550	Analytical Method: Date Analyzed: Sample Preparation:	SM 4500-Cl B 2011-02-15 2011-02-14	Prep Method: Analyzed By: Prepared By:	N/A AR AR
Paramotor	Flor	RL Regult	Unita	Dilution	זמ
rarameter	F lag	nesuit	Units	Dilution	<u> </u>
Chloride		880	mg/Kg	50	4.00

#### Sample: 257294 - AH-3 1-1.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	77634	Date Analyzed:	2011-02-15	Analyzed By:	kg
Prep Batch:	66584	Sample Preparation:	2011-02-15	Prepared By:	kg

<sup>17</sup>High surrogate recovery due to peak interference.
<sup>18</sup>Estimated concentration value greater than standard range.
<sup>19</sup>Estimated concentration value greater than standard range.
<sup>20</sup>High surrogate recovery due to peak interference.

Report Date: February 28, 2011 114-6400815		2011	Work Order: 11021118 COG/RJU South TB			Page Number: 15 of 40 Eddy Co., NM		
Parameter	Flag		$\operatorname{RL}$ Result	Units		Dilution	$\operatorname{RL}$	
DRO			1170	mg/I	Kg	1	50.0	
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits	
n-Tricosane	21	326	mg/Kg	1	100	326	70 - 130	

#### Sample: 257294 - AH-3 1-1.5'

Laboratory:	Midland								
Analysis:	TPH GRO		Analytica	l Method:	S 8015 D		Prep Method:		S 5035
QC Batch: 77748			Date Analyzed:		2011-02-18		Analyzed By:		ME
Prep Batch:	66683		Sample Preparation:		2011-02-17	Prepared By:		d By:	ME
			$\mathbf{RL}$						
Parameter	$\mathbf{Flag}$		Result		Units		Dilution		$\mathbf{RL}$
GRO	·		302	······	mg/Kg		1		2.00
						Spike	Percent	Rec	overy
Surrogate		Flag	Result	Units	Dilution	Amount	Recovery	Li	mits
Trifluorotolue	ene (TFT)	· <u>···</u> ···	2.47	mg/Kg	1	2.00	124	36.3	- 158.9
4-Bromofluor	obenzene (4-BFB)	22	4.41	mg/Kg	1	2.00	220	22.2	- 160.2

#### Sample: 257295 - AH-3 2-2.5'

Chloride		836	mg/Kg	50	4.00
Parameter	Flag	RL Result	Units	Dilution	RL
Prep Batch:	66550	Sample Preparation:	2011-02-14	Prepared By:	AR
QC Batch:	77629	Date Analyzed:	2011-02-15	Analyzed By:	$\mathbf{AR}$
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Laboratory:	Midland				

#### Sample: 257295 - AH-3 2-2.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	77882	Date Analyzed:	2011-02-23	Analyzed By:	kg
Prep Batch:	66796	Sample Preparation:	2011-02-23	Prepared By:	kg

continued ...

<sup>21</sup> High surrogate recovery due to peak interference.
 <sup>22</sup> High surrogate recovery due to peak interference.

#### sample 257295 continued ...

n-Tricosane		115	mg/Kg	1	100	115	70 - 130
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
DRO			136	mg/l	Kg	1	50.0
Parameter	F	lag	$\operatorname{RL}$ Result	Un	its	Dilution	RL
Parameter	F	lag	RL Result	Un	its	Dilution	RL

#### Sample: 257295 - AH-3 2-2.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH GRO 77859 66777		Analytica Date Ana Sample Pi	l Method: lyzed: reparation:	S 8015 D 2011-02-23 2011-02-23		Prep Me Analyze Preparec	ethod: S 5035 d By: ME d By: ME
			RL					,
Parameter	Flag		Result		Units		Dilution	RL
GRO			29.8		mg/Kg		1	2.00
						Spike	Percent	Recovery
Surrogate		Flag	$\mathbf{Result}$	Units	Dilution	Amount	Recovery	Limits
Trifluorotolue	ene (TFT)		2.46	mg/Kg	1	2.00	123	36.3 - 158.9
4-Bromofluor	obenzene (4-BFB)		3.06	mg/Kg	1	2.00	153	22.2 - 160.2

#### Sample: 257296 - AH-3 3-3.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 77629 66550	Analytical Method: Date Analyzed: Sample Preparation:	SM 4500-Cl B 2011-02-15 2011-02-14	Prep Method: Analyzed By: Prepared By:	N/A AR AR
Parameter	Flag	RL Result	Units	Dilution	BL
Chloride	0	1250	mg/Kg	100	4.00

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#### Sample: 257296 - AH-3 3-3.5'

S 5035 ME ME RL
S 5035 ME ME
S 5035 ME ME
S 5035 ME
S 5035
70 - 130
Limits
Recovery
50.0
RL
r: kg
7: kg
1
h

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.57	mg/Kg	1	2.00	128	36.3 - 158.9
4-Bromofluorobenzene (4-BFB)		2.84	mg/Kg	1	2.00	142	22.2 - 160.2

#### Sample: 257297 - AH-3 4-4.5'

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Chloride		1090	mg/Kg	100	4.00
Parameter	Flag	RL Result	Units	Dilution	RL
Prep Batch:	66550	Sample Preparation:	2011-02-14	Prepared By:	AR
QC Batch:	77629	Date Analyzed:	2011-02-15	Analyzed By:	AR
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Laboratory:	Midland				

#### Sample: 257298 - AH-2 1-1.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland BTEX 77746 66683			Analytical Date Analy Sample Pro	Method: vzed: eparation:	S 8021B 2011-02-18 2011-02-17		Prep Me Analyzee Prepared	ethod: S d By: M d By: M	5035 1E 1E
				RL						
Parameter		Flag		$\operatorname{Result}$		Units		Dilution		RL
Benzene	·····			14.1		mg/Kg		50	0	.0200
Toluene				103		mg/Kg		50	0	.0200
Ethylbenzene				74.3		mg/Kg		50	0	.0200
Xylene				90.9		mg/Kg		50	0	.0200
							Spike	Percent	Reco	very
Surrogate			Flag	$\mathbf{Result}$	Units	Dilution	Amount	Recovery	Lim	its
Trifluorotolue	ene (TFT)			52.4	mg/Kg	50	50.0	105	51.6 -	149.2
4-Bromofluor	obenzene (4-Bl	FB)		65.3	mg/Kg	50	50.0	131	35.7 -	159.6

#### Sample: 257298 - AH-2 1-1.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 77629 66550	Analytical Method: Date Analyzed: Sample Preparation:	SM 4500-Cl B 2011-02-15 2011-02-14	Prep Method: Analyzed By: Prepared By:	N/A AR AR
		RL			
Parameter	Flag	Result	Units	Dilution	$\mathbf{RL}$
Chloride		1460	mg/Kg	100	4.00

#### Sample: 257298 - AH-2 1-1.5'

Laboratory:	Midland						
Analysis:	TPH DRO - N	<b>VEW</b>	Analyti	cal Method:	S 8015 D	Prep M	lethod: N/A
QC Batch:	77634		Date A	nalyzed:	2011-02-15	Analyz	ed By: kg
Prep Batch:	66584		Sample	Preparation:	2011-02-15	Prepare	ed By: kg
			$\mathbf{RL}$				
Parameter	F	lag	Result		Units	Dilution	$\operatorname{RL}$
DRO			8400	m	g/Kg	10	50.0
					Spike	Percent	Recovery
Surrogate	Flag	$\mathbf{Result}$	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	23	818	mg/Kg	10	100	818	70 - 130

<sup>23</sup>High surrogate recovery due to peak interference.

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#### Sample: 257298 - AH-2 1-1.5'

Laboratory: Midland Analysis: TPH GRO QC Batch: 77748 Prep Batch: 66683		Analytica Date Ana Sample Pi	l Method: lyzed: reparation:	S 8015 D 2011-02-18 2011-02-17		Prep Me Analyze Prepare	ethod: S 5035 d By: ME d By: ME
Davamatar	Flag	RL		Unita		Dilution	DI
GRO	Plag	2920		mg/Kg		50	2.00
		2020		mg/ Kg			2.00
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		53.5	mg/Kg	50	50.0	107	36.3 - 158.9
4-Bromofluorobenzene (4	-BFB)	73.1	mg/Kg	50	50.0	146	22.2 - 160.2
Method Blank (1)	QC Batch: 77597						
QC Batch: 77597		Date Ana	alyzed: 20	)11-02-14		Analy	zed By: ME
Prep Batch: 66561		QC Prepa	aration: 20	)11-02-14		Prepa	red By: ME
			MDL				
Parameter	Flag		Result		Uni	ts	RL
GRO			<0.753		mg/	Kg	2
					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	~~~	2.08	mg/Kg	1	2.00	104	74.6 - 127.8
4-Bromofluorobenzene (4	-BFB)	1.89	mg/Kg	1	2.00	94	32.9 - 129.8
Method Blank (1)	QC Batch: 77628						
QC Batch: 77628		Date Ana	alyzed: 20	)11-02-15		Analy	zed By: AR
Prep Batch: 66550		QC Prepa	aration: 20	)11-02-14		Prepa	ared By: AR
			MDL				
Parameter	Flag		Result		Uni	ts	RL
C111 11-			<0 10		m m / 1	(Z.m.	4

Method Blank (1) QC Batch: 77629

QC Batch:	77629	Date Analyzed:	2011-02-15	Analyzed By:	AR
Prep Batch:	66550	QC Preparation:	2011-02-14	Prepared By:	AR

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Parameter	Flag		MDL Result		U	nits					
Chloride		<2.18 mg/		/Kg							
Method Blank (1)	QC Batch: 77634										
QC Batch: 77634 Prep Batch: 66584		Date Ana QC Prep	alyzed: 2 aration: 2	011-02-15 011-02-15		Ana Prej	lyzed By: pared By:				
Parameter	Flag		MDL Result		Uı	nits					
DRO			<15.7		mg	/Kg					
Surrogate F	lag Result	Units	Dilu	tion	Spike Amount	Percent Recovery	Reco Lin	)v ni			
n-Tricosane	84.0	mg/Kg	]		100	84	70 -	]			
<b>Method Blank (1)</b> QC Batch: 77746 Prep Batch: 66683	QC Batch: 77746	Date Ana QC Prepa	lyzed: 20 aration: 20	)11-02-18 )11-02-17		Analy Prepa	yzed By: ared By:	N N			
Method Blank (1) QC Batch: 77746 Prep Batch: 66683	QC Batch: 77746	Date Ana QC Prepa	lyzed: 20 aration: 20 MI Basi	)11-02-18 )11-02-17 )L	I	Analy Prepa nite	yzed By: ared By:	N N			
Method Blank (1) QC Batch: 77746 Prep Batch: 66683 Parameter Benzene	QC Batch: 77746 Flag	Date Ana QC Prepa	lyzed: 20 aration: 20 MI Resu <0.01	011-02-18 011-02-17 0L 1lt 18	U	Analy Prepa nits z/Kg	yzed By: ared By:	$\frac{N}{0}$			
Method Blank (1) QC Batch: 77746 Prep Batch: 66683 Parameter Benzene Toluene	QC Batch: 77746 Flag	Date Ana QC Prepa	lyzed: 20 aration: 20 MI Resu <0.01 <0.006	011-02-18 011-02-17 0L 0lt 18 00	U 	Analy Prepa nits g/Kg g/Kg	yzed By: ared By:				
Method Blank (1) QC Batch: 77746 Prep Batch: 66683 Parameter Benzene Toluene Ethylbenzene	QC Batch: 77746 Flag	Date Ana QC Prepa	lyzed: 20 aration: 20 MI Resu <0.001 <0.006 <0.008	011-02-18 011-02-17 0L 01t 18 00 50	U mg mg	Analy Prepa nits g/Kg g/Kg	yzed By: ared By:				
Method Blank (1) QC Batch: 77746 Prep Batch: 66683 Parameter Benzene Toluene Ethylbenzene Xylene	QC Batch: 77746 Flag	Date Ana QC Prepa	lyzed: 20 aration: 20 MI Resu <0.01 <0.006 <0.008 <0.006	011-02-18 011-02-17 0L 01t 18 00 50 13	U mg mg mg mg	Analy Prepa s/Kg s/Kg s/Kg s/Kg	yzed By: ared By:				
Method Blank (1) QC Batch: 77746 Prep Batch: 66683 Parameter Benzene Toluene Ethylbenzene Xylene Surrogate	QC Batch: 77746 Flag Flag	Date Ana QC Prepa	lyzed: 20 aration: 20 MI Rest <0.01 <0.006 <0.008 <0.008 <0.006 Units	011-02-18 011-02-17 0L 1lt 18 00 50 13 Dilution	U mg mg Spike Amount	Analy Prepa s/Kg s/Kg s/Kg s/Kg s/Kg Percent Recovery	yzed By: ared By: Recov Limi				
Method Blank (1) QC Batch: 77746 Prep Batch: 66683 Parameter Benzene Toluene Ethylbenzene Xylene Surrogate Trifluorotoluene (TFT	QC Batch: 77746 Flag Flag	Date Ana QC Prepa Result 1.76	lyzed: 20 aration: 20 MI Resu <0.01 <0.006 <0.008 <0.006 Units mg/Kg	011-02-18 011-02-17 0L 1lt 18 00 50 13 Dilution 1	U mg mg Spike Amount 2.00	Analy Prepa nits g/Kg g/Kg g/Kg g/Kg Percent Recovery 88	yzed By: ared By: Recov Limi 70.8 - 1				
Method Blank (1) QC Batch: 77746 Prep Batch: 66683 Parameter Benzene Toluene Ethylbenzene Xylene Surrogate Trifluorotoluene (TFT 4-Bromofluorobenzene	QC Batch: 77746 Flag Flag Γ) e (4-BFB)	Date Ana QC Prepa Result 1.76 1.56	lyzed: 20 aration: 20 MI Resu <0.001 <0.008 <0.008 <0.006 Units mg/Kg mg/Kg	011-02-18 011-02-17 0L 11t 18 00 50 13 Dilution 1 1	U mg mg Spike Amount 2.00 2.00	Analy Prepa nits 5/Kg 5/Kg 5/Kg 5/Kg 5/Kg 7/Kg Percent Recovery 88 78	vzed By: ared By: Recov Limi 70.8 - 1 48.8 -				
Method Blank (1) QC Batch: 77746 Prep Batch: 66683 Parameter Benzene Toluene Ethylbenzene Xylene Surrogate Trifluorotoluene (TFT 4-Bromofluorobenzene Method Blank (1) QC Batch: 77748 Bran Batch: 66622	QC Batch: 77746 Flag Flag Γ) e (4-BFB) QC Batch: 77748	Date Ana QC Prepa Result 1.76 1.56	lyzed: 20 aration: 20 MI Resu <0.01 <0.006 <0.008 <0.006 Units mg/Kg mg/Kg mg/Kg	0)11-02-18 0)11-02-17 0)L 111 18 00 50 13 Dilution 1 1 1 0)11-02-18	U mg mg Spike Amount 2.00 2.00	Analy Prepa nits g/Kg g/Kg g/Kg Percent Recovery 88 78 Analy	vzed By: ared By: Recov Limi 70.8 - 1 48.8 - vzed By:				
Method Blank (1) QC Batch: 77746 Prep Batch: 66683 Parameter Benzene Toluene Ethylbenzene Xylene Surrogate Trifluorotoluene (TFT 4-Bromofluorobenzene Method Blank (1) QC Batch: 77748 Prep Batch: 66683	QC Batch: 77746 Flag Flag Flag (4-BFB) QC Batch: 77748	Date Ana QC Prepa Result 1.76 1.56 Date Ana QC Prepa	lyzed: 20 aration: 20 MI Rest <0.01 <0.006 <0.008 <0.006 Units mg/Kg mg/Kg mg/Kg	011-02-18 011-02-17 0L 11t 18 00 50 13 Dilution 1 1 1 011-02-18 011-02-17	U mg mg Spike Amount 2.00 2.00	Analy Prepa nits g/Kg g/Kg g/Kg g/Kg Percent Recovery 88 78 Analy Prepa	Recov Limi 70.8 - 1 48.8 - vzed By: ared By:	$\begin{bmatrix} N \\ N \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\$			
Method Blank (1) QC Batch: 77746 Prep Batch: 66683 Parameter Benzene Toluene Ethylbenzene Xylene Surrogate Trifluorotoluene (TFT 4-Bromofluorobenzene Method Blank (1) QC Batch: 77748 Prep Batch: 66683	QC Batch: 77746 Flag Flag (4-BFB) QC Batch: 77748	Date Ana QC Prepa Result 1.76 1.56 Date Ana QC Prepa	lyzed: 20 mation: 20 MI Resu <0.01 <0.006 <0.008 <0.006 Units mg/Kg mg/Kg mg/Kg lyzed: 20 ration: 20	0)11-02-18 0)11-02-17 0L 01 18 00 50 13 1 1 1 1 0)11-02-18 0)11-02-18 0)11-02-17	U mg mg Spike Amount 2.00 2.00	Analy Prepa s/Kg s/Kg s/Kg s/Kg Percent Recovery 88 78 Analy Prepa	vzed By: ared By: Recov Limi 70.8 - 1 48.8 - vzed By: ared By:	$ \begin{array}{c} \mathbf{N} \\ \mathbf{M} \\ 1 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 1 \\ 1 \\ 1 \\ 1$			

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					Spike	Percent	Recovery
Surrogate	$\mathbf{Flag}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1.80	mg/Kg	1	2.00	90	74.6 - 127.8
4-Bromofluorobenzene (4-BF	B)	1.45	mg/Kg	1	2.00	72	32.9 - 129.8
Method Blank (1) QC	2 Batch: 77767						
QC Batch: 77767		Date An	alvzed: 20	)11-02-14		Analy	zed By: ME
Prep Batch: 66561		QC Prer	paration: 20	)11-02-14		Prepa	red By: ME
		••••				-1	
Dovemator	Flog		MD	)L	Un	ita	PT
Benzene	L'Iag		<0.01	18	mg	/Kσ	0.02
Toluene			<0.01	00	mg/	/Ko	0.02
Ethylbenzene			<0.008	50	mg/	/Kg	0.02
Xvlene			< 0.006	13	mg/	/Kg	0.02
<u> </u>							
					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		2.15	mg/Kg	1	2.00	108	70.8 - 123.5
4-Bromofluorobenzene (4-BF)	В)	2.18	mg/Kg	1	2.00	109	48.8 - 134
Method Blank (1) QC	Batch: 77858						
OC Batch: 77858		Date An	alvzed 20	111-02-23		Analy	zed By: ME
Prep Batch: 66777		QC Prep	aration: 20	11-02-23		Prepa	red By: ME
		40 P				Topa	
			MD	L			
Parameter	Flag		Resu	lt	Un	its	RL
Benzene			< 0.011	18	mg/	′Kg	0.02
Toluene			< 0.0060	00	mg/	'Kg	0.02
Ethylbenzene			<0.008	50	mg/	Kg	0.02
Xylene	·····		<0.006	13	mg/	'Kg	0.02
					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1.90	mg/Kg	1	2.00	95	70.8 - 123.5
(11 =)							

Method Blar	nk (1)	QC Batch: 77859				
QC Batch:	77859		Date Analyzed:	2011-02-23	Analyzed By:	ME
Prep Batch:	66777		QC Preparation:	2011-02-23	Prepared By:	ME

Report Date: February 114-6400815	y 28, 2011	······································	Work Orden COG/RJU	r: 11021118 South TB		Page Nu	umber: 22 of 40 Eddy Co., NM
Danamatan	Flog		MDI		Un	ite	DI
CRO	r lag			և 2			<u>nL</u>
	· · · · · · · · · · · · · · · · · · ·				mg/	ng	
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	)	1.97	mg/Kg	1	SpikePercentDilutionAmountRecovery12.0098		74.6 - 127.8
4-Bromofluorobenzene	(4-BFB)	2.09	mg/Kg	1	2.00	104	32.9 - 129.8
Method Blank (1)	QC Batch: 77882						
QC Batch: 77882 Brop Botch: 66706		Date An	alyzed: 2	2011-02-23		Ana	lyzed By: kg
riep Datch: 00790		QUIR		2011-02-23		геţ	bared by: kg
			MDL				
Parameter	Flag		Result		Uni	its	RL
DRO			<15.7	,	mg/	Kg	50
Cumorato Ela	a Popult	Unita	D:I.	tion	Spike Amount	Percent	Recovery
n Tricosano		mg/Kg	Diit	1	Amount	<u>necovery</u>	
Mothod Blank (1)	OC Batch: 77020						
Methou Dialik (1)	QC Datcii. 11929						
QC Batch: 77929		Date Ana	alyzed: 2	011-02-25		Analy	zed By: ME
Prep Batch: 66842		QC Prepa	aration: 2	011-02-25		Prepa	red By: ME
			MDI				
Parameter	Flag		Result		Uni	ite	BL
GBO	1 /46		<0.753	, 	Om	Kø	2
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	<u>```</u>	1.92	mg/Kg	1	2.00	96	74.6 - 127.8
4-Bromofluorobenzene	(4-BFB)	2.22	mg/Kg	1	2.00	111	32.9 - 129.8
Method Blank (1)	QC Batch: 77932						

QC Batch:	77932	Date Analyzed:	2011-02-25	Analyzed By:	kg
Prep Batch:	66844	QC Preparation:	2011-02-25	Prepared By:	kg

114-6400815			COG/RJU South TB				Eddy Co., NM			
<b>D</b>				М	DL		<b>TT</b> 1.			DI
Parameter		Flag		Re	Sult	·······				
DRO				<.	.5.7		mg/Kg	5		
						Spike		Percent	F	lecovery
Surrogate	Flag	Result	Units	]	Dilution	Amount	;	Recovery		Limits
n-Tricosane		91.4	mg/Kg		1	100		91		70 - 130
Laboratory Cor	ntrol Spike (l	LCS-1)								
QC Batch: 775	97		Date Ana	lyzed:	2011-02-14			Ana	lyzed By	: ME
Prep Batch: 665	61		QC Prepa	ration:	2011-02-14			Prep	ared By	: ME
		$\mathbf{LC}$	S			Spike	Matri	ix		Rec.
Param		Res	ult U	Inits	Dil.	Amount	Resul	lt Re	с.	Limit
GRO		16.	7 m	g/Kg	1	20.0	<0.75	53 84	6	1.8 - 97
Param		LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param GRO Percent recovery i	s based on the	LCSD Result 16.4 spike result.	Units mg/Kg RPD is ba	Dil. 1 ased on	Spike Amount 20.0 the spike and	Matrix Result <0.753 d spike dup	Rec. 82 licate res	Rec. Limit 61.8 - 97 sult.	RPD 2	RPD Limit 20
Param GRO Percent recovery i	s based on the	LCSD Result 16.4 spike result.	Units mg/Kg RPD is ba LCSI	Dil. 1 ased on	Spike Amount 20.0 the spike and	Matrix Result <0.753 d spike dup Spike	Rec. 82 ( licate res	Rec. Limit 61.8 - 97 pult. 5 LCSD	RPD 2	RPD Limit 20 Rec.
Param GRO Percent recovery i Surrogate	s based on the	LCSD Result 16.4 spike result. LCS Resul	Units mg/Kg RPD is ba LCSI t Resul	Dil. 1 ased on D lt U	Spike Amount 20.0 the spike and nits Dil.	Matrix Result <0.753 d spike dup Spike Amoun	Rec. 82 licate res LCS t Rec.	Rec.           Limit           61.8 - 97           sult.           5         LCSD           .         Rec.	RPD 2	RPD Limit 20 Rec.
Param GRO Percent recovery i Surrogate Trifluorotoluene ('	s based on the	LCSD Result 16.4 spike result. LCS Resul 1.99	Units mg/Kg RPD is ba LCSI t Resul 2.02	Dil. 1 ased on 0 lt U m	Spike Amount 20.0 the spike and Inits Dil. g/Kg 1	Matrix Result <0.753 d spike dup Spike Amoun 2.00	Rec. 82 licate res LCS t Rec 100	Rec.           Limit           61.8 - 97           oult.           5         LCSD           .         Rec.           0         101	RPD 2 1 74.	RPD Limit 20 Rec. Jimit 6 - 124
Param GRO Percent recovery i Surrogate Trifluorotoluene (' 4-Bromofluoroben	s based on the FFT) zene (4-BFB)	LCSD Result 16.4 spike result. LCS Resul 1.99 1.94	Units mg/Kg RPD is ba LCSI t Resul 2.02 1.97	Dil. 1 ased on 0 lt U m m	Spike Amount 20.0 the spike and fnits Dil. g/Kg 1 g/Kg 1	Matrix Result <0.753 d spike dup Spike Amoun 2.00 2.00	Rec. 82 licate res LCS t Rec. 100 97	Rec.           Limit           61.8 - 97           oult.           5         LCSD           .         Rec.           0         101           98	RPD 2 1 74. 53.9	RPD Limit 20 Rec. Jimit 6 - 124 - 121.1
Param GRO Percent recovery i Surrogate Trifluorotoluene (' 4-Bromofluoroben Laboratory Con QC Batch: 776 Prep Batch: 6655	s based on the TFT) zene (4-BFB) itrol Spike (I 28 50	LCSD Result 16.4 spike result. LCS Resul 1.99 1.94	Units mg/Kg RPD is ba LCSI t Resul 2.02 1.97 Date Ana QC Prepa	Dil. 1 ased on 0 1t U m m lyzed: aration:	Spike Amount 20.0 the spike and mits Dil. g/Kg 1 g/Kg 1 2011-02-15 2011-02-14	Matrix Result <0.753 d spike dup Spike Amoun 2.00 2.00	Rec. 82 licate res LCS t Rec. 100 97	Rec. Limit 61.8 - 97 Jult. 5 LCSD . Rec. 0 101 98 Ana Prep	RPD 2 1 74. 53.9 lyzed By pared By	RPD           Limit           20           Rec.           Jimit           6 - 124           0 - 121.1           /:           /:           /:           /:           AR
Param GRO Percent recovery i Surrogate Trifluorotoluene (' 4-Bromofluoroben Laboratory Con QC Batch: 776: Prep Batch: 665: Param	s based on the TFT) zene (4-BFB) ttrol Spike (I 28 50	LCSD Result 16.4 spike result. LCS Resul 1.99 1.94 LCS-1)	Units mg/Kg RPD is ba LCSI t Resul 2.02 1.97 Date Ana QC Prepa	Dil. 1 ased on D t U m Jut U ased on D Lt U m Jut U M Jut U Juits	Spike Amount 20.0 the spike and mits Dil. g/Kg 1 g/Kg 1 2011-02-15 2011-02-14 Dil.	Matrix Result <0.753 d spike dup Spike Amoun 2.00 2.00 Spike Amount	Rec. 82 licate res LCS t Rec. 100 97 Matr Resu	Rec. Limit 61.8 - 97 Jult. 5 LCSD . Rec. 0 101 98 Ana Prep	RPD 2 I 74. 53.9 lyzed By bared By	RPD Limit 20 Rec. Jimit 6 - 124 - 121.1 7: AR 7: AR 7: AR 7: AR 8: AR
Param GRO Percent recovery i Surrogate Trifluorotoluene (' 4-Bromofluoroben Laboratory Con QC Batch: 776: Prep Batch: 665: Param Chloride	s based on the TFT) zene (4-BFB) utrol Spike (I 28 50	LCSD Result 16.4 spike result. LCS Resul 1.99 1.94 LCS-1) LCS-1)	Units mg/Kg RPD is ba LCSI t Resul 2.02 1.97 Date Ana QC Prepa S ult U	Dil. 1 ased on D t U m m lyzed: aration: Jnits g/Kg	Spike Amount 20.0 the spike and mits Dil. g/Kg 1 g/Kg 1 2011-02-15 2011-02-14 Dil. 1	Matrix Result <0.753 d spike dup Spike Amoun 2.00 2.00 2.00 2.00 100	Rec. 82 licate res LCS t Rec. 100 97 Matr Resu <2.1	Rec. Limit 61.8 - 97 Jult. 5 LCSD . Rec. 0 101 98 Ana Prep ix lt Re 18 9	RPD 2 I 74. 53.9 lyzed By bared By oc. 5	RPD Limit 20 Rec. Jimit 6 - 124 0 - 121.1 7: AR 7: AR
Param GRO Percent recovery i Surrogate Trifluorotoluene (' 4-Bromofluoroben Laboratory Con QC Batch: 776: Prep Batch: 665: Param Chloride Percent recovery is	s based on the TFT) zene (4-BFB) <b>utrol Spike (I</b> 28 50 50	LCSD Result 16.4 spike result. LCS Resul 1.99 1.94 LCS-1) LCS-1 LC Ress 96. spike result.	Units mg/Kg RPD is ba LCSI t Resul 2.02 1.97 Date Ana QC Prepa S ult U 4 m RPD is ba	Dil. 1 ased on D t U m m lyzed: aration: Jnits g/Kg ased on	Spike Amount 20.0 the spike and mits Dil. g/Kg 1 g/Kg 1 2011-02-15 2011-02-14 Dil. 1 the spike and	Matrix Result <0.753 d spike dup Spike Amount 2.00 2.00 2.00 d spike dup	Rec. 82 licate res LCS t Rec. 100 97 Matr Resu <2.1 licate res	Rec. Limit 61.8 - 97 Jult. S LCSD . Rec. 0 101 98 Ana Prep fix lt Rec. 8 9 Jult.	RPD 2 I 74. 53.9 lyzed By bared By oared By	RPD Limit 20 Rec. Jimit 6 - 124 - 121.1 7: AR 7: AR 7: AR 7: AR 8: AR 8: Limit 85 - 115
Param GRO Percent recovery i Surrogate Trifluorotoluene (' 4-Bromofluoroben Laboratory Con QC Batch: 776: Prep Batch: 665: Param Chloride Percent recovery is	s based on the TFT) zene (4-BFB) <b>utrol Spike (I</b> 28 50 50 s based on the	LCSD Result 16.4 spike result. LCS Resul 1.99 1.94 LCS-1) LCS-1)	Units mg/Kg RPD is ba LCSI t Resul 2.02 1.97 Date Ana QC Prepa S ult U 4 m RPD is ba	Dil. 1 ased on D t U m m lyzed: aration: Jnits g/Kg ased on	Spike Amount 20.0 the spike and Inits Dil. g/Kg 1 g/Kg 1 2011-02-15 2011-02-14 Dil. 1 the spike and Spike	Matrix Result <0.753 d spike dup Spike Amoun 2.00 2.00 2.00 d spike dup Matrix	Rec. 82 licate res LCS t Rec 100 97 Matr Resu <2.1 licate res	Rec. Limit 61.8 - 97 Jult. 5 LCSD . Rec. 9 101 98 Ana Prep ix ult Re 8 9 Jult. Rec.	RPD 2 I 74. 53.9 lyzed By bared By ec. 6	RPD           Limit           20           Rec.           Jimit           6 - 124           - 121.1           7: AR           r: AR           Rec.           Limit           35 - 115           RPD
Param GRO Percent recovery i Surrogate Trifluorotoluene (' 4-Bromofluoroben Laboratory Con QC Batch: 776: Prep Batch: 665: Param Chloride Percent recovery is Param	s based on the TFT) zene (4-BFB) ntrol Spike (1 28 50 s based on the	LCSD Result 16.4 spike result. LCS Resul 1.99 1.94 LCS-1) LCS-1)	Units mg/Kg RPD is ba LCSI t Resul 2.02 1.97 Date Ana QC Prepa S ult U RPD is ba Units	Dil. Dil. Dil. Dil. Dil. Dil. Dil.	Spike Amount 20.0 the spike and mits Dil. g/Kg 1 g/Kg 1 2011-02-15 2011-02-14 Dil. 1 the spike and Spike Amount	Matrix Result <0.753 d spike dup Spike Amount 2.00 2.00 2.00 d spike dup Matrix Result	Rec. 82 licate res LCS t Rec. 100 97 Matr Resu <2.1 licate res Rec.	Rec. Limit 61.8 - 97 Jult. 5 LCSD . Rec. 0 101 98 Ana Prep ix alt Rec. Limit	RPD 2 II 74. 53.9 lyzed By bared By cc. 5	RPD           Limit           20           Rec.           Jimit           6 - 124           0 - 121.1           7: AR           r: AR           Rec.           Limit           35 - 115           RPD           Limit

114-6400815		Work Order: 11021118     Page Number       COG/RJU South TB     Edited							Co.
Laboratory Control Spike (I	CS-1)								
QC Batch: 77629	Da	ate Analyzed:	2011-02-1	5			Anal	vzed B	v:
Prep Batch: 66550	Q	C Preparation:	2011-02-1	4			Prep	ared B	y:
	LCS			Spike	Ma	atrix			B
Param	Result	Units	Dil.	Amoun	t Re	esult	Ree	с.	Li
Chloride	96.2	mg/Kg	1	100	<:	2.18	96	6	85
Percent recovery is based on the	spike result. RP	PD is based on	the spike a	nd spike d	uplicate 1	result.			
	LCSD		Spike	Matrix		Re	ec.		]
Param	Result	Units Dil.	Amount	Result	Rec.	Lin	nit	RPD	I
Chloride	102 m	ng/Kg 1	100	<2.18	102	85 -	115	6	
Laboratory Control Spike (I QC Batch: 77634 Prep Batch: 66584	,CS-1) D	ate Analyzed: C Preparation:	2011-02-1 2011-02-1	15 15			Ana Pre	alyzed H pared E	Зу: Зу:
Laboratory Control Spike (I QC Batch: 77634 Prep Batch: 66584	JCS-1) D Q LCS	ate Analyzed: C Preparation:	2011-02-1 2011-02-1	15 15 Spike	Matri	ix	Ana Pre	alyzed I pared E	3y: 3y: Re
Laboratory Control Spike (I QC Batch: 77634 Prep Batch: 66584 Param	CS-1) D Q LCS Result	ate Analyzed: C Preparation: Units	2011-02- 2011-02- Dil.	15 15 Spike Amount	Matri Resul	ix lt	Ana Pre Rec.	nlyzed I pared E J	3y: 3y: Rec Lim
Laboratory Control Spike (I QC Batch: 77634 Prep Batch: 66584 Param DRO	CS-1) D Q LCS Result 234	ate Analyzed: C Preparation: Units mg/Kg	2011-02- 2011-02- Dil.	15 15 Spike Amount 250	Matri Resul <15.	ix lt 7	Ana Pre Rec. 94	alyzed E pared E I 47.5	By: By: Rec Lim
Laboratory Control Spike (I         QC Batch:       77634         Prep Batch:       66584         Param	CS-1) D Q LCS Result 234 spike result. RP	ate Analyzed: C Preparation: Units mg/Kg PD is based on t	2011-02- 2011-02- Dil. 1 the spike an	15 15 Amount 250 nd spike d	Matri Resul <15. uplicate r	ix lt 7 result.	Ana Pre Rec. 94	alyzed F pared E 1 47.5	By: By: Rec Lim
Laboratory Control Spike (I QC Batch: 77634 Prep Batch: 66584 Param DRO Percent recovery is based on the	CS-1) D Q LCS Result 234 spike result. RP LCSD	ate Analyzed: C Preparation: Units mg/Kg PD is based on t	2011-02- 2011-02- Dil. 1 the spike an Spike	15 15 Amount 250 nd spike d Matrix	Matri Resul <15. uplicate r	ix lt 7 result. Rec	Ana Pre Rec. 94	alyzed I pared E 1 47.5	By: By: Red Lim
Laboratory Control Spike (I QC Batch: 77634 Prep Batch: 66584 Param DRO Percent recovery is based on the Param	CS-1) D Q LCS Result 234 spike result. RF LCSD Result U	ate Analyzed: C Preparation: Units mg/Kg PD is based on f Inits Dil.	2011-02- 2011-02- Dil. 1 the spike an Spike Amount	15 15 Amount 250 nd spike d Matrix Result	Matri Resul <15. uplicate r Rec.	ix lt 7 result. Rec Limi	Ana Pre <u>Rec.</u> 94	Alyzed I pared E I 47.: RPD	By: By: Red Lim 5 - 1
Laboratory Control Spike (I QC Batch: 77634 Prep Batch: 66584 Param DRO Percent recovery is based on the Param DRO	CS-1) Dr Q LCS Result 234 spike result. RF LCSD Result U 263 mg	ate Analyzed: C Preparation: Units mg/Kg PD is based on f nits Dil. g/Kg 1	2011-02- 2011-02- Dil. 1 the spike at Spike Amount 250	15 Spike Amount 250 nd spike d Matrix Result <15.7	Matri Resul <15. uplicate r Rec. 105 4	ix lt result. Rec Limi 47.5 - 1	Ana Pre <u>Rec.</u> 94 2. it 144.1	lyzed H pared E 47.5 RPD 12	By: By: Lim 5 - 1 I
Laboratory Control Spike (I         QC Batch:       77634         Prep Batch:       66584         Param	CS-1) D Q LCS Result 234 spike result. RP LCSD Result U 263 mg spike result. RP	ate Analyzed: C Preparation: Units mg/Kg PD is based on f (nits Dil. g/Kg 1 PD is based on f	2011-02- 2011-02- Dil. 1 the spike an Spike Amount 250 the spike an	15 15 Amount 250 nd spike d Matrix Result <15.7 nd spike d	Matri Resul <15. uplicate r Rec. 105 uplicate r	ix lt result. Rec Limi 47.5 - 1 result.	Ana Pre <u>Rec.</u> 94 2. it 144.1	lyzed E pared E 47.: <u>RPD</u> 12	By: By: Rec Lim 5 -
Laboratory Control Spike (I QC Batch: 77634 Prep Batch: 66584 Param DRO Percent recovery is based on the Param DRO Percent recovery is based on the LCS	CS-1) LCS Result 234 spike result. RP LCSD Result U 263 mg spike result. RP LCSD	ate Analyzed: C Preparation: Units mg/Kg PD is based on the finits Dil. g/Kg 1 PD is based on the	2011-02- 2011-02- Dil. 1 the spike an Spike Amount 250 the spike an	15 Spike Amount 250 nd spike d Matrix Result <15.7 nd spike d Spike	Matri Resul <15. uplicate r Rec. 105 4 uplicate r LCS	ix lt 7 result. Rec Limi 47.5 - 1 result. S	Ana Pre Rec. 94	lyzed F pared E 47.5 RPD 12	By: By: Lim 5 -
Laboratory Control Spike (I         QC Batch:       77634         Prep Batch:       66584         Param	CS-1) LCS Result 234 spike result. RP LCSD Result U 263 mg spike result. RP LCSD Result RP	ate Analyzed: C Preparation: Units mg/Kg PD is based on to finits Dil. g/Kg 1 PD is based on to Units	2011-02- 2011-02- Dil. 1 the spike an Spike Amount 250 the spike an Dil.	15 15 Amount 250 nd spike d Matrix Result <15.7 nd spike d Spike Amount	Matri Resul <15. uplicate r Rec. 105 4 uplicate r LCt Rec	ix lt 7 result. Limi 47.5 - 1 result. S	Ana Pre Rec. 94 2. it 144.1 LCSD Rec.	hlyzed F pared E 47.5 RPD 12	By: By: Chim D -
Laboratory Control Spike (I         QC Batch:       77634         Prep Batch:       66584         Param	CS-1) LCS Result 234 spike result. RP LCSD Result U 263 mg spike result. RP LCSD Result RP	ate Analyzed: C Preparation: Units mg/Kg PD is based on f (nits Dil. g/Kg 1 PD is based on f Units	2011-02- 2011-02- Dil. 1 the spike an Spike Amount 250 the spike an Dil.	15 15 Amount 250 nd spike d Matrix Result <15.7 nd spike d Spike Amount	Matri Resul <15. uplicate r Rec. 105 4 uplicate r LC: Rec	ix lt 7 result. Limi 47.5 - 1 result. S 2.	Ana Pre Rec. 94 2. it 144.1 LCSD Rec.	Alyzed I pared I 47. RPD 12	
Laboratory Control Spike (I         QC Batch:       77634         Prep Batch:       66584         Param	ACS-1) D: Q LCS Result 234 spike result. RP LCSD Result U 263 mg spike result. RP LCSD Result I 127 ACS-1)	ate Analyzed: C Preparation: Units mg/Kg PD is based on f nits Dil. g/Kg 1 PD is based on f Units mg/Kg	2011-02- 2011-02- Dil. 1 the spike an Spike Amount 250 the spike an Dil. 1	15 15 Spike Amount 250 nd spike d Matrix Result <15.7 nd spike d Spike Amount 100	Matri Resul <15. uplicate r Rec. 105 4 uplicate r LCS Rec 106	ix lt 7 result. Rec Limi 47.5 - 1 result. S 2. 5	Ana Pre Rec. 94 2. it 144.1 LCSD Rec. 127	Alyzed F pared E I 47: RPD 12	By R Lin 5 -

Param	$\begin{array}{c} \mathrm{LCS} \\ \mathrm{Result} \end{array}$	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.86	mg/Kg	1	2.00	< 0.0118	93	76.4 - 118.4
Toluene	1.85	mg/Kg	1	2.00	< 0.00600	92	81.8 - 111.9

continued ...

control spikes continued ...

	LCS			Spike	Matrix		Rec.
Param	$\operatorname{Result}$	Units	Dil.	Amount	Result	Rec.	Limit
Ethylbenzene	1.83	mg/Kg	1	2.00	< 0.00850	92	81.1 - 112.2
Xylene	5.44	mg/Kg	1	6.00	< 0.00613	91	81.7 - 111.5

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	$\operatorname{Result}$	Units	Dil.	Amount	$\mathbf{Result}$	Rec.	$\operatorname{Limit}$	RPD	Limit
Benzene	1.86	mg/Kg	1	2.00	< 0.0118	93	76.4 - 118.4	0	20
Toluene	1.88	mg/Kg	1	2.00	< 0.00600	94	81.8 - 111.9	<b>2</b>	20
Ethylbenzene	1.89	mg/Kg	1	2.00	< 0.00850	94	81.1 - 112.2	3	20
Xylene	5.62	mg/Kg	1	6.00	< 0.00613	94	81.7 - 111.5	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)	1.84	1.70	mg/Kg	1	2.00	92	85	69 - 123.3
4-Bromofluorobenzene (4-BFB)	2.20	2.07	mg/Kg	1	2.00	110	104	64.9 - 131.9

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

QC Batch:	77748	Date Analyzed:	2011-02-18	Analyzed By:	ME
Prep Batch:	66683	QC Preparation:	2011-02-17	Prepared By:	ME

	LCS			Spike	Matrix		Rec.
Param	$\operatorname{Result}$	Units	Dil.	Amount	Result	Rec.	Limit
GRO	14.1	mg/Kg	1	20.0	< 0.753	70	61.8 - 97

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

GRO	13.9	mø/Kø	1	20.0	< 0.753	70	61.8 - 97	1	20
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
	LCSD			Spike	Matrix		Rec.		RPD

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)	2.03	1.91	mg/Kg	1	2.00	102	96	74.6 - 124
4-Bromofluorobenzene (4-BFB)	1.74	1.64	mg/Kg	1	2.00	87	82	53.9 - 121.1

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

QC Batch:	77767	Date Analyzed:	2011-02-14	Analyzed By:	ME
Prep Batch:	66561	QC Preparation:	2011-02-14	Prepared By:	ME

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Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	2.05	mg/Kg	1	2.00	< 0.0118	102	76.4 - 118.4
Toluene	2.05	mg/Kg	1	2.00	< 0.00600	102	81.8 - 111.9
Ethylbenzene	2.06	mg/Kg	1	2.00	< 0.00850	103	81.1 - 112.2
Xylene	6.19	mg/Kg	1	6.00	< 0.00613	103	81.7 - 111.5

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	2.02	mg/Kg	1	2.00	< 0.0118	101	76.4 - 118.4	2	20
Toluene	2.01	mg/Kg	1	2.00	< 0.00600	100	81.8 - 111.9	$^{2}$	20
Ethylbenzene	2.05	mg/Kg	1	2.00	< 0.00850	102	81.1 - 112.2	0	20
Xylene	6.18	mg/Kg	1	6.00	< 0.00613	103	81.7 - 111.5	0	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	$\mathbf{Result}$	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	2.20	2.12	mg/Kg	1	2.00	110	106	69 - 123.3
4-Bromofluorobenzene (4-BFB)	2.38	2.26	mg/Kg	1	2.00	119	113	64.9 - 131.9

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

QC Batch:	77858	Date Analyzed:	2011-02-23	Analyzed By:	ME
Prep Batch:	66777	QC Preparation:	2011-02-23	Prepared By:	ME

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene	1.96	mg/Kg	1	2.00	< 0.0118	98	76.4 - 118.4
Toluene	1.99	mg/Kg	1	2.00	< 0.00600	100	81.8 - 111.9
Ethylbenzene	2.04	mg/Kg	1	2.00	< 0.00850	102	81.1 - 112.2
Xylene	6.14	mg/Kg	1	6.00	< 0.00613	102	81.7 - 111.5

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	1.96	mg/Kg	1	2.00	< 0.0118	98	76.4 - 118.4	0	20
Toluene	1.95	mg/Kg	1	2.00	< 0.00600	98	81.8 - 111.9	$^{2}$	20
Ethylbenzene	2.01	mg/Kg	1	2.00	< 0.00850	100	81.1 - 112.2	<b>2</b>	20
Xylene	6.05	mg/Kg	1	6.00	< 0.00613	101	81.7 - 111.5	2	20

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

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	2.01	1.97	mg/Kg	1	2.00	100	98	69 - 123.3

continued ...

114-6400815		••• •••	Ork Orde	J South 1	ГВ 			Page N	Eddy	Co., NM
control spikes continued	LCS Result	LCSD Result	u Uni	ts Di	Spi il. Amo	ke ount	LCS Rec.	LCSD Rec.		Rec. Limit
4-Bromofluorobenzene (4-BFB)	2.46	2.39	mg/	Kg 1	2.(	00	123	120	64.	9 - 131.9
Laboratory Control Spike (LC QC Batch: 77859 Prep Batch: 66777	CS-1) I (	Date Anal QC Prepa	yzed:	2011-02-2 2011-02-2	23 23			Anal Prep	yzed Bj ared By	y: ME y: ME
Param GRO Percent recovery is based on the s	LCS Resul 15.6 pike result. F	t U mg PD is ba	nits /Kg sed on th	Dil. 1 e spike a	Spike Amount 20.0 nd spike d	uplica	Matrix Result <0.753	c Rec 3 78	<u>.</u> (	Rec. Limit 31.8 - 97
Param	LCSD Bosult	Unite	הי היו	Spike	Matrix Result	Bo		Rec.	RDD	RPD Limit
r ai ani	nesuit		1		<0.752		$\frac{1}{2}$			
GRO Percent recovery is based on the sp Surrogate	16.0 pike result. F LCS Result	Result	sed on th	e spike a ts Di	nd spike d Spi l. Amo	uplica ke unt	te resu LCS Rec.	llt. LCSD Rec.	]	Rec. Limit
GRO Percent recovery is based on the sp Surrogate Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (LC	16.0 pike result. F LCS Result 1.98 2.20	RPD is bar LCSD Result 2.02 2.24	sed on th Uni mg/i mg/i	e spike a ts Di Kg 1 Kg 1	1. Amo 2.0 2.0	uplica ke ount 10 10	LCS Rec. 99 110	LCSD Rec. 101 112	] 74. 53.9	Rec. Limit .6 - 124 ) - 121.1
GRO Percent recovery is based on the sp Surrogate Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (LC QC Batch: 77882 Prep Batch: 66796	16.0 pike result. R LCS Result 1.98 2.20 CS-1)	RPD is bar LCSD Result 2.02 2.24 Date Ana QC Prepa	sed on th Uni mg/i mg/i lyzed: ration:	2010 e spike a ts Di Kg 1 Kg 1 2011-02-5	23 23 20.105 2.0 2.0 2.0	uplica ke unt 00	LCS Rec. 99 110	LCSD Rec. 101 112 Ana Prej	74. 53.9 lyzed E pared E	Rec. Limit .6 - 124 ) - 121.1 3y: kg y: kg
GRO Percent recovery is based on the sp Surrogate Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (LC QC Batch: 77882 Prep Batch: 66796 Param	16.0 pike result. R LCS Result 1.98 2.20 CS-1)	Ing/ Kg PD is ba: LCSD Result 2.02 2.24 Date Ana QC Prepa	sed on th Uni mg/i mg/i lyzed: ration:	2010 e spike a ts Di Kg 1 Kg 1 2011-02-2 2011-02-2	co.ros nd spike d 1. Amo 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0	uplica ke bunt 00 00 M. Ra	LCS Rec. 99 110	LCSD Rec. 101 112 Ana Prej Rec.	74. 53.9 lyzed E pared E	Rec. Limit 6 - 124 ) - 121.1 3y: kg By: kg Rec. Limit
GRO Percent recovery is based on the spontaneous space Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (LC QC Batch: 77882 Prep Batch: 66796 Param DRO	16.0 pike result. F LCS Result 1.98 2.20 CS-1)	Ing/ Kg PD is ba: LCSD Result 2.02 2.24 Date Ana QC Prepa Un mg/	I sed on th mg/i mg/i lyzed: ration: kg	2010 e spike a ts Di Kg 1 Kg 1 2011-02-2 2011-02-2 2011-02-2 Dil. 1	Co.ros           nd spike d           Spi           1.         Amo           2.0           23           23           Spike           Amount           250	uplica ke bunt 00 00 M. Re	atrix atrix atrix	LCSD Rec. 101 112 Ana Prej Rec. 97	] 74. 53.9 lyzed E pared E I I 	Rec. Limit 6 - 124 ) - 121.1 3y: kg 3y: kg Rec. Limit - 144.1
GRO Percent recovery is based on the spontaneous space Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (LC QC Batch: 77882 Prep Batch: 66796 Param DRO Percent recovery is based on the sp	16.0 pike result. F LCS Result 1.98 2.20 CS-1) CS-1)	Ing/ Kg PD is bas LCSD Result 2.02 2.24 Date Anal QC Prepa Un mg/ RPD is bas	yzed: ration: Kg sed on the	2010 e spike a ts Di Kg 1 Kg 1 2011-02-5 2011-02-5 2011-02-5 2011-02-5 2011-02-5	Construction of spike d Spi 1. Amo 2.0 2.0 23 23 23 23 23 23 23 23 23 23 23 23 23	uplica ke 00 00 M. Ra vplica	atrix esult 15.7 te resu	LCSD Rec. 101 112 Ana Prej Rec. 97 It.	1 74. 53.9 lyzed E pared E 1 47.5	Rec. Limit .6 - 124 ) - 121.1 By: kg By: kg Rec. Limit - 144.1
GRO Percent recovery is based on the spontaneous space Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (LC QC Batch: 77882 Prep Batch: 66796 Param DRO Percent recovery is based on the sp Param	pike result. F LCS Result 1.98 2.20 CS-1) CS-1) LCS Result 242 pike result. R LCSD Result	Ing/ Kg PD is bas LCSD Result 2.02 2.24 Date Ana QC Prepa Un mg/ PD is bas Units	I sed on th mg/J mg/J lyzed: ration: its Kg sed on the Spil. A	e spike a ts Di Kg 1 Kg 1 2011-02-2 2011-02-2 2011-02-2 Dil. 1 e spike an Spike mount	23 23 23 23 23 23 23 23 23 23 23 23 23 2	Ma Ma Ma Ma Ma Ma Ma Ma Ma Ma	atrix esult 15.7 te resu	LCSD Rec. 101 112 Ana Prej Rec. 97 It. Rec. Limit	lyzed E bared E I 47.5 RPD	Rec. Limit .6 - 124 ) - 121.1 3y: kg 3y: kg Rec. Limit RPD Limit
GRO Percent recovery is based on the spontaneous spectral states of the spectral spe	pike result. R LCS Result 1.98 2.20 CS-1) CS-1)	Ing/Kg IPD is bas LCSD Result 2.02 2.24 Date Ana QC Prepa Un mg/ IPD is bas Units ng/Kg	yzed: ration: Kg Dil. Ai	2010 e spike a ts Di Kg 1 Kg 1 2011-02-5 200-5 2011-02-5	23 23 23 23 23 23 23 23 23 23 23 23 23 2	Ma Ma Ma Ma Ma Ma Ma Ma Ma Ma	atrix esult 15.7 te resu	LCSD Rec. 101 112 Ana Prej Rec. 97 It. Rec. Limit	lyzed E pared E 1 47.5 <u>RPD</u> 0	Rec. Limit .6 - 124 ) - 121.1 
GRO         Percent recovery is based on the spectrum         Surrogate         Trifluorotoluene (TFT)         4-Bromofluorobenzene (4-BFB)         Laboratory Control Spike (LC         QC Batch:       77882         Prep Batch:       66796         Param         DRO         Param         DRO         Param         DRO         Percent recovery is based on the spectrum         Precent recovery is based on the spectrum	16.0 pike result. R LCS Result 1.98 2.20 CS-1) CS-1) LCS Result 242 pike result. R LCSD Result 241 n pike result. R	Ing/Kg PD is base LCSD Result 2.02 2.24 Date Ana QC Prepa Units ng/Kg PD is base Units ng/Kg PD is base	yzed: ration: Mg/J lyzed: ration: Kg Dil. Ai 1 sed on the	e spike a ts Di Kg 1 Kg 1 2011-02-2 2011-02-2 Dil. 1 e spike an Spike mount 250 e spike an	23 23 23 23 23 23 23 23 23 23 23 23 23 2	Ma Ma Ma Ma Ma Ma Ma Ma Ma Ma	atrix esult 15.7 te resu 147.5 te resu	LCSD Rec. 101 112 Ana Prej Rec. 97 It. Rec. Limit - 144.1 It.	lyzed E pared E I 47.5 RPD 0	Rec. Limit .6 - 124 .9 - 121.1 
GRO Percent recovery is based on the sp Surrogate Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (LC QC Batch: 77882 Prep Batch: 66796 Param DRO Percent recovery is based on the sp Param DRO Percent recovery is based on the sp LCS Surrogate Result	16.0 pike result. R LCS Result 1.98 2.20 CS-1) CS-1) CS-1) CS-1)	Ing/Kg PD is bas LCSD Result 2.02 2.24 Date Ana QC Prepa Units ng/Kg PD is bas Units ng/Kg PD is bas Units	I sed on th mg/i mg/i lyzed: ration: its Kg sed on the Sed on the sed on the sed on the	e spike a ts Di Kg 1 Kg 1 2011-02-2 2011-02-2 2011-02-2 Dil. 1 e spike an Spike mount 250 e spike an Dil.	Spike Amount 23 23 23 23 23 23 23 23 23 23 23 23 23	M. uplica ke bunt 00 00 00 M. Rec uplica Rec. 96 uplica	atrix esult 15.7 te resu 147.5 te resu	LCSD Rec. 101 112 Ana Prej Rec. 97 It. Rec. Limit i. LCSD Rec.	lyzed E bared E I 47.5 RPD 0	Rec. Limit 6 - 124 9 - 121.1 3y: kg By: kg Rec. Limit RPD Limit 20 Rec. Limit

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

	Date Anal QC Prepa	yzed: ration:	2011-02 2011-02	-25 -25				Anal; Prepa	yzed By ared By	y: ME y: ME
LC Res	CS ult U	nits	Dil.	A	Spike Amount	Ma Res	trix sult	Rec		Rec. Limit
14	.0 mg	g/Kg	1		20.0	<0.	753	70	(	61.8 - 97
ased on the spike result.	RPD is ba	sed on	the spike	and	spike dup	licate r	esult.			
LCSD			Spike	:	Matrix		Re	ec.		RPD
Result	Units	Dil.	Amount	t	Result	Rec.	Lin	nit	RPD	Limit
15.1	mg/Kg	1	20.0		< 0.753	76	61.8	- 97	8	20
ased on the spike result.	RPD is ba	sed on	the spike	and	spike dup	licate r	esult.			
LCS	S LCSD	)			Spike	L	CS	LCSD		Rec.
Resu	lt Result	t U	nits I	Dil.	Amoun	t R	ec.	Rec.	3	Limit
<b>Γ</b> ) 1.82	2 1.84	mg	g/Kg	1	2.00	9	1	92	74	.6 - 124
e (4-BFB) 2.17	2.20	mg	g/Kg	1	2.00	10	08	110	53.9	) - 121.1
	$\begin{array}{c} & \text{LC}\\ & \text{Res}\\ \hline 14\\ \text{ased on the spike result.}\\ & \text{LCSD}\\ & \text{Result}\\ \hline 15.1\\ \text{ased on the spike result.}\\ & \text{LCS}\\ & \text{Resu}\\ \hline 15.1\\ \text{ased on the spike result.}\\ & \text{LCS}\\ & \text{Resu}\\ & \text{Resu}\\ & \text{LCS}\\ & \text{Resu}\\ & \text{LCS}\\ & \text{Resu}\\ & $	$\begin{array}{c c} \text{Date Anal}\\ \text{QC Prepa}\\\\\hline \\ \text{LCS}\\ \hline \\ \text{Result} & \text{U}\\ \hline \\ 14.0 & \text{mg}\\ \hline \\ \text{ased on the spike result. RPD is ba}\\\\\hline \\ \text{LCSD}\\ \hline \\ \text{Result} & \text{Units}\\ \hline \\ 15.1 & \text{mg/Kg}\\ \hline \\ \text{ased on the spike result. RPD is ba}\\\\\hline \\ \text{LCS} & \text{LCSD}\\ \hline \\ \hline \\ \text{ased on the spike result. RPD is ba}\\\\\hline \\ \text{LCS} & \text{LCSD}\\ \hline \\ \hline \\ \text{Result} & \text{Result}\\ \hline \\ \hline \\ \text{CS} & \text{LCSD}\\ \hline \\ \hline \\ \hline \\ \text{Result} & \text{Result}\\ \hline \\ \hline \\ \text{Result} & \text{Result}\\ \hline \\ \hline \\ \text{CS} & \text{LCSD}\\ \hline \\ \hline \\ \hline \\ \text{Result} & \text{Result}\\ \hline \hline \\ \hline \\ \hline \\ \text{CS} & \text{LCSD}\\ \hline \\ \hline \\ \hline \\ \ \\ \text{Result} & \text{Result}\\ \hline \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \text{CS} & \text{LCSD}\\ \hline \\ \hline$	$\begin{array}{c c} \text{Date Analyzed:} \\ \text{QC Preparation:} \\ \hline \\ \text{LCS} \\ \hline \\ \text{Result} & \text{Units} \\ \hline \\ 14.0 & \text{mg/Kg} \\ \hline \\ \text{ased on the spike result. RPD is based on} \\ \hline \\ \text{LCSD} \\ \hline \\ \text{Result} & \text{Units} & \text{Dil.} \\ \hline \\ \hline \\ 15.1 & \text{mg/Kg} & 1 \\ \hline \\ \text{ased on the spike result. RPD is based on} \\ \hline \\ \hline \\ \text{LCS} & \text{LCSD} \\ \hline \\ \hline \\ \text{ased on the spike result. RPD is based on} \\ \hline \\ \hline \\ \text{LCS} & \text{LCSD} \\ \hline \\ \hline \\ \hline \\ \text{Result} & \text{Result} & \text{U} \\ \hline \\ $	$\begin{array}{ccccc} Date Analyzed: & 2011-02\\ QC Preparation: & 2011-02\\ QC Preparation: & 2011-02\\ \hline \\ & & & & \\ \hline \\ & & & \\ \\ \hline \\ & & & \\ \hline \\ & & & \\ \hline \\ \\ \\ & & & \\ \hline \\ \\ \\ & & & \\ \hline \\ \\ \hline \\ \\ & & & \\ \hline \\ \\ \\ \hline \\ \hline \\ \hline \\ \\ \hline \\ \hline \\ \\ \hline \\ \\ \hline \\ \hline \\ \\ \hline \\ \hline \\$	$\begin{array}{c ccccc} Date Analyzed: & 2011-02-25\\ QC Preparation: & 2011-02-25\\ \end{array}$	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $

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

QC Batch:	77932	Date Analyzed:	2011-02-25	Analyzed By:	kg
Prep Batch:	66844	QC Preparation:	2011-02-25	Prepared By:	kg

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO	241	mg/Kg	1	250	<15.7	96	47.5 - 144.1

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	$\operatorname{Result}$	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO	224	mg/Kg	1	250	<15.7	90	47.5 - 144.1	7	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
n-Tricosane	111	108	mg/Kg	1	100	111	108	70 - 130

#### Matrix Spike (MS-1) Spiked Sample: 257206

QC Batch:	77597	Date Analyzed:	2011-02-14	Analyzed By:	ME
Prep Batch:	66561	QC Preparation:	2011-02-14	Prepared By:	ME

Report Date: February 28, 2011 114-6400815		Work Order: 11021118 COG/RJU South TB					Page Number: 29 of 4 Eddy Co., N			29 of 40 Co., NM	
Param	MS Resu	5 ilt	Units	Dil.	1	Spike Amount	M R	latrix cesult	Rec.	6	Rec. Limit
GRO	22	3 n	ng/Kg	1		20.0	1	.8232	102	0	5 - 108.5
Percent recovery is based on the s	pike result.	RPD is t	based or	n the spike	and	l spike du	plicat	e result.			
Param	${f MSD} {f Result}$	Units	Dil.	Spike Amount	t	Matrix Result	Rec.	Re Lir	ec. nit	RPD	RPD Limit
GRO	20.2	mg/Kg	1	20.0		1.8232	92	63 -	108.5	10	20
Percent recovery is based on the sp	pike result.	RPD is b	based or	n the spike	and	l spike du	plicat	e result.			
	1.40	MEC	חי			<b>S</b> mil		MC	MCD		Dec
Surrogate	M5 Resul	MS It Res	oD ult	Unite	Dil	Amo	unt	M5 Rec	Rec		Rec. Limit
Trifluorotoluene (TFT)	2 58	2.5	6 1	mg/Kg	1	2		129	128	54.	$\frac{1}{1} - 154.3$
4-Bromofluorobenzene (4-BFB)	2.56	2.5	59 i	mg/Kg	1	$\overline{2}$		128	130	41.	9 - 162.8
Matrix Spike (MS-1) Spiked QC Batch: 77628 Prep Batch: 66550	Sample: 25	57289 Date An QC Prep	alyzed: paration	2011-02 a: 2011-02	2-15 2-14				Anal Prep	yzed B ared B	y: AR y: AR
Param	MS	5	Units	Dil		Spike A mount	ז	Matrix Result	Rec	,	Rec. Limit
Chloride	1070	$\frac{11}{00}$ r	ng/Kg	100		10000	·······	504	102	<u>.</u> 2	85 - 115
Percent recovery is based on the su	nike result	RPD is l	used or	the snike	and	l spike du	nlicat	e result			
receivere is based on the s	pine result.		Jubeci of	i une spike	unu	opine da	pirode	c result.			
	MSD			Spike		Matrix	P	Re	ec.		RPD
Param Chlorida	Kesult	Units	Dil.	Amoun	it	Result	Rec 106	. L11	$\frac{\text{mit}}{115}$	$\frac{\text{RPD}}{4}$	Limit
Percent recovery is based on the sp	pike result.	RPD is b	based or	the spike	and	spike du	plicate	e result.	110	4	20
<b>Matrix Spike (MS-1)</b> Spiked QC Batch: 77629	Sample: 25	7298 Date An	alyzed:	2011-02	2-15				Anal	yzed B	y: AR
Prep Batch: 66550		QC Prep	paration	: 2011-02	2-14				Prepa	ared By	y: AR
	MS	3				Spike	M	Matrix			Rec.
Param	Rest	ılt	Units	Dil.		Amount	]	Result	Rec		Limit
Chloride	1130	00 n	ng/Kg	100		10000		1460	98		85 - 115
Percent recovery is based on the sp	oike result.	RPD is b	based on	n the spike	and	spike du	plicate	e result.			
	MSD			Spike		Matrix		Re	ec.		RPD
Param	Result	Units	Dil.	Amoun	t	Result	$\operatorname{Rec}$	. Lir	nit	RPD	Limit
Chloride	11800	mg/Kg	100	10000		1460	103	85 -	115	4	20

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

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Work Order: 11021118 COG/RJU South TB

#### Matrix Spike (MS-1) Spiked Sample: 257280

QC Batch:	77634	Date Analyzed:	2011-02-15	Analyzed By:	kg
Prep Batch:	66584	QC Preparation:	2011-02-15	Prepared By:	kg

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO	223	mg/Kg	1	250	<15.7	89	11.7 - 152.3

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	Result	Rec.	Limit	RPD	Limit
DRO	208	mg/Kg	1	250	<15.7	83	11.7 - 152.3	7	20

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

	$\mathbf{MS}$	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	$\mathbf{Result}$	Units	Dil.	Amount	Rec.	Rec.	Limit
n-Tricosane	101	94.3	mg/Kg	1	100	101	94	70 - 130

#### Matrix Spike (MS-1) Spiked Sample: 257470

QC Batch:	77746	Date Analyzed:	2011-02-18	Analyzed By:	ME
Prep Batch:	66683	QC Preparation:	2011-02-17	Prepared By:	MÈ

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene	1.85	mg/Kg	1	2.00	< 0.0118	92	65.5 - 139.8
Toluene	1.89	mg/Kg	1	2.00	< 0.00600	94	70.5 - 137.3
Ethylbenzene	1.84	mg/Kg	1	2.00	< 0.00850	92	66.7 - 151
Xylene	5.88	mg/Kg	1	6.00	0.6462	87	68.7 - 149.5

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	Result	Rec.	Limit	RPD	Limit
Benzene	1.83	mg/Kg	1	2.00	< 0.0118	92	65.5 - 139.8	1	20
Toluene	1.85	mg/Kg	1	2.00	< 0.00600	92	70.5 - 137.3	2	20
Ethylbenzene	1.84	mg/Kg	1	2.00	< 0.00850	92	66.7 - 151	0	20
Xylene	5.80	mg/Kg	1	6.00	0.6462	86	68.7 - 149.5	1	20

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

	${ m MS}$	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	2.24	2.28	mg/Kg	1	2	112	114	50.9 - 152.9
4-Bromofluorobenzene (4-BFB)	2.02	2.12	mg/Kg	1	2	101	106	48.5 - 165.8

#### Matrix Spike (MS-1) Spiked Sample: 257294

QC Batch:	77748	Date Analyzed:	2011-02-18	Analyzed By:	ME
Prep Batch:	66683	QC Preparation:	2011-02-17	Prepared By:	ME

		MS			Spike	Matrix		Rec.
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO	24	417	mg/Kg	1	20.0	302.188	574	63 - 108.5

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

GRO	25	408	mg/Kg	1	20.0	302.188	529	63 - 108.5	2	20
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
		MSD			Spike	Matrix		Rec.		RPD

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)		2.48	2.47	mg/Kg	1	2	124	124	54.1 - 154.3
4-Bromofluorobenzene (4-BFB)	26 27	5.20	5.20	mg/Kg	1	2	260	260	41.9 - 162.8

#### Matrix Spike (MS-1) Spiked Sample: 258031

QC Batch:	77858	Date Analyzed:	2011-02-23	Analyzed By:	ME
Prep Batch:	66777	QC Preparation:	2011-02-23	Prepared By:	ME

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene	1.87	mg/Kg	1	2.00	< 0.0118	94	65.5 - 139.8
Toluene	1.95	mg/Kg	1	2.00	< 0.00600	98	70.5 - 137.3
Ethylbenzene	2.02	mg/Kg	1	2.00	< 0.00850	101	66.7 - 151
Xylene	6.18	mg/Kg	1	6.00	< 0.00613	103	68.7 - 149.5

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	Result	Rec.	Limit	RPD	Limit
Benzene	1.84	mg/Kg	1	2.00	< 0.0118	92	65.5 - 139.8	2	20
Toluene	1.92	mg/Kg	1	2.00	< 0.00600	96	70.5 - 137.3	2	20
Ethylbenzene	2.04	mg/Kg	1	2.00	< 0.00850	102	66.7 - 151	1	20
Xylene	6.18	mg/Kg	1	6.00	< 0.00613	103	68.7 - 149.5	0	20

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

<sup>&</sup>lt;sup>24</sup>Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

<sup>&</sup>lt;sup>25</sup>Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

<sup>&</sup>lt;sup>26</sup>High surrogate recovery due to peak interference.

<sup>&</sup>lt;sup>27</sup>High surrogate recovery due to peak interference.

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Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	R Li	tec. mit
Trifluorotoluene (TFT)	2.46	2.46	mg/Kg	1	2	123	123	50.9	- 152.9
4-Bromofluorobenzene (4-BFB)	3.09	3.09	mg/Kg	1	2	154	154	48.5	- 165.8
Matrix Spike (MS-1) Spike	ed Sample: 258	063							
QC Batch: 77859	Ι	Date Analyz	ed: 2011-	-02-23			Anal	yzed By:	ME
Prep Batch: 66777	(	QC Prepara	tion: 2011-	-02-23			Prep	ared By:	ME
	MS			S	inike	Matrix		I	Rec.
Param	Resul	t Unit	ts Dil.	Ā	nount	Result	Rec.	I	imit
GRO	<sup>28</sup> 214	mg/l	Kg 1		20.0	214.043	0	63	- 108.5
Percent recovery is based on the	spike result. F	PD is base	d on the spi	ke and s	spike duplic	ate resul	t.		
	MSD		Spil	ke N	Iatrix		Rec.		RPD
Param	Result	Units I	Dil. Amou	unt F	Result R	ec. 1	Limit	RPD	Limit
GRO	<sup>29</sup> 238	mg/Kg	1 20.	0 2	14.043 5	6 63	- 108.5	11	20
Percent recovery is based on the	spike result. F	PD is base	d on the spi	ke and s	spike duplic	ate resul	t.		
	MS	MSD			Spike	MS	MSD	R	lec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Li	mit
Trifluorotoluene (TFT)	2.53	2.50	mg/Kg	1	2	126	125	54.1	- 154.3
4-Bromofluorobenzene (4-BFB)	3.13	3.20	mg/Kg	1	2	156	160	41.9	- 162.8
Matrix Spike (MS-1) Spike	ed Sample: 257	898							
QC Batch: 77882 Prep Batch: 66796		Date Analyz QC Prepara	zed: 2011 tion: 2011	-02-23 -02-23			Ana Pre	ilyzed By pared By	v: kg v: kg
	MS			$\mathbf{Sp}$	ike N	Aatrix		R	.ec.
Param	Result	Units	Dil.	Am	ount I	Result	Rec.	Li	mit
DRO	240	mg/K	<u>g 1</u>	2	50 •	<15.7	96	11.7	- 152.3
Percent recovery is based on the	spike result. R	PD is based	l on the spi	ke and s	pike duplic	ate resul	t.		
_	MSD		Spike	e Ma	trix	F	lec.		RPD
Param	Result	Units Di	l. Amour	nt Re	sult Rec	. L	imit	RPD	Limit
DRO	218 n	ng/Kg 1	250	<1	15.7 87	11.7	- 152.3	10	20
Percent recovery is based on the	spike result. B	PD is based	l on the spi	ke and s	nike dunlic	ate resul	t.		

continued ...

 <sup>&</sup>lt;sup>28</sup>Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.
 <sup>29</sup>MSD analyte out of range. MS/MSD has a RPD within limits. Therfore, MS shows extraction occured properly.

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matrix spikes continued											
Surrogate	MS Result	MSD Result	Uı	nits	Dil.	Spike Amour	nt ]	MS Rec	MSI Rec	) 	Rec. Limit
<b>~</b>	MS	MSD		•.		Spike		MS	MSI	)	Rec.
n Tricovano	Hesult	Result	<u>U1</u>	iits /Kg	<u></u>	Amour 100	it i	$\frac{\text{Kec.}}{113}$	Rec.		Limit
	0.1.1		<u>6</u>	/115	±	100		110	101		10 - 10
Matrix Spike (MS-1)	Spiked	Sample: 200	Data An	alverde	2011 0	0.95			Anal	uzod Br	. M
Prep Batch: 66842		)	QC Prep	aratior	n: 2011-02	2-25 2-25			Prep	ared By	: MI
P		MS	. <b>.</b>	<b>.</b>	<b>D</b> ''	Spike	М	atrix	ñ		Rec.
Param		Resul	t U	nits		Amount	t Re	esult		69	Limit
Demonst measurer in based	on the en	ile nocult I		6/ 1-6	n the spile	and spiles	dunlingt				
rencent recovery is based (	on the sp	ike result. I		aseu u	n the spike	e and spike	auphcate	e result	-		
D		MSD		<b>D</b> 'I	Spike	Matrix	Ð	F	Rec.	DDD	RP
Param		Result	Units	$\frac{D1}{1}$	Amoun	t Result	Rec.	<u>لا</u>	imit	RPD	Lin
		10.0		<u>1</u>	20.0	<0.700	00	- 03	106.0	9	20
Percent recovery is based (	on the sp	ike result. I	CPD is d	ased of	n the spike	e and spike	duplicate	e result	•		
		MS	MS	D		S	pike	MS	MSD	]	Rec.
Surrogate		Result	Resi	ılt	Units	Dil. An	nount	Rec.	Rec.	I	imit
Trifluorotoluene (TFT)		2.46	2.5	3	mg/Kg	1	2	123	126	54.1	- 154
4-Bromofluorobenzene (4-1	BFB)	2.99	3.0	9 1	mg/Kg	1	2	150	154	41.9	- 162
Matrix Spike (MS-1)	Spiked	Sample: 257	873								
QC Batch: 77932 Prep Batch: 66844			Date An QC Prep	alyzed paratio	: 2011-0 n: 2011-0	2-25 2-25			Ana Prej	lyzed B pared B	y: k y: k
Porom		MS	TT	nite	וית	Spike	Mat		Pee	] r	Rec.
DRO		207	mø	/Kø	<u> </u>	250		5 7	<u>83</u>	L 11 7	- 159
	on the en	ike result F	PD ie h	<u>ased o</u>	n the spike	and spike	dunlicato	- rocult		***1	102
Porcont recovery is based		ine result. I	<u>а р 18 D</u>	ascu O	n one spike	and spike	unplicate	result	•		
Percent recovery is based of	on one op										
Percent recovery is based of	on one op	MSD	•••		Spike	Matrix		R	ec.		RP
Percent recovery is based o		MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Ra Lin	ec. mit	RPD	RP Lim

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

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Surrogate		MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane		96.0	97.4	mg/Kg	1	100	96	97	70 - 13
Standard	(CCV-2)								
QC Batch:	77597		Date	e Analyzed:	2011-02	-14		Analyz	ed By: MI
Param	Flag	Units	CCVs True Conc	s Cu Fo	CVs ound	CCVs Percent Becovery	Perce Recov	ent very its	Date Analyzee
GRO	1 145	mg/Kg	1.00	. 0.	.912	<u>91</u>	80 - 1	$\frac{103}{120}$	2011-02-1
Standard QC Batch:	(CC <b>V-3</b> ) 77597		Date	e Analyzed:	2011-02-	-14		Analyz	ed By: MI
-			CCVs True	s C <sup>(</sup> Fc	CVs ound	CCVs Percent	Perco Recov	ent very	Date
Param CBO	Flag	Units mg/Kg	Conc.	. <u>C</u>	$\frac{\text{onc.}}{10}$	Recovery	Lim	its 120	Analyzec
Standard QC Batch:	( <b>ICV-1</b> ) 77628		Date	e Analyzed:	2011-02-	-15		Analyz	ed By: AF
			ICV Tru	s I e F	CVs ound	ICVs Percent	Perc Recov	ent very	Date
Param	Flag	Units	Con	c. C	Jone.	Recovery	Lim	its	Analyzed
Standard ( QC Batch:	(CCV-1) 77628	ing/ Kg	Date	Analyzed:	2011-02-	.15	- 68	Analyz	ed By: AF
			CCV True	's C e Fe	CVs ound	CCVs Percent	Perce Recov	ent very	Date
Param	Flag	Units	Conc	c. C	lonc.	Recovery	Lim	its	Analyzed
Unioride		mg/Kg	100	į į	99.2	99	85 -	115	2011-02-1
Standard (	(ICV-1)								

Date Analyzed: 2011-02-15

Analyzed By: AR

QC Batch: 77629

Report Date: February 28, 2011 114-6400815			Wa C	ork Order: 110 OG/RJU Sout	21118 h TB	Page Number: 35 of 40 Eddy Co., NM		
Param Chloride	Flag	Units mg/Kg	ICVs True Conc. 100	ICVs Found Conc. 99.3	ICVs Percent Recovery 99	Percent Recovery Limits 85 - 115	Date Analyzed 2011-02-15	
Standard	(CCV-1)							
QC Batch:	77629		Date Analy	yzed: 2011-02	-15	Anal	yzed By: AR	
Param Chloride	Flag	Units mg/Kg	CCVs True Conc. 100	CCVs Found Conc. 101	CCVs Percent Recovery 101	Percent Recovery Limits 85 - 115	Date Analyzed 2011-02-15	
Standard	(CCV-2)							
QC Batch:	77634		Date Anal	yzed: 2011-02	2-15	Ana	llyzed By: kg	
Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent - Recovery Limits	Date Analyzed	
DRO		mg/Kg	250	240	96	80 - 120	2011-02-15	
Standard	(CCV-3)							
QC Batch:	77634		Date Anal	yzed: 2011-02	2-15	Ana	lyzed By: kg	
Param DRO	Flag	Units mg/Kg	CCVs True Conc. 250	CCVs Found Conc. 220	CCVs Percent Recovery 88	Percent Recovery Limits 80 - 120	Date Analyzed 2011-02-15	
Standard	(CCV-1)							
QC Batch:	77746		Date Analy	vzed: 2011-02-	-18	Anal	yzed By: ME	
_			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date	
Param Benzene Toluene Ethylbenzer	Flag	Units mg/Kg mg/Kg mg/Kg	Conc. 0.100 0.100 0.100	Conc. 0.0918 0.0926 0.0908	Recovery 92 93 91	Limits 80 - 120 80 - 120 80 - 120 80 - 120	Analyzed 2011-02-18 2011-02-18 2011-02-18	
Aylene		mg/Kg	0.300	0.274	91	80 - 120	2011-02-18	

#### Standard (CCV-2)

QC Batch:	77746		Date Analyze	ed: 2011-02-1	.8	Analy	yzed By: ME
			CCVs	CCVs	$\mathrm{CCVs}$	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/Kg	0.100	0.0969	97	80 - 120	2011-02-18
Toluene		mg/Kg	0.100	0.0949	95	80 - 120	2011-02-18
Ethylbenzen	e	mg/Kg	0.100	0.0927	93	80 - 120	2011-02-18
Xylene		mg/Kg	0.300	0.278	93	80 - 120	2011-02-18

#### Standard (CCV-3)

QC Batch: 7	7746		Date Analyze	ed: 2011-02-1	18	Analy	yzed By: ME
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/Kg	0.100	0.0911	91	80 - 120	2011-02-18
Toluene		mg/Kg	0.100	0.0913	91	80 - 120	2011-02-18
Ethylbenzene		mg/Kg	0.100	0.0876	88	80 - 120	2011-02-18
Xylene		mg/Kg	0.300	0.264	88	80 - 120	2011-02-18

#### Standard (CCV-1)

QC Batch:	77748		Date Ana	alyzed: 2011-0	2-18	Anal	yzed By: ME
			CCVs	CCVs	$\mathrm{CCVs}$	Percent	,
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	0.846	85	80 - 120	2011-02-18

#### Standard (CCV-2)

QC Batch:	77748		Date Ana	alyzed: 2011-0	2-18	Analyzed By: ME					
			CCVs	$\mathrm{CCVs}$	CCVs	Percent					
QC Batch: 77			True	Found	Percent	Recovery	Date				
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed				
GRO		mg/Kg	1.00	1.04	104	80 - 120	2011-02-18				

#### Standard (CCV-3)

QC Batch: 77748

Date Analyzed: 2011-02-18

Analyzed By: ME

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed		
GRO		mg/Kg	1.00	0.998	100	80 - 120	2011-02-18		

#### Standard (CCV-2)

QC Batch:	77767		Date Analyz	ed: 2011-02-1	14	Analy	yzed By: ME
			CCVs	CCVs	$\operatorname{CCVs}$	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/Kg	0.100	0.101	101	80 - 120	2011-02-14
Toluene		mg/Kg	0.100	0.101	101	80 - 120	2011-02-14
Ethylbenzen	e	mg/Kg	0.100	0.101	101	80 - 120	2011-02-14
Xylene		mg/Kg	0.300	0.305	102	80 - 120	2011-02-14

#### Standard (CCV-3)

QC Batch: 777	767		Date Analyzed:	2011-02-14		Analy	zed By: ME
			$\operatorname{CCVs}$	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/Kg	0.100	0.100	100	80 - 120	2011-02-14
Toluene		mg/Kg	0.100	0.0993	99	80 - 120	2011-02-14
Ethylbenzene		mg/Kg	0.100	0.102	102	80 - 120	2011-02-14
Xylene		mg/Kg	0.300	0.330	110	80 - 120	2011-02-14

#### Standard (CCV-1)

QC Batch: 77	7858		Date Analyzed	: 2011-02-23		Analy	zed By: ME
			$\mathrm{CCVs}$	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/Kg	0.100	0.0955	96	80 - 120	2011-02-23
Toluene		mg/Kg	0.100	0.0959	96	80 - 120	2011-02-23
Ethylbenzene		mg/Kg	0.100	0.0977	98	80 - 120	2011-02-23
Xylene		mg/Kg	0.300	0.297	99	80 - 120	2011-02-23

#### Standard (CCV-2)

QC Batch: 77858

Date Analyzed: 2011-02-23

Analyzed By: ME

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed			
Benzene	8_	mg/Kg	0.100	0.0923	92	80 - 120	2011-02-23			
Toluene		mg/Kg	0.100	0.0925	92	80 - 120	2011-02-23			
Ethylbenzei	ne	mg/Kg	0.100	0.0920	92	80 - 120	2011-02-23			
Xylene		mg/Kg	0.300	0.278	93	80 - 120	2011-02-23			
Standard	(CCV-1)									
QC Batch:	77859		Date Analy	zed: 2011-02-	23	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	0.960	96	80 - 120	2011-02-23			
Standard	(CCV-2)									
QC Batch:	77859		Date Analy	zed: 2011-02-	23	Anal	yzed By: ME			
			CCVs	CCVs	CCVs	Percent				
			True	Found	Percent	Recovery	Date			
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed			
GRO	. <u></u>	mg/Kg	1.00	0.989	99	80 - 120	2011-02-23			
Standard	(CCV-3)									
QC Batch:	77859		Date Analy	zed: 2011-02-	23	Analy	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	1.12	112	80 - 120	2011-02-23			
Standard	(CCV-1)									
QC Batch:	77882		Date Analy	yzed: 2011-02	-23	Ana	lyzed By: kg			
			CCVs	CCVs	CCVs	Percent				
n	El	TT	True	Found	Percent	Recovery	Date			
raram	r lag		Uonc.	Uonc.	Recovery	Limits	Analyzed			
		mg/Kg	250	243	97	80 - 120	2011-02-23			

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Standard (	(CCV-2)											
QC Batch:	77882		Date An	alyzed: 2011-0	)2-23	Ana	alyzed By					
			CCVs	$\mathrm{CCVs}$	CCVs	Percent						
			True	Found	Percent	Recovery	E					
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Ana					
DRO		mg/Kg	250	232	93	80 - 120	2011					
Standard (	(CCV-3)											
QC Batch:	77882		Date An	alyzed: 2011-0	)2-23	Ana	alyzed By					
			CCVs	CCVs	CCVs	Percent						
			True	Found	Percent	Recovery	Γ					
Param	h: 77882 Date Analyzed: 2011-02-23 CCVs CCVs C True Found Pe Flag Units Conc. Conc. Re		Recovery	Limits	Ana							
DRO		mg/Kg	250	226	90	80 - 120	201					
Report Date: 114-6400815 Standard (C) QC Batch: 7 Param DRO Standard (C) QC Batch: 7 Param DRO Standard (C) QC Batch: 7 Param GRO Standard (C) QC Batch: 7 Param GRO Standard (C) QC Batch: 7 Param C) Param C) Standard (C) QC Batch: 7 Param C) Param C) Standard (C) Param C) Standard (C) Param C) Standard (C) Param C) Standard (C) Param C) Standard (C) Param C) Param C) Standard (C) Param C) Standard (C) Param D) Standard (C) Param D) Standard (C) Param D) Standard (C) Param D) Standard (C) Param D) Standard (C) Param D) Standard (C) P) Standard (C) Standard (C) P) Standard (C) P	77929		Date Ana	lyzed: 2011-0	2-25	Anal	yzed By:					
QC Batch:	77929		Date Ana CCVs True	lyzed: 2011-0 CCVs Found	2-25 CCVs Porcont	Anal Percent Bosovory	yzed By:					
QC Batch: Param	77929 Flag	Units	Date Ana CCVs True Conc.	lyzed: 2011-0 CCVs Found Conc.	2-25 CCVs Percent Recovery	Anal Percent Recovery Limits	yzed By: E Ana					
QC Batch: Param GRO	77929 Flag	Units mg/Kg	Date Ana CCVs True Conc. 1.00	lyzed: 2011-0 CCVs Found Conc. 0.872	2-25 CCVs Percent Recovery 87	Anal Percent Recovery Limits 80 - 120	yzed By: I An 201					
QC Batch: Param GRO Standard (	77929 Flag CCV-3)	Units mg/Kg	Date Ana CCVs True Conc. 1.00	lyzed: 2011-0 CCVs Found Conc. 0.872	2-25 CCVs Percent Recovery 87	Anal Percent Recovery Limits 80 - 120	yzed By: E Ana 2011					
QC Batch: Param GRO Standard ( QC Batch:	77929 Flag CCV-3) 77929	Units mg/Kg	Date Ana CCVs True Conc. 1.00 Date Ana	lyzed: 2011-0 CCVs Found Conc. 0.872	2-25 CCVs Percent Recovery 87 2-25	Anal Percent Recovery Limits 80 - 120 Anal	yzed By: E Ana 2011 yzed By:					
QC Batch: Param GRO Standard ( QC Batch:	77929 Flag CCV-3) 77929	FlagUnitsConc.Conc.mg/Kg250232V-3)82Date Analyzed: 2011-02-182Date Analyzed: 2011-02-1CCVsFlagUnitsConc.Conc.mg/Kg25029Date Analyzed: 2011-02-2CCVsCCVsCCVsFlagUnitsConc.Conc.mg/Kg1.0000.872V-3)29Date Analyzed: 2011-02-2CCVs	2-25 CCVs Percent Recovery 87 2-25 CCVs	Anal Percent Recovery Limits 80 - 120 Anal Percent	yzed By: E <u>Ana</u> 2011 yzed By:							
QC Batch: Param GRO Standard ( QC Batch:	(CCV-2): 77882Date Analyzed: 2011-02- $Flag$ UnitsCOCVsTrueFoundCCV-3)250232(CCV-3)CCVsCCVs: 77882Date Analyzed: 2011-02-CCVsCCVsCCVsFlagUnitsConc.mg/Kg250226(CCV-2)CCVsCCVsflagUnitsConc.CCV-2)CCVsCCVsflagUnitsConc.CCV-3)CCVsCCVsflagUnitsConc.CCV-3)TrueFoundflagUnitsConc.CCV-3)CCVsCCVsflagUnitsConc.CCVsCCVsCVsflagUnitsConc.CCVsCCVsTrueFlagUnitsConc.CCVsCCVsTrueFlagUnitsConc.COVsCVsCVsTrueFoundCOVsCOVsTrueFoundCOVsCOVsTrueFoundCOVsCOVsTrueFoundConc.Conc.COVsCOVsTrueFoundCOVsConc.COVsConc.COVsConc.COVsConc.COVsConc.COVsConc.COVsConc.COVsConc.COVsConc.COVsConc.	2-25 CCVs Percent Recovery 87 2-25 2-25 CCVs Percent	Anal Percent Recovery Limits 80 - 120 Anal Percent Recovery	yzed By: E <u>Ana</u> 2011 yzed By: E								
QC Batch: Param GRO Standard ( QC Batch: Param	77929 Flag CCV-3) 77929 Flag	Units mg/Kg Units	Date Ana CCVs True Conc. 1.00 Date Ana CCVs True Conc.	lyzed: 2011-0 CCVs Found Conc. 0.872 lyzed: 2011-0 CCVs Found Conc.	2-25 CCVs Percent Recovery 87 2-25 2-25 CCVs Percent Recovery	Anal Percent Recovery Limits 80 - 120 Anal Percent Recovery Limits	yzed By: I An: 2011 yzed By: I An:					
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Standard	(CCV-2)						
QC Batch:	77932		Date An	alyzed: 2011-0	)2-25	Ana	alyzed By: kg
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				5 <u>5</u>	R	<b>TETRA</b> 1910 N. Big S Midland, Tex (432) 682-4559 •	<b>TECH</b> Spring St. as 79705 Fax (432) 682-3946									9 (EXT. 10 C.36)	d Cr Pb Hg Se	d Vr Pct Hg Se	(C.	ircle	e or S	Spec		Meti	bor	No.,	TDS			
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Analysis Request of Chain of Custody Record															PAG	iE:		2		OF:	Z		
										ANALYSIS REQUEST (Circle or Specify Method No.)													
TETRATECH           1910 N. Big Spring St.           Midland, Texas 79705           (432) 682-4559 • Fax (432) 682-3946										05 (Ext. to C35)	d Cr Pb Hg Se	d Vr Pd Hg Se									TOS		
CLIENT NAME: SITE MANAGER: COG I Ka Karano						PRESERVATIVE				ž	Ba C	8			50/624	70/62					в, pH,		
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RELINQUISHED BY: (Signature)         Date:									SAMPLE SHIPPED BY: (Circle) AIRBIL									上#:					
RELINQUISHED BY: (Signature) Date: RECEIVED BY: (Signature) Time:					Date;					TETRA TECH CONTACT PERSON: Results by:													
RECEIVING LABORATORY: True RECEIVED BY: (Signature)								Ike Taverya RUSH Charges Authorized:											5 844				
SAMPLE CONDITION WHEN RECEIVED: REMARKS: 10.1°C at a III III IIII REMARKS: 10.1°C at a IIIII REMARKS: 10.1°C at a IIIIII REMARKS: 10.1°C at a IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII									BTEX on Z highest TPH. It British discussed 16mg/kg BTEX exceeds 50 mg/leg rundriver samples														

Please fill out all copies - Laboratory retains Yellow copy - Return Orginal copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.

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