SITE INFORMATION

<u>...</u>т. Closure Penert D

	 AND THE ADDRESS OF STREET, AND ADDRESS AND ADDRESS ADDRESS ADDRESS ADDRESS ADDRESS ADDRESS ADDRESS ADDRESS ADDRESS ADDRESS ADDRESS ADDRESS ADDRESS ADDRESS ADDRESS ADDRESS ADDRES ADDRESS	HEPOI									
General Site	nformation:			a standard an							
Site:		White Star F	White Star Federal Flow line								
Company:		COG Operat	COG Operating LLC								
Section, Town	nship and Range	Unit H Sec	Unit H Sec. 29 T-17S R-29E								
Lease Numbe	<u>)r:</u>	NMNM-1484	NMNM-14840								
County:		Eddy County									
GPS:			32.80639° N	104.08904° W							
Surface Owne	er:	Federal									
wineral Owne	<u>r:</u>	Erom the inter	From the intersection of Hwy 82 and Hagerman Cutoff (Loco Hills, NM) travel west on 82 (5.3								
		mi), turn left ((0.2 mi), right (0.9 mi	to location on left.							
Release Data:											
Date Released	<i>l</i> :	4/6/2011									
Type Release:		Produced flu	id								
Source of Con	tamination:	Steel flowline	e								
Fluid Released	1:	10 bbls									
Fluids Recover	red:	None									
Official Comm	nunication:										
Name:	Pat Ellis			Ike Tavarez							
Company:	COG Operating 1		1	Tetra Tech							
Addross:	EEO M. Toxoo Ave	Sto 1200	· · · ·								
Audiess.	550 W. Texas Ave	. Ste. 1300									
P.U. Box			<u></u>								
City:	Midland Texas, 79	701		Midland, Texas							
Phone number	r: (432) 686-3023			(432) 631-0348							
Fax:	(432) 684-7137										
Email:	pellis@conchores	ources.com		ike.tavarez@tetratech.com							
Banking Crite											
Dopth to Group		the first of a loss to man of Anton in	Penking Sooro	El de las a T.A.: Tarrelle Alle Millares Trijernen alleb Statistich i Suder de La 1994. Sido Dodo							
<50 ft			20								
50-99 ft	······		10								
>100 ft.			0	0							
WellHead Prote	ction:		Banking Score	Site Data							
Water Source <	1,000 ft., Private <200	ft.	20								
Water Source >	1,000 ft., Private >200	ft.	0	0							
Surface Body o	of Water:		Ranking Score	Site Data							
<200 ft.			20	·							
≥ 1.000 ft = 1,000 ft.			10	<u> </u>							
			<u> </u>								
×- ×-**	Iotal Ranking Score	.	0	RECEIVED							
		Accepta	able Soil RRAL (n	ng/kg)							
		Benzene	Total BTEX	TPH JAN 1 4 2013							
		10	50	5,000							
				INMOCD ARTESIA							



January 3, 2013

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

Re: Closure Report for the COG Operating LLC., White Star Flow line, Unit H, Section 29, 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 White Star, Unit H, Section 29, Township 17 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.80639°, W 104.08904 °. 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 April, 6, 2011, and released approximately ten (10) barrels of produced fluid from a steel flow line, no fluids were recovered. To alleviate the problem, COG personnel repaired the steel line. The spill initiated south of the White Star Federal Tank Battery, in the adjacent pasture area along approximately 15 aboveground steel lines and pooled underneath the steel lines. The spill area measured approximately 10' x 25'. The initial C-141 form is enclosed in Appendix A.

Groundwater

No water wells were listed within Section 29. Based on the site location and NMOCD groundwater map, the average depth to groundwater in this area is approximately 175' below surface. The well 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-

Tetra Tech



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 April 20, 2011, Tetra Tech personnel inspected and sampled the spill area. One auger hole (AH-1) was installed using a stainless steel hand auger to assess the impacted soils. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The results of the sampling are summarized in Table 1. The auger hole location is shown on Figure 3.

Referring to Table 1, the surface sample of AH-1 (0-1') exceeded the RRAL for TPH and BTEX. The remaining deeper samples of AH-1 were below the RRAL for TPH and BTEX. Elevated chloride concentrations were in the subsurface soils and showed a bottom auger hole analysis of 2,450 mg/kg at 7-7.5' below surface. The chloride impact was not vertically defined.

Remedial and Closure Activities

Tetra Tech personnel supervised the excavation as outlined in the approved work plan in September 2012. The spill foot print and final excavation depths of the soil remediation were met as stated in the approved work plan. The area of AH-1 was excavated to a depth of approximately 4.0' below grade surface. An additional area was excavated 2.0' below surface due to staining and elevated chloride concentrations, this area measured approximately 10' x 35'. Approximately 50 yards³ of impacted material was removed and disposed of at the R360 Facility. The excavated areas are shown on Figure 4.

Once excavated, Tetra Tech personnel collected confirmation samples for the excavations sidewalls and bottoms. The confirmation sampling results are shown in Table 1. Referring to Table 1, the 4.0' bottom sample showed a chloride of 1,520 mg/kg and a backhoe trench was installed to define the extents. The trench (T-1) sampling was not vertically defined showing a bottom trench sample of 3,050 mg/kg at 13.0' below surface. Based on the results, the area was lined with clay to cap the area. The BLM representative inspected the site and approved the remediation for backfill. The excavations were backfilled with clean soil to surface grade.



A borehole was originally proposed in order to vertically delineate the chloride impact. On November 28, 2012, Tetra Tech personnel were onsite to supervise the installation of a borehole. Upon inspection of the drill site, overhead lines were located above the proposed location and could not safely install the borehole. The NMOCD was contacted to discuss the access issues due to the overhead lines in the area. Due to the limited area and depth to groundwater, the NMOCD approved to defer the impacted soils.

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

Respectfully submitted,

TETRA lke Tavarez, P

Senior[®]ProjectManager

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

~

Figures











Tables

Table 1 COG Operating LLC. White Star Federal Eddy County, New Mexico

Sample ID	Sample	Sample	Sample	Sample	Soi	Status	TF	PH (mg/k	g)	Benzene	Toluene	Ethlybenzene	Xylene	Chloride
Sample ib	Date	Depth (ft)	In-Situ	Removed	GRO	DRO	Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)		
AH-1	4/20/2011	0-1'		, X	2,160	17,200	19,360	12.7	85.0	56.2	92.3	4,880		
	u	1-1.5'		X	406	379	785	1.64	12.8	11.4	18.4	7;330		
	u	2-2.5'		Х	<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	1;830		
	11	3-3.5'		X	<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	2,530		
	n	4-4.5'		X	•		-	-	-	. .	•	2,890		
	a	5-5.5'	Х		-	-	-	-	-	-	-	1,680		
	u	6-6.5'	Х		-	-	-	-	-	-	-	1,630		
	u	7-7.5'	Х		-	-	-	-	-	-	-	2,450		
T 1	0/00/2012									I		769		
1-1	9/20/2012						-	-	-	-		2 170		
		/	$-\frac{1}{2}$		-	-	-	*	-	-		2,170		
		9	X		-	-	-		-	-		6,120		
	"	11	X		-	-	-	-	-	-	-	6,780		
, <u></u>	"	13	X		-	-	-		-		-	3,050		
CS-1 Bottom Hole	9/21/2012	2	X		-	-	-	•	-	<u> </u>	-	581		
CS-1 Bottom Hole	n	4	Х		-	-	-	-	-	-	-	1,520		
CS-1 North Wali	n	-	Х		-	-	-	-	-	-	-	<20.0		
CS-1 South Wall	n	-	X		-	-	-	-	-	-	-	57.1		
CS-1 East Wall	R	-	Х		-	-	-	-	-	-	-	<20.0		
CS-1 West Wall	"	-	X		-	-	-	-	-	-	-	<20.0		

Not Analyzed (--)

Excavation Depths

Clay Liner Installed

Photos





TETRA TECH







Clay Liner





TETRA TECH

View West - Backfill



Limited Access – Underground and Overhead Lines

Appendix A

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Join W. Chandra Avenue, Artesia, NM 88210JAN 14 201District III 1000 Rio Brazos Road, Aztec, NM 87410Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505JAN 14 201NMOCD ARTE NMOCD ARTE	3 Submit 2 Distri SIA
Release Notification and Corrective Action	
OPERATOR In	itial Report
Name of CompanyCOG Operating LLCContactPat Ellis	
Address 550 W. Texas, Suite 1300 Midland, Texas 79701 Telephone No. (432) 230-0077	
Facility NameWhite Star FederalFacility TypeFlowline	
Surface Owner: Federal Mineral Owner Leas	e No. NMN
LOCATION OF RELEASE	
Unit Letter HSection 29Township 17SRange 29EFeet from the North/South LineFeet from the Feet from theEast/West Line	e County
Latitude N 32.80639° Longitude W 104.08904° NATURE OF RELEASE	<u> </u>
Type of Release: Produced Fluid Volume of Release 10 bbls Volum	e Recovered
	nd Hour of I
Source of Release: Equalizer Date and Hour of Occurrence Date a 04/06/2011 04/06/	2011 9:00 a
Source of Release: Equalizer Date and Hour of Occurrence 04/06/2011 Date a 04/06/2011 Was Immediate Notice Given? If YES, To Whom?	2011 <u>9:00</u> :

Form C-141 Revised October 10, 2003 2 Conjes to appropriate

uų	min 2 Copies to appropriate
1	istrict Office in accordance
λ	with Rule 116 on back
8	side of form

			OPERATOR	[Initial Report	Final Report
Name of Company	COG Operating LLC		Contact	Pat Ellis		
Address 550 W. Tex	as, Suite 1300 Midland, Tex	Telephone No.	(432) 230-007	7		
Facility Name	White Star Federal		Facility Type	Flowline		
Surface Quinem Federal	N4:				Loopo No. NIMNIN	1 1 4 9 4 0
Surface Owner: Federal	I IVIII	lieral Owne	1		Lease no. minimi	1-14040

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County	
Н	29	175	29E		,				Eddy
]	ļ	ļ					

Type of Release: Produced Fluid	Volume of Release 10 bbls	Volume Re	covered None			
Source of Release: Equalizer	Date and Hour of Occurrence	Date and H	our of Discovery			
West Immediate Mattice Circuit	04/06/2011	04/06/2011	9:00 a.m.			
was immediate Notice Given?	If YES, To whom?					
By Whom?	Date and Hour					
Was a Watercourse Reached?	If YES, Volume Impacting the Wa	tercourse.				
🗋 Yes 🖾 No	N/A					
If a Watercourse was Impacted, Describe Fully.*			······································			
Describe Cause of Problem and Remedial Action Taken.*						
A steel flowline ruptured causing the release. The steel flowline was clar	nped and is being replaced with poly l	ine.				
Describe Area Arrected and Cleanup Action Taken.*						
Tetra Tech personnel inspected the site and collected samples to define th	a spills extent. Soil that exceeded RR		ed and hauled away for			
proper disposal at the R360 facility. The site was then brought up to surfa	ace grade with clean backfill material	Tetra Tech pro	epared a closure report and			
submitted it to the NMOCD for review.		route room pro	oparea a closare report and			
I hereby certify that the information given above is true and complete to t	the best of my knowledge and understa	and that pursu	ant to NMOCD rules and			
regulations all operators are required to report and/or file certain release i	notifications and perform corrective ac	tions for relea	ses which may endanger			
public health or the environment. The acceptance of a C-141 report by the	ne NMOCD marked as "Final Report"	does not reliev	ve the operator of liability			
should their operations have failed to adequately investigate and remedia	te contamination that pose a threat to g	ground water,	surface water, human health			
or the environment. In addition, NMOCD acceptance of a C-141 report of faderal state, on level lower and/or negativity	loes not relieve the operator of respon-	sibility for cor	npliance with any other			
rederar, state, or local aws and/or regulations.	OIL CONSERV					
MACTA	<u>OIL COINSER</u>	VATIONI	<u>51 v 1510 N</u>			
Signature:						
	Approved by District Supervisor					
Printed Name: Ike Tavarez (Mant for Cul)	Approved by District Supervisor.					
Title: Project Manager	Approval Date:	Expiration D	ate:			
E-mail Address: lke.Tavarez@TetraTech.com	Conditions of Approval:		Attached			
Date: / Phone: (432) 682-4559						

* Attach Additional Sheets If Necessary

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											
						OPERA	ror		🛛 Initi	al Report		Final Report
Name of Co	mpany	COG OP	ERATIN	GLLC		Contact	Pa	at Ellis				
Address Facility Nor	<u>550 W.</u>	Texas, Suite	e 100, Mi	dland, TX 7970	1	Telephone No. 432-230-0077						
Facility Nat		winte	Stat reue	38I		Facility Typ	<u> </u>	JWIIIIE				
Surface Ow	ner Fed	eral		Mineral C)wner				Lease 1	No. NMN	M-148	340
				LOCA	TIO	N OF REI	LEASE					
Unit Letter	Section	Township	Range	Feet from the	North	/South Line	Feet from the	East/W	est Line	County		
Н	29	175	29E			Eddy				Eddy		
L	L.,	·	L	Latitude 32 4	48.392	Longitu	de 104 05.366	L		·····		
	NATURE OF RELEASE											
Type of Relea	ase Produ	ced fluid				Volume of	Release 10bbls		Volume I	Recovered	None	
Source of Re	ease Stee	flowline				Date and H	our of Occurrenc	e	Date and	Hour of Dis	covery	r i i
Was Immedia	te Notice (Given?				If YES, To	Whom?	L	04/00/20	11 9.00 a.m.		
			Yes 🛛	No 🛛 Not Re	equired							
By Whom?						Date and H	lour					
Was a Watercourse Reached?					If YES, Vo	luine Impacting t	he Wate	rcourse.				
If a Watercou	rse was Im	pacted, Descr	ibe Fully.	k								
Describe Cau	se of Probl	em and Reme	dial Actio	n Taken.*					- 1			
A steel flowli	ne rupturec	l causing the r	elease. T	he steel flowline v	vas clai	nped and is be	ing replaced with	poly lin	e.			
Describe Are	a Affected	and Cleanup A	Action Tal	cen.*				-				
Initially 10bb	ls of produ	ced fluid was	released f	rom the flowline a	nd we	were unable to	recover any fluid	l. The s	oill area m	easures 12'	x 20' i	in the pasture
off to the sou	th of the W	hite Star Fede	ral Tank I	Battery. Tetra Tec	h will s	sample the spi	I site area to delin	neate any	possible	contamination	on from	n the release
and we will p	resent a rer	nediation wor	k plan to f	the NMOCD / BL	M for a	pproval prior	o any significant	remedia	tion work.			
I hereby certi	fy that the i	information gi	ven above	is true and comp	lete to	he best of my	knowledge and u	nderstan	d that purs	suant to NM	OCD r	ules and
regulations al	l operators	are required to	o report an	nd/or file certain r	elease i	notifications and NMOCD m	id perform correc	tive action	ons for rel	eases which	may e	ndanger Isiability
should their o	perations h	ave failed to a	dequately	investigate and re	emedia	te contaminati	on that pose a three	eat to gro	ound wate	r, surface wa	iter, hi	iman health
or the enviror	iment. In a	ddition, NMC	CD accep	tance of a C-141	report o	loes not reliev	e the operator of r	esponsit	oility for c	ompliance w	vith an	y other
leuerai, siate,	or local lay	ws and/or regu					OIL CONS	SERV	ATION	DIVISIC)N	
Signature		$\overline{}$	Ń	/ -								
Signature.	Signature:					Approved by	District Sumarvier	`				
Printed Name: Josh Russo												
Title:		HSE C	oordinator			Approval Dat	e:	E	xpiration	Date:		
E-mail Addre	\$S:	jrusso@conc	horesourc	es.com		Conditions of	Approval:			Attached		
Date: 0	4/15/2011	Phone	; 432	-212-2399						·		
Attach Addit	ional Shee	ts If Necess	ary									

.

Appendix B

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

	16 \$				
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	:	t	
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22 79	23	24
30	29	28	27	26	25
31	32	33	34 53	35	36

18 South 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 6 5	36				

	16 :	South	:	Ł	
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
	1		1		

	16 :	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

	17 S	outh		29 East	1	
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 SITE	28	27	26	25	
31	32	33	34	35	36	

	18 :	South	:	29 East	t
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 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

	18	South	;	30 East	t
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

New Mexico State Engineers Well Reports

USGS Well Reports

Geology and Groundwater Conditions in Southern Eddy, County, NM

MMOCD - Groundwater Data

Field water level

New Mexico Water and Infrastructure Data System

Appendix C

.

Summary Report

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

Project Location:	Eddy Co., NM
Project Name:	COG/White Star
Project Number:	114-6400888

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
310093	Trench-1 5'	soil	2012-09-20	00:00	2012-09-24
310094	Trench-1 7'	soil	2012-09-20	00:00	2012-09-24
310095	Trench-1 9'	soil	2012-09-20	00:00	2012-09-24
310096	Trench-1 11'	soil	2012-09-20	00:00	2012-09-24
310097	Trench-1 13'	soil	2012-09-20	00:00	2012-09-24
310098	CS-1 North Wall	soil	2012-09-21	00:00	2012-09-24
310099	CS-1 South Wall	soil	2012-09-21	00:00	2012-09-24
310100	CS-1 East Wall	soil	2012-09-21	00:00	2012-09-24
310101	CS-1 West Wall	soil	2012-09-21	00:00	2012-09-24
310102	CS-1 Bottom Hole 2'	soil	2012-09-21	00:00	2012-09-24
310103	CS-1 Bottom Hole 4'	soil	2012-09-21	00:00	2012-09-24

Sample: 310093 - Trench-1 5'

Param	Flag	Result	Units	\mathbf{RL}
Chloride		768	mg/Kg	4

Sample: 310094 - Trench-1 7'

Param	Flag	Result	Units	\mathbf{RL}
Chloride		2170	mg/Kg	4

Sample: 310095 - Trench-1 9'

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

Report Date: September 27, 2012

Work Order: 12092418

Report Date: September 27, 2012		Work Order: 12092418	Page Number: 2 of 3	
Param	Flag	Result	Units	RL
Chloride		6120	mg/Kg	4
Sample: 310096	- Trench-1 11'			
Param	Flag	Result	Units	\mathbf{RL}
Chloride		6780	mg/Kg	4
Sample: 310097	- Trench-1 13'			
Param	Flag	Result	Units	RL
Chloride		3050	mg/Kg	4
Sample: 310098	- CS-1 North Wall	Result	Units	BI.
Chloride	r iag	<20.0	mg/Kg	4
Sample: 310099 Param Chloride	- CS-1 South Wall Flag	Result 57.1	Units mg/Kg	RL 4
Sample: 310100	- CS-1 East Wall			
Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4
Sample: 310101 ·	- CS-1 West Wall			
Param	Flag	Result	Units	\mathbf{RL}
Chloride		<20.0	mg/Kg	4
Sample: 310102	· CS-1 Bottom Hole 2'			
Param	Flag	Result	Units	\mathbf{RL}
Chloride		581	mg/Kg	4

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

Report Date: September 27, 2012		Work Order: 12092418	Ра	Page Number: 3 of 3		
Sample: 310103 - CS-1 Bottom Hole 4'						
Param	Flag	Result	Units	RL		
Chloride	<u></u>	1520	mg/Kg	4		



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

 Lubbock
 Texas 79424
 800-378-1296
 866

 El Paso
 Texas 79922
 915

 Midland
 Texas 79703
 432

 Suite 100
 Carroliton
 Texas 75006
 972

 E-Mail: lab@traceanalysis.com
 WEB: www.traceanalysis.com
 WEB: www.traceanalysis.com

6 805-794-1296 FAX-805-794-1298 915-585-3443 FAX 915-585-4944 432-689-6301 FAX 432-689-6313 972-242-7750

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: September 27, 2012

Work Order: 12092418

Project Location:Eddy Co., NMProject Name:COG/White StarProject Number:114-6400888

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
310093	Trench-1 5'	soil	2012-09-20	00:00	2012-09-24
310094	Trench-1 7'	soil	2012-09-20	00:00	2012-09-24
310095	Trench-1 9'	soil	2012-09-20	00:00	2012-09-24
310096	Trench-1 11'	soil	2012-09-20	00:00	2012-09-24
310097	Trench-1 13'	soil	2012-09-20	00:00	2012-09-24
310098	CS-1 North Wall	soil	2012-09-21	00:00	2012-09-24
310099	CS-1 South Wall	soil	2012-09-21	00:00	2012-09-24
310100	CS-1 East Wall	soil	2012-09-21	00:00	2012-09-24
310101	CS-1 West Wall	soil	2012-09-21	00:00	2012-09-24
310102	CS-1 Bottom Hole 2'	soil	2012-09-21	00:00	2012-09-24
310103	CS-1 Bottom Hole 4'	soil	2012-09-21	00:00	2012-09-24

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

Michael abel

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

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Case Narrative

Samples for project COG/White Star were received by TraceAnalysis, Inc. on 2012-09-24 and assigned to work order 12092418. Samples for work order 12092418 were received intact at a temperature of 2.9 C.

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

		Prep	Prep	\mathbf{QC}	Analysis
Test	Method	Batch	Date	Batch	Date
Chloride (Titration)	SM 4500-Cl B	80669	2012-09-26 at 09:52	95215	2012-09-27 at 10:48
Chloride (Titration)	SM 4500-Cl B	80669	2012-09-26 at $09:52$	95216	2012-09-27 at 10:49

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 12092418 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Report Date: September 27, 2012 114-6400888

Work Order: 12092418 COG/White Star Page Number: 5 of 13 Eddy Co., NM

Analytical Report

Sample: 310093 - Trench-1 5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 95215 80669	Analytic Date An Sample 1	al Method: alyzed: Preparation:	SM 4500-Cl B 2012-09-27 2012-09-26	Prep Method: Analyzed By: Prepared By:	N/A AR AR
			\mathbf{RL}			
Parameter	Flag	Cert	\mathbf{Result}	Units	Dilution	\mathbf{RL}
Chloride			768	mg/Kg	5	4.00

Sample: 310094 - Trench-1 7'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 95215 80669	Analytic Date An Sample I	al Method: alyzed: Preparation:	SM 4500-Cl B 2012-09-27 2012-09-26	Prep Method: Analyzed By: Prepared By:	N/A AR AR
			\mathbf{RL}			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride			2170	mg/Kg	10	4.00

Sample: 310095 - Trench-1 9'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 95215 80669	Analytic Date An Sample	al Method: alyzed: Preparation:	SM 4500-Cl B 2012-09-27 2012-09-26	Prep Method: Analyzed By: Prepared By:	N/A AR AR
			\mathbf{RL}			
Parameter	Flag	Cert	Result	Units	Dilution	\mathbf{RL}
Chloride	······	· · · · · · · · · · · · · · · · · · ·	6120	mg/Kg	10	4.00

Report Date 114-6400888	: September 27, 2012	W	Vork Order: 1 COG/White	2092418 : Star	Page Number: Eddy Co	6 of 13 5., NM
Sample: 31	0096 - Trench-1 11'					
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 95215 80669	Analytic Date Ar Sample	cal Method: nalyzed: Preparation:	SM 4500-Cl B 2012-09-27 2012-09-26	Prep Method: Analyzed By: Prepared By:	N/A AR AR
			\mathbf{RL}			
Parameter	Flag	Cert	Result	Units	Dilution	\mathbf{RL}
Chloride			6780	mg/Kg	10	4.00
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 95215 80669	Analytic Date Ar Sample	cal Method: nalyzed: Preparation: RL	SM 4500-Cl B 2012-09-27 2012-09-26	Prep Method: Analyzed By: Prepared By:	N/A AR AR
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride			3050	mg/Kg	10	4.00
Sample: 31	0098 - CS-1 North Wall					
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 95215 80669	Analytic Date Ar Sample	cal Method: aalyzed: Preparation:	SM 4500-Cl B 2012-09-27 2012-09-26	Prep Method: Analyzed By: Prepared By:	N/A AR AR

T Top Daton	00000					
			RL			
Parameter	Fl	ag Cei	rt Result	Units	Dilution	\mathbf{RL}
Chloride	l	J	<20.0	mg/Kg	5	4.00

Sample: 310099 - CS-1 South Wall

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	95216	Date Analyzed:	2012-09-27	Analyzed By:	AR
Prep Batch:	80669	Sample Preparation:	2012-09-26	Prepared By:	AR

Report Date: September 27, 2012 114-6400888		Work Order: 12092418 COG/White Star			Page Number: 7 of 1 Eddy Co., NI	
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			57.1	mg/Kg	5	4.00

Sample: 310100 - CS-1 East Wall

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 95216 80669	Analytic Date An Sample I	al Method: alyzed: Preparation:	SM 4500-Cl B 2012-09-27 2012-09-26	Prep Method: Analyzed By: Prepared By:	N/A AR AR
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	\mathbf{RL}
Chloride	U		<20.0	mg/Kg	5	4.00

Sample: 310101 - CS-1 West Wall

Laboratory:	Midland					
Analysis:	Chloride (Titration)	Analytic	al Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch: 95216		Date An	alyzed:	2012-09-27	Analyzed By:	AR
Prep Batch:	80669	Sample Preparation:		2012-09-26	Prepared By:	AR
			\mathbf{RL}			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride	U		<20.0	mg/Kg	5	4.00

Sample: 310102 - CS-1 Bottom Hole 2'

Chloride			581	mg/Kg	5	4.00
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Prep Batch:	80669	Sample	Preparation:	2012-09-26	Prepared By:	AR
QC Batch:	95216	Date An	alyzed:	2012-09-27	Analyzed By:	AR
Analysis:	Chloride (Titration)	Analytic	al Method:	SM 4500-Cl B	Prep Method:	N/A
Laboratory:	Midland					

Report Date 114-6400888	: September 27, 2012		Work Order: 12 COG/White	2092418 Star	Page Number: 8 of 13 Eddy Co., NM		
Sample: 31	0103 - CS-1 Bottom H	ole 4'					
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 95216 80669	Analy Date Samp	tical Method: Analyzed: le Preparation:	SM 4500-Cl B 2012-09-27 2012-09-26	Prep Method: Analyzed By: Prepared By:	N/A AR AR	
		G ,	RL	TT 1.	D'1 ('	пт	
Parameter Chloride	Flag	Cert	Result 1520	Units mg/Kg	10	$\frac{RL}{4.00}$	

Report Date: September 27, 2012 114-6400888

Work Order: 12092418 COG/White Star Page Number: 9 of 13 Eddy Co., NM

Method Blanks

Method Blank (1)	QC Batch: 95215				
QC Batch: 95215		Date Analyzed:	2012-09-27	Analyzed By:	AR
Prep Batch: 80669		QC Preparation:	2012-09-26	Prepared By:	AR
			MDL		
Parameter	Flag	Cert	Result	Units	\mathbf{RL}
Chloride	¥		<3.85	mg/Kg	4
Method Blank (1)	QC Batch: 95216				
QC Batch: 95216		Date Analyzed:	2012-09-27	Analyzed By:	AR
Prep Batch: 80669		QC Preparation:	2012-09-26	Prepared By:	AR
			MDL		
Parameter	Flag	Cert	Result	Units	RL
Chloride			<3.85	mg/Kg	4

Report Date: September 27, 2012 114-6400888

Work Order: 12092418 COG/White Star

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch:	95215	Date Analyzed:	2012-09-27	Analyzed By:	AR
Prep Batch:	80669	QC Preparation:	2012-09-26	Prepared By:	AR

			\mathbf{LCS}			Spike	Matrix		Rec.
Param	F	С	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride			2450	mg/Kg	1	2500	<3.85	98	85 - 115
Percent recovery is based on the spil	ke resu	ılt. RF	PD is based	l on the spil	ke and s	pike duplicat	e result.		

			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	С	\mathbf{Result}	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride			2550	mg/Kg	1	2500	<3.85	102	85 - 115	4	20

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

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch:	95216 80669		D: Q	ate Analyze C Preparat	ed: 2012- ion: 2012-	09-27 09-26			Analyzed Prepared	By: AR By: AR
Param		F	С	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride				2490	mg/Kg	1	2500	<3.85	100	85 - 115
Percent recov	very is based on the	e spike resu	ılt. RI	PD is based	on the spil	ke and sj	pike duplicat	e result.		_

			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride			2580	mg/Kg	1	2500	<3.85	103	85 - 115	4	20

Matrix Spike (MS-1)	Spiked Sample: 310098	

QC Batch:	95215	Date Analyzed:	2012-09-27	Analyzed By:	\mathbf{AR}
Prep Batch:	80669	QC Preparation:	2012-09-26	Prepared By:	AR

Report Date: September 27, 2012 114-6400888	2			Wor C	k Order: OG/Wh	12092418 ite Star			Page N	umber: Eddy (11 of 13 Co., NM
		_	~	MS	~~ .		Spike	M	atrix		Rec.
Param		F	C	Result	Units	Dil.	Amount	Re	esult Re	c. 1	Limit
Chloride				2500	mg/Kg	5	2500	<	19.2 10	0 78	9 - 121
Percent recovery is based on the	spike	e resu	ılt. RPI	D is based	on the s	pike and s	spike dupli	cate re	sult.		
			MSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	С	Result	Units	Dil.	Amount	\mathbf{Result}	Rec.	Limit	RPD	Limit
Chloride			2620	mg/Kg	5	2500	<19.2	105	78.9 - 121	5	20
Matrix Spike (MS-1) Spike QC Batch: 95216 Prep Batch: 80669	d Sa	mple	:: 310103 Dat QC	3 je Analyze Preparati	d: 201 on: 201	2-09-27 2-09-26			Ana Prep	lyzed By bared By	: AR : AR
Param		F	С	MS Result	Units	Dil.	Spike Amount	Ma Re	atrix esult Re	c.]	Rec. Limit
Chloride				3860	mg/Kg	10	2500	1	<u>520 94</u>	78.	9 - 121
Percent recovery is based on the	spike	e resu	ılt. RPI) is based	on the s	pike and s	pike duplie	cate re	sult.		
			MSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride			4070	mg/Kg	10	2500	1520	102	78.9 - 121	5	20

Report Date: September 27, 2012 114-6400888

Work Order: 12092418 COG/White Star

Calibration Standards

Standard (CCV-1)

QC Batch:	95215			Date A	Analyzed: 2	012-09-27		Analy	zed By: AR
					CCVs	CCVs	CCVs	Percent	
					True	Found	Percent	Recovery	Date
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride				mg/Kg	100	98.6	99	85 - 115	2012-09-27

Standard (CCV-2)

QC Batch:	95215			Date A	Analyzed:	2012-09-27		Analy	zed By: AR
					CCVs True	CCVs Found	CCVs Percent	Percent	Data
Daram		Flog	Cort	Unita	Cone	Cone	Pageworr	Limita	Analyzad
1 01 0111		Tiag	0010	011165	Conc.	Conc.	Trecovery	Linnes	Analyzeu
Chloride				mg/Kg	100	101	101	85 - 115	2012-09-27

Standard (CCV-1)

QC Batch:	95216			Date A	analyzed: 2	012-09-27		Analy	zed By: AR
					CCVs	CCVs	CCVs	Percent	
					True	Found	Percent	Recovery	Date
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride				mg/Kg	100	101	101	85 - 115	2012-09-27

Standard (CCV-2)

QC Batch:	95216			Date A	Analyzed:	2012-09-27		Analy	zed By: AR
					CCVs	CCVs	CCVs	Percent	-
					True	Found	Percent	Recovery	Date
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride				mg/Kg	100	98.8	99	85 - 115	2012-09-27

Report Date: September 27, 2012 114-6400888

Work Order: 12092418 COG/White Star Page Number: 13 of 13 Eddy Co., NM

Appendix

Report Definitions

NameDefinitionMDLMethod Detection LimitMQLMinimum Quantitation LimitSDLSample Detection Limit

Laboratory Certifications

	Certifying	Certification	Laboratory
С	Authority	Number	Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis

Standard Flags

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

Attachments

The scanned attachments will follow this page. Please note, each attachment may consist of more than one page.

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	Mard	STATE:		7 PH	IONE:	ZI	P:		DA	ATE:				TIM	E:								Z	T	av	ur z	2	-				Auth	iorizeo Yes	. yas 1:	No
SAMPLE COND	ITION WHEN					R	EMARKS:																												
9.1	Piease	fill out all	сорі	ies	- L:	aborate	ory retai	ns Yeli	low c	copy -	Return	Orginal c	opy to T	etra Teo	ch -	Pro	oject	Man	ager	reta	ins f	Pink	cop	- v	Acc	oun	ting	rec	eive	s Go	old c	copy	 /.		

Summary Report

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

Project Location:Eddy Co., NMProject Name:COG/White StarProject Number:114-6400888

Time Date Date Taken Taken Received Sample Description Matrix 2011-04-21 264380 AH-1 0-1' soil 2011-04-20 00:00 264381 AH-1 1-1.5' soil 2011-04-20 00:00 2011-04-21 264382 AH-1 2-2.5' 2011-04-20 00:00 2011-04-21 soil 264383 soil 2011-04-20 2011-04-21 AH-1 3-3.5' 00:00 264384 AH-1 4-4.5' 2011-04-20 00:00 2011-04-21 soil 264385AH-1 5-5.5' 2011-04-20 00:00 2011-04-21 soil264386 AH-1 6-6.5' soil 2011-04-20 00:00 2011-04-21 264387 AH-1 7-7.5' soil 2011-04-20 00:00 2011-04-21

			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)
264380 - AH-1 0-1'	12.7	85.0	56.2	92.3	17200	2160
264381 - AH-1 1-1.5'	1.64	12.8	11.4	18.4	379	406
264382 - AH-1 2-2.5'	< 0.0200	< 0.0200	< 0.0200	< 0.0200	<50.0	<2.00
264383 - AH-1 3-3.5'	< 0.0200	< 0.0200	< 0.0200	< 0.0200	<50.0	<2.00

Sample: 264380 - AH-1 0-1'

Param	Flag	\mathbf{Result}	Units	\mathbf{RL}
Chloride		4880	mg/Kg	4.00

Sample: 264381 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		7330	mg/Kg	4.00

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Report Date: April 29, 2011

Work Order: 11042203

Report Date: April	29, 2011	Work Order: 11042203	Page	Number: 2 of 2
Sample: 264382	- AH-1 2-2.5'			
Param	Flag	Result	Units	RL
Chloride	Ŭ	1830	mg/Kg	4.00
Sample: 264383	- AH-1 3-3.5'			
Param	Flag	\mathbf{Result}	Units	RL
Chloride		2530	mg/Kg	4.00
Sample: 264384	- AH-1 4-4.5'			
Param	Flag	Result	Units	RL
Chloride		2890	mg/Kg	4.00
Sample: 264385	- AH-1 5-5.5'			
Param	Flag	Result	Units	RL
Chloride		1680	mg/Kg	4.00
Sample: 264386	- AH-1 6-6.5'			
Param	Flag	Result	Units	RL
Chloride		1630	mg/Kg	4.00
Sample: 264387	- AH-1 7-7.5'			
Param	Flag	Result	Units	RL
Chloride		2450	mg/Kg	4.00

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Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: April 29, 2011

Work Order: 11042203

Project Location:Eddy Co., NMProject Name:COG/White StarProject Number:114-6400888

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
264380	AH-1 0-1'	soil	2011-04-20	00:00	2011-04-21
264381	AH-1 1-1.5'	soil	2011-04-20	00:00	2011-04-21
264382	AH-1 2-2.5'	soil	2011-04-20	00:00	2011-04-21
264383	AH-1 3-3.5'	soil	2011-04-20	00:00	2011-04-21
264384	AH-1 4-4.5'	soil	2011-04-20	00:00	2011-04-21
264385	AH-1 5-5.5'	soil	2011-04-20	00:00	2011-04-21
264386	AH-1 6-6.5'	soil	2011-04-20	00:00	2011-04-21
264387	AH-1 7-7.5'	soil	2011-04-20	00:00	2011-04-21

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

Michael abel

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

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Report Contents

Case Narrative 5							
Analytical Report	6						
Sample 264380 (AH-1 0-1')	6						
Sample 264381 (AH-1 1-1.5')	7						
Sample 264382 (AH-1 2-2.5')	8						
Sample 264383 (AH-1 3-3.5')	10						
Sample 264384 (AH-1 4-4.5')	11						
Sample 264385 (AH-1 5-5.5')	12						
Sample 264386 (AH-1 6-6.5')	12						
Sample 264387 (AH-1 7-7.5')	12						
Method Blanks	14						
QC Batch 80636 - Method Blank (1)	14						
QC Batch 80637 - Method Blank (1)	14						
QC Batch 80646 - Method Blank (1)	14						
QC Batch 80725 - Method Blank (1)	15						
QC Batch 80730 - Method Blank (1)	15						
QC Batch 80731 - Method Blank (1)	15						
QC Batch 80739 - Method Blank (1) \ldots	16						
Laboratory Control Spikes	17						
QC Batch 80636 - LCS (1)	17						
QC Batch $80637 - LCS(1)$	17						
QC Batch $80646 - LCS(1)$	18						
QC Batch 80725 - LCS (1)	18						
QC Batch 80730 - LCS (1)	19						
QC Batch 80731 - LCS (1)	19						
QC Batch 80739 - LCS (1)	20						
QC Batch 80636 - MS (1)	20						
QC Batch 80637 - MS (1)	21						
QC Batch 80646 - MS (1)	21						
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QC Batch 80730 - MS (1)	22						
QC Batch 80731 - MS (1)	23						
QC Batch 80739 - MS (1)	23						
Calibration Standards	25						
QC Batch $80636 - CCV(2)$	25						
QU Batch $80636 - CCV(3)$	25						
QU Batch 80037 - $CCV(2)$	25						
QU Batch $80637 - CCV(3)$	25						
QU Batch $80646 - CCV(1)$	26						
QC Batch 80646 - CCV (2)	26						
QC Batch 80725 - ICV (1)	26						
QC Batch 80725 - CCV (1)	26						

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QC Batch 80730 - CCV (1)	
QC Batch 80730 - CCV (2)	
QC Batch 80731 - CCV (1)	
QC Batch 80731 - CCV (2)	
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Appendix	29
Laboratory Certifications	
Standard Flags	
Attachments	

Case Narrative

Samples for project COG/White Star were received by TraceAnalysis, Inc. on 2011-04-21 and assigned to work order 11042203. Samples for work order 11042203 were received intact at a temperature of 9.4 C.

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

		Prep	Prep	\mathbf{QC}	Analysis
Test	Method	Batch	Date	Batch	Date
BTEX	S 8021B	68447	2011-04-25 at 09:04	80636	2011-04-25 at 09:04
BTEX	S 8021B	68516	2011-04-27 at 15:47	80730	2011-04-27 at 15:47
Chloride (Titration)	SM 4500-Cl B	68435	2011-04-25 at 11:20	80725	2011-04-27 at 15:42
TPH DRO - NEW	S 8015 D	68456	2011-04-25 at 09:52	80646	2011-04-25 at 09:52
TPH DRO - NEW	S 8015 D	68529	2011-04-27 at 10:16	80739	2011-04-27 at 10:16
TPH GRO	S 8015 D	68447	2011-04-25 at 09:04	80637	2011-04-25 at 09:04
TPH GRO	S 8015 D	68516	2011-04-27 at 15:47	80731	2011-04-27 at 15:47

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 11042203 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Report Date: April 29, 2011 114-6400888

Analytical Report

Sample: 264380 - AH-1 0-1'

Laboratory: Midland								
Analysis: BTEX		Analytica	l Method:	S 8021	В		Prep Metho	d: S 5035
QC Batch: 80636		Date Ana	lyzed:	2011-04	4-25		Analyzed By	7: ME
Prep Batch: 68447		Sample P	reparation	n: 2011-04	4-25		Prepared By	r: ME
				\mathbf{RL}				
Parameter	Flag	Cert		Result	Units		Dilution	RL
Benzene		1	1	12.7	mg/Kg	5	20	0.0200
Toluene		1		85.0	mg/Kg	;	20	0.0200
Ethylbenzene		1		56.2	mg/Kg		20	0.0200
Xylene	<u> </u>	1		92.3	mg/Kg		20	0.0200
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1	22.3	mg/Kg	20	20.0	112	52.8 - 137
4-Bromofluorobenzene (4-BFB)		1	38.2	mg/Kg	20	20.0	191	38.4 - 157
Sample: 264380 - AH-1 0-1'								
Laboratory: Midland								

Analysis: Chloride (Titration) QC Batch: 80725		Ana Dat	lytical Method: e Analyzed:	SM 4500-Cl B 2011-04-27	Prep Method: Analyzed By:	N/A AR
Prep Batch:	68435	Sam	ple Preparation: RL	2011-04-27	Prepared By:	AR
Parameter	Flag	Cert	Result	Units	Dilution	\mathbf{RL}
Chloride			4880	mg/Kg	100	4.00

Sample: 264380 - AH-1 0-1'

Laboratory: Midland Analysis: TPH DRO - NEW QC Batch: 80646 Prep Batch: 68456		Analyti Date A Sample	cal Method: nalyzed: Preparation:	S 8015 D 2011-04-25 2011-04-25	Prep Method: Analyzed By: Prepared By:	N/A kg kg
Parameter	Flag	Cert	RL Result	Units	Dilution	BL
DRO	.	1	17200	mg/Kg	10	50.0

Report Date: Apr 114-6400888			Work Order: COG/Whit	Page Nur Ec	Page Number: 7 of 29 Eddy Co., NM			
Surrogate Flag		Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	- <u> </u>	1	469	mg/Kg	10	100	469	70 - 130

Sample: 264380 - AH-1 0-1'

Laboratory: Midland Analysis: TPH GRO QC Batch: 80637 Prep Batch: 68447			Analytic Date An Sample	cal Metho alyzed: Preparatio	d: S 801 2011- on: 2011-	5 D 04-25 04-25		Prep Metho Analyzed B Prepared B	od: S 5035 y: ME y: ME
					\mathbf{RL}				
Parameter	Flag		Cert		Result	Uni	its	Dilution	\mathbf{RL}
GRO			1		2160	mg/ł	٢g	20	2.00
Surrogate]	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1	21.7	mg/Kg	20	20.0	108	48.5 - 152
4-Bromofluorobenzene (4-BFB)			1	37.6	mg/Kg	20	20.0	188	42 - 159

Sample: 264381 - AH-1 1-1.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland BTEX 80730 68516		Analytica Date Ana Sample Pr	l Method: lyzed: reparatior	S 80211 2011-04 a: 2011-04	3 ⊢27 ⊢27		Prep Methoo Analyzed By Prepared By	l: S 5035 : ME : ME
					\mathbf{RL}				
Parameter		Flag	Cert		Result	Uni	ts	Dilution	\mathbf{RL}
Benzene	······································		1		1.64	mg/k	ζg	5	0.0200
Toluene			1		12.8	mg/F	ζg	5	0.0200
Ethylbenzene			1		11.4	mg/F	ζg	5	0.0200
Xylene			1		18.4	mg/ŀ	Kg	5	0.0200
Surrogate		Flor	Cert	Regult	Units	Dilution	Spike Amount	Percent	Recovery
Trifugrateluc	no (TET)	T lag	Oere	5 09		5	5.00	120	59.8 197
4-Bromofluor	obenzene (4-BFB)		1	9.05	mg/Kg	5	5.00	181	<u>38.4 - 157</u>

114-6400888			COG/White Star					Eddy Co., NM		
Sample: 26	4381 - AH-1 1-1.	5'								
Laboratory:	Midland									
Analysis:	Chloride (Titratio	on)	Anal	ytical Meth	od: SM	4500-Cl E	;	Prep Metl	nod: N/A	
QC Batch:	80725	/	Date	Analyzed:	201	1-04-27		Analyzed	By: AR	
Prep Batch:	68435		Samp	ole Preparat	tion: 201	1-04-27		Prepared	By: AR	
					זק					
Parameter		Flag	Cert	Re	esult	Un	ts	Dilution	RI	
Chloride		······································		7	330	mg/I	۲g	100	4.00	
Analysis: QC Batch: Prep Batch:	TPH DRO - NEV 80739 68529	V	Ana Dat Sam	lytical Metl e Analyzed: ple Prepara	hod: S 8 20 ation: 20	8015 D 11-04-27 11-04-27		Prep Metl Analyzed Prepared	10d: N/A By: kg By: kg	
					\mathbf{RL}					
Parameter		Flag	Cert	Re	esult	Un	ts	Dilution	RI	
DRO			1		379	mg/ł	(g	1	50.0	
						1	Spike	Percent	Recovery	
Surrogate	Flag	Cert	Result	Units	Diluti	on A	mount	Recovery	Limits	
n-Tricosane		1	140	mg/Kg	1		100	140	70 - 130	
Sample: 26 Laboratory: Analysis: QC Batch: Prep Batch:	4381 - AH-1 1-1. Midland TPH GRO 80731 68516	5'	Analytic: Date Ana Sample F	al Method: alyzed: Preparation:	S 8015 2011-04 2011-04	D -27 -27		Prep Metho Analyzed By Prepared By	d: S 5038 7: ME	
Trop Davon	00010		p		RL					
							4	Dilution	זמ	
Parameter		Flag	Cert	Re	sult	Uni	tS	Dilucion		
Parameter GRO		Flag	Cert	Re	esult 406	Uni mg/F	ts Kg	5	2.00	
Parameter GRO		Flag	Cert 1	Re	esult 406	Uni mg/ł	s Spike	5 Percent	2.00 Recovery	
Parameter GRO Surrogate		Flag	Cert 1 lag Cert	Result	esult 406 Units	Uni mg/F Dilution	ts (g Spike Amount	5 Percent Recovery	Recovery Limits	
Parameter GRO Surrogate Trifluorotolu	ene (TFT)	Flag F	Cert 1 lag Cert	Result 5.43 r	esult 406 Units mg/Kg	Uni mg/F Dilution 5	s Spike Amount 5.00	Percent Recovery 109	Recovery Limits 48.5 - 152	

Report Date: April 29, 2011	Work Order: 11042203	Page Number: 9 of 29
114-6400888	COG/White Star	Eddy Co., NM

Sample: 264382 - AH-1 2-2.5'

Laboratory:	Midland								
Analysis:	BTEX		Analytica	l Method:	S 8021	В		Prep Metho	d: S 5035
QC Batch:	80730		Date Ana	lyzed:	2011-04	1-27		Analyzed B	y: ME
Prep Batch:	68516		Sample P	reparation	: 2011-04	1-27		Prepared By	: ME
					\mathbf{RL}				
Parameter		Flag	Cert		Result	Uni	ts	Dilution	\mathbf{RL}
Benzene			1	<	0.0200	mg/K	g	1	0.0200
Toluene			1	<	0.0200	mg/K	g	1	0.0200
Ethylbenzene			1	<	0.0200	mg/K	g	1	0.0200
Xylene			1	<	0.0200	mg/K	g	11	0.0200
							Spike	Percent	Recovery
Surrogate		Flag	Cert	\mathbf{Result}	Units	Dilution	Amount	Recovery	Limits
Trifluorotolue	ene (TFT)		1	2.30	mg/Kg	1	2.00	115	52.8 - 137
4-Bromofluor	obenzene (4-BFB)		1	2.31	mg/Kg	1	2.00	116	38.4 - 157

Sample: 264382 - AH-1 2-2.5'

Laboratory:MidlandAnalysis:Chloride (Titration)QC Batch:80725Prep Batch:68435		Analytic Date Ar Sample	al Method: alyzed: Preparation:	SM 4500-Cl B 2011-04-27 2011-04-27	Prep Method: Analyzed By: Prepared By:	N/A AR AR
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	\mathbf{RL}
Chloride			1830	mg/Kg	100	4.00

Sample: 264382 - AH-1 2-2.5'

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - N 80739 68529	IEW	Ana Dat Sam	lytical Meth e Analyzed: aple Preparat	od: S 8018 2011-0 sion: 2011-0	5 D)4-27)4-27	Prep Method: Analyzed By: Prepared By:		N/A kg kg
					RL				
Parameter		Flag	Cert	Res	sult	Units	Dilution		RL
DRO		······	1	<5	0.0	mg/Kg	1		50.0
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Rec Lit	overy mits
n-Tricosane		1	98.6	mg/Kg	1	100	99	70	- 130

Report Date: April 29, 2011 114-6400888			Work Order: 11042203 COG/White Star					Page Number: 10 of 29 Eddy Co., NM		
Sample: 264382 - AH-1 2-2.5	,									
Laboratory: Midland Analysis: TPH GRO QC Batch: 80731 Prep Batch: 68516			Analytic Date An Sample I	al Metho alyzed: Preparati	d: S 801 2011-6 on: 2011-6	5 D 04-27 04-27		Prep Metho Analyzed E Prepared B	od: S 5035 Sy: ME y: ME	
					\mathbf{RL}					
Parameter	Flag		Cert		Result	Uni	ts	Dilution	RL	
GRO			1		<2.00	mg/ł	ζg	1	2.00	
G (1.01	C	Dent	TT-14-		Spike	Percent	Recovery	
Surrogate		Flag	Cert	Kesult	Units	Dilution	Amount	Recovery	Limits	
Trifluorotoluene (TFT)			1	2.16	mg/Kg	1	2.00	108	48.5 - 152	
4-Bromofluorobenzene (4-BFB)			1	1.99	mg/Kg	1	2.00	100	42 - 159	

Sample: 264383 - AH-1 3-3.5'

Laboratory: Midland								
Analysis: BTEX		Analytica	al Method:	S 8021	В		Prep Metho	od: S 5035
QC Batch: 80730		Date Ana	alyzed:	2011-04	1-27		Analyzed B	y: ME
Prep Batch: 68516		Sample P	reparation	: 2011-04	1-27		Prepared B	y: ME
				\mathbf{RL}				
Parameter	Flag	Cert		Result	Uni	ts	Dilution	\mathbf{RL}
Benzene		1	<	0.0200	mg/ł	ζg	1	0.0200
Toluene		1	<	0.0200	mg/ŀ	ζg	1	0.0200
Ethylbenzene		1	<	0.0200	mg/ł	ζg	1	0.0200
Xylene		1	<	0.0200	mg/ł	Kg	1	0.0200
						Spike	Percent	Recovery
Surrogate	\mathbf{Fla}_{ℓ}	g Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1	2.73	mg/Kg	1	2.00	136	52.8 - 137
4-Bromofluorobenzene (4-BFB)		1	2.64	mg/Kg	1	2.00	132	38.4 - 157

Sample: 264383 - AH-1 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	80725	Date Analyzed:	2011-04-27	Analyzed By:	AR
Prep Batch:	68435	Sample Preparation:	2011-04-27	Prepared By:	AR

continued ...

Report Date 114-6400888	e: April 29, 2011		W	Vork Order: 2 COG/Whit	11042203 e Star		Page Number: 11 of 29 Eddy Co., NM		
sample 2643	83 continued								
					RL				
Parameter		Flag	Cert	Res	sult	Units	Dilution	RL	
					RL				
Parameter		Flag	Cert	Res	sult	Units	Dilution	RL	
Chloride				28	530	mg/Kg	100	4.00	
Sample: 26	64383 - AH-1 3-	3.5'							
Laboratory:	Midland								
Analysis:	TPH DRO - NE	W	Ana	lytical Meth	od: S 8015	D	Prep Me	thod: N/A	
QC Batch:	80739		Dat	e Analyzed:	2011-0	4-27	Analyzeo	lBy: kg	
Prep Batch:	68529		Sam	ple Preparat	tion: 2011-0	4-27	Prepared	l By: kg	
					RL				
Parameter		Flag	Cert	Res	sult	Units	Dilution	\mathbf{RL}	
DRO			1	<5	50.0	mg/Kg	1	50.0	
						Spike	Percent	Recovery	
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits	
n-Tricosane		1	94.4	mg/Kg	1	100	94	70 - 130	
Sample: 26	4383 - AH-1 3-3	3.5'							
Laboratory:	Midland								
Analysis:	TPH GRO		Analytica	al Method:	S 8015 D		Prep Meth	od: S 5035	
QC Batch:	80731		Date Ana	alyzed:	2011-04-27		Analyzed H	By: ME	
Prep Batch:	68516		Sample F	reparation:	2011-04-27		Prepared E	By: ME	
					RL				
Parameter		Flag	Cert	Res	ult	Units	Dilution	RL	

GRO	1		<2.00	mg/Kg		1	2.00	
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1	2.48	mg/Kg	1	2.00	124	48.5 - 152
4-Bromofluorobenzene (4-BFB)		1	2.24	mg/Kg	1	2.00	112	42 - 159

.

Report Date 114-6400888	: April 29, 2011	Work Order: 11042203 COG/White Star			Page Number: 12 of 2 Eddy Co., N		
Sample: 26	4384 - AH-1 4-4.5'						
Laboratory:	Midland						
Analysis:	Chloride (Titration)	Analyti	cal Method:	SM 4500-Cl B	Prep Method:	N/A	
QC Batch:	80725	Date A	nalyzed:	2011-04-27	Analyzed By:	\mathbf{AR}	
Prep Batch:	68435	Sample	Preparation:	2011-04-27	Prepared By:	AR	
			RL				
Parameter	Flag	Cert	Result	Units	Dilution	RL	
Chloride			2890	mg/Kg	100	4.00	
Sample: 26 Laboratory: Analysis: QC Batch: Prep Batch:	4385 - AH-1 5-5.5' Midland Chloride (Titration) 80725 68435	Analyti Date An Sample	cal Method: nalyzed: Preparation:	SM 4500-Cl B 2011-04-27 2011-04-27	Prep Method: Analyzed By: Prepared By:	N/A AR AR	
Demession	Flor	Cont	RL	¥Imita	Dilution	DT	
Chloride	r lag	Cert	1680	mg/Kg	100	4.00	
Sample: 26 Laboratory: Analysis: QC Batch: Prep Batch:	4386 - AH-1 6-6.5' Midland Chloride (Titration) 80725 68435	Analyti Date An Sample	cal Method: nalyzed: Preparation: RL	SM 4500-Cl B 2011-04-27 2011-04-27	Prep Method: Analyzed By: Prepared By:	N/A AR AR	
Parameter	Flag	Cert	Result	Units	Dilution	RL	

Sample: 264387 - AH-1 7-7.5'

Chloride

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	80725	Date Analyzed:	2011-04-27	Analyzed By:	AR
Prep Batch:	68435	Sample Preparation:	2011-04-27	Prepared By:	AR

1630

mg/Kg

100

4.00

Report Date: April 29, 2011 114-6400888		Work C(Order: 11042203 DG/White Star	Page Number: 13 of 29 Eddy Co., NM		
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2450	mg/Kg	100	4.00

Report Date: April 29, 2011 114-6400888

Method Blanks

Method Bla	nk (1)	QC Batch:	80636
	• •	•	

QC Batch:	80636	Date Analyzed:	2011-04-25	Analyzed By:	ME
Prep Batch:	68447	QC Preparation:	2011-04-25	Prepared By:	ME

					MDL			
Parameter	Flag		Cert		Result		Units	\mathbf{RL}
Benzene			1		< 0.0118		mg/Kg	0.02
Toluene			1		< 0.00600		mg/Kg	0.02
Ethylbenzene			1		< 0.00850		mg/Kg	0.02
Xylene			1		<0.00613		mg/Kg	0.02
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1	2.08	mg/Kg	1	2.00	104	66.6 - 122
4-Bromofluorobenzene (4-BFB)		1	2.23	mg/Kg	1	2.00	112	55.4 - 124

Method Blank (1) QC Batch: 80637

QC Batch: Prep Batch:	80637 68447		Date A QC Pre	nalyzed: eparation:	2011-04-25 2011-04-25	5		Analyzeo Prepareo	l By: ME l By: ME
Parameter		Flag		Cert		MDL Result		Units	RL
GRO				1		<0.753		mg/Kg	2
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluer	ne (TFT)		1	2.02	mg/Kg	1	2.00	101	67.6 - 150
4-Bromofluoro	benzene (4-BFB)		1	1.93	mg/Kg	1	2.00	96	52.4 - 130

Method Blar	ık (1)	QC Batch: 80646				
QC Batch:	80646		Date Analyzed:	2011-04-25	Analyzed By:	kg
Prep Batch:	68456		QC Preparation:	2011-04-25	Prepared By:	kg

Report Date: April 29, 2011 114-6400888			١		Page Number: 15 of 29 Eddy Co., NM			
Devenuetor		L.		Cont	M	DL	Unito	DI
Parameter		F 18	rg	Cert	nes	Suit	Units	<u></u>
DRO				1	<1	.5.7	mg/Kg	50
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	<u>y</u>	1	104	mg/Kg	1	100	104	70 - 130

Method Bla	ank (1)	QC Batch: 80725				
QC Batch:	80725		Date Analyzed:	2011-04-27	Analyze	d By: AR
Prep Batch:	68435		QC Preparation:	2011-04-25	Prepare	d By: AR
				MDI	L	
Parameter		Flag	Cert	Resul	t Units	\mathbf{RL}
Chloride	· · · · · · · · · · · · · · · · · · ·			<3.8	ó mg/Kg	4

Method Blank	(1)	QC Batch: 80730	
--------------	-----	-----------------	--

QC Batch: 80730		Date A	nalyzed:	2011-04-2	27		Analyzeo	l By:	ME
Prep Batch: 68516		QC Pre	eparation:	2011-04-2	27		Preparec	By:	ME
					MDL				
Parameter	Flag		Cert		\mathbf{Result}		Units		\mathbf{RL}
Benzene			1		< 0.0118		mg/Kg		0.02
Toluene			1		< 0.00600	mg/Kg		0.02	
Ethylbenzene			1		< 0.00850	mg/Kg		0.02	
Xylene			1		<0.00613		mg/Kg		0.02
						Spike	Percent	Rec	overy
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Lir	mits
Trifluorotoluene (TFT)		1	1.89	mg/Kg	1	2.00	94	66.6	- 122
4-Bromofluorobenzene (4-BFB)		1	1.85	mg/Kg	1	2.00	92	55.4	- 124

Method	Blank (1)	QC Batch:	80731

QC Batch:	80731	Date Analyzed:	2011-04-27	Analyzed By:	ME
Prep Batch:	68516	QC Preparation:	2011-04-27	Prepared By:	ME

Report Date: April 29, 2011 114-6400888		•	Work Order COG/WI	: 11042203 nite Star		Page Number: 16 of 29 Eddy Co., NM			
Parameter	Flag		Cert		MDL Result		Units	RL	
GRO			1		<0.753		mg/Kg	2	
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits	
Trifluorotoluene (TFT)		1	1.74	mg/Kg	1	2.00	87	67.6 - 150	
4-Bromofluorobenzene (4-BFB)		1	1.59	mg/Kg	1	2.00	80	52.4 - 130	
Method Blank (1) QC Batch: QC Batch: 80739 Prep Batch: 68529	80739	Date A QC Pi	Analyzed: reparation:	2011-04-2' 2011-04-2'	7 7		Analyz Prepar	ed By: kg ed By: kg	
Parameter	Flag		Cert		MDL Result		Units	\mathbf{RL}	
DRO			1		<15.7		mg/Kg	50	
Surrogate Flag Ce	rt	Result	Units	Diluti	on A	Spike Amount	Percent Recovery	Recovery Limits	
n-Tricosane 1		101	mg/Kg	1		100	101	70 - 130	

Report Date: April 29, 2011 114-6400888

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch:	80636	Date Analyzed:	2011-04-25	Analyzed By:	ME
Prep Batch:	68447	QC Preparation:	2011-04-25	Prepared By:	ME

			LCS			Spike	Matrix		Rec.
Param	F	С	Result	Units	Dil.	\mathbf{Amount}	\mathbf{Result}	Rec.	Limit
Benzene		1	1.64	mg/Kg	1	2.00	< 0.0118	82	81.9 - 108
Toluene		1	1.98	mg/Kg	1	2.00	< 0.00600	99	81.9 - 107
Ethylbenzene		1	2.09	mg/Kg	1	2.00	< 0.00850	104	78.4 - 107
Xylene		1	6.30	mg/Kg	1	6.00	< 0.00613	105	79.1 - 107

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

			LCSD			Spike	Matrix		RPD		
Param	\mathbf{F}	С	\mathbf{Result}	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	1.68	mg/Kg	1	2.00	< 0.0118	84	81.9 - 108	2	20
Toluene		1	2.10	mg/Kg	1	2.00	< 0.00600	105	81.9 - 107	6	20
Ethylbenzene		1	2.06	mg/Kg	1	2.00	< 0.00850	103	78.4 - 107	1	20
Xylene		1	6.40	mg/Kg	1	6.00	< 0.00613	107	79.1 - 107	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)	1	2.10	2.11	mg/Kg	1	2.00	105	106	70.2 - 114
4-Bromofluorobenzene (4-BFB)	1	2.38	2.41	mg/Kg	1	2.00	119	120	69.8 - 121

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch:	80637 68447		D Q	ate Analyz C Prepara	zed: 2011 tion: 2011	-04-25 -04-25			Analyze Prepare	ed By: ME ed By: ME
Param		ъ	C	LCS Besult	Units	Dil	Spike Amount	Matrix Result	Rec	Rec.
1 44 4111		L		ricouri	011105			itcauio	1000	Lillio
GRO			1	17.0	mg/Kg	1	20.0	<0.753	85	60.9 - 95.4

$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Report Date: April 29, 2011 114-6400888				Work CC	Order: G/Whi	11042203 te Star			Р	age Nur I	nber: Eddy (18 of 29 Co., NM
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	control spikes continued												
ParamFCResultUnitsDil.AmountResultRec.LimitRPDLimitParamFCResultUnitsDil.MatrixRec.RefRPDLimitGRO116.7mg/Kg120.0<0.753				LCSD			Spike	Matrix	c .	R	ec.		RPD
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Param	F	C	Result	Units	s Dil.	Amount	Result	Rec.	Li:	mit	RPD	Limit
ParamFCResultUnitsDilAmountResultRec.LimitRPDLimitGROi16.7mg/Kg120.0<0.753				LCSD			Spike	Matrix	c	R	ec.		RPD
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Param	F	C	Result	Units	B Dil.	Amount	Result	Rec.	Li	mit	RPD	Limit
Percent recovery is based on the spike and spike duplicate result.LCSLCSDSpikeLCSLaboratoryControl Spike (LCS-1)QC Batch:80646Date Analyzed:2011-04-252011-04-25Analyzed By: kgkgPrep Batch:68456QC Preparation:2011-04-25Prepared By: kgDRO1218mg/Kg<1	GRO		1	16.7	mg/K	g 1	20.0	<0.753	8 84	60.9	- 95.4	2	20
LCSL	Percent recovery is based on the	spike	e res	ult. RPE) is base	d on the	e spike and	l spike du	plicate	result.			
SurregateResultResultUnitsDil.AmountRec.Rec.LimitTrifluorotoluene (TFT)i2.071.95mg/Kg12.001049861.9 - 1424-Bromofluorobenzene (4-BFB)i2.092.00mg/Kg12.0010410068.2 - 132Laboratory Control Spike (LCS-1)QC Batch:80646Date Analyzed:2011-04-25Analyzed By: kgPrep Batch:68456QC Preparation:2011-04-25Prepared By: kgParamFCResultUnitsDil.AmountResultRec.DROi218mg/Kg1250<15.7				LC	CS L	CSD		5	Spike	LCS	LCSD	I	Rec.
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Surrogate			Res	ult R	esult	Units	Dil. A	mount	Rec.	Rec.]	Limit
4-Bromoffuorobenzene (4-BFB) , 2.09 2.00 mg/Kg 1 2.00 104 100 68.2 - 132 Laboratory Control Spike (LCS-1) QC Batch: 80646 Date Analyzed: 2011-04-25 Analyzed By: kg Prep Batch: 68456 QC Preparation: 2011-04-25 Prepared By: kg Param F C Result Units Dil. Amount Result Rec. Limit DRO , 218 mg/Kg 1 250 <15.7	Trifluorotoluene (TFT)			1 2.0)7	1.95	mg/Kg	1	2.00	104	98	61.	9 - 142
Laboratory Control Spike (LCS-1) QC Batch: 80646 Date Analyzed: 2011-04-25 Analyzed By: kg Prep Batch: 68456 QC Preparation: 2011-04-25 Prepared By: kg Param F C Result Units Dil. Amount Result Rec. Limit DRO 1 218 mg/Kg 1 250 <15.7	4-Bromofluorobenzene (4-BFB)			1 2.()9 2	2.00	mg/Kg	1	2.00	104	100	68.	2 - 132
ParamFCResultUnitsDil.AmountMatrixRec.LimitDRO1218mg/Kg1250<15.78747.5 - 144.1Percent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.Rec.Rec.RepParamFCResultUnitsDil.AmountResultRec.RPDDRO1213mg/Kg1250<15.78547.5 - 144.1220ParamFCResultUnitsDil.AmountResultRec.LimitDIDRO1213mg/Kg1250<15.78547.5 - 144.1220Percent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.SurrogateLCSLCSDSpikeLCSLCSDRec.SurrogateResultResultUnitsDil.AmountRec.Rec.Limitn-Tricosane1106106mg/Kg110010610670 - 130QC Batch:80725Date Analyzed:2011-04-27Analyzed By:ARPrep Batch:68435QC Preparation:2011-04-25Prepared By:ARParamFCResultUnitsDil.AmountResultRec.LimitChloride98.1mg/Kg1100<3.859885 - 115	Laboratory Control Spike (I QC Batch: 80646 Prep Batch: 68456	.CS-:	1)	Dat QC	e Analy Prepara	zed:	2011-04-25 2011-04-25				Analy Prepa	zed B	y: kg y: kg
ParamFCResultUnitsDil.AmountResultRec.LimitDRO1218mg/Kg1250<15.7	D		ъ	0 1	LCS	TT • (701	Spike	M	atrix	D	F	lec.
DRO1218Ing/Rg1230<10.18141.3 - 144.1Percent recovery is based on the spike result.RPD is based on the spike and spike duplicate result.ParamFCResultUnitsDil.AmountResultRec.RPDLimitDRO1213mg/Kg1250<15.7	Param DPO		F	C H	cesult	Units	<u></u>	Amoun	t R	esult	Rec.	47 5	$\frac{1}{1441}$
Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.ParamFCResultUnitsDil.AmountResultRec.RPDLimitDRO1213mg/Kg1250<15.7				1	218	mg/K	<u> </u>	250	<	10.7	01	47.0	- 144.1
ParamFCResultUnitsDil.AmountResultRec.LimitRPDLimitDRO1213mg/Kg1250<15.7	Percent recovery is based on the	spike	resi	ilt. RPD) is base	d on the	spike and	spike du	plicate	result.			
ParamFCResultUnitsDil.AmountResultRec.LimitRPDLimitDRO1213mg/Kg1250<15.7				LCSD			Spike	Matrix		Re	ec.		RPD
DRO1213mg/Kg1250<15.78547.5 - 144.1220Percent recovery is based on the spike result.LCSLCSLCSLCSLCSLCSRec.SurrogateResultResultUnitsDil.AmountRec.Rec.Limitn-Tricosane1106106mg/Kg110010610670 - 130Laboratory Control Spike (LCS-1)QC Batch:80725Date Analyzed:2011-04-27Analyzed By:ARPrep Batch:68435QC Preparation:2011-04-25Prepared By:ARLCSSpikeMatrixRec.ParamFCResultUnitsDil.AmountResultRec.LimitChloride98.1mg/Kg1100<3.85	Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	Lin	nit	RPD	Limit
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 Units Dil. Amount Rec. Rec. Limit n-Tricosane 106 106 mg/Kg 1 100 106 106 70 - 130 Laboratory Control Spike (LCS-1) Date Analyzed: 2011-04-27 Analyzed By: AR Prep Batch: 80725 Date Analyzed: 2011-04-27 Prepared By: AR Prep Batch: 68435 C Result Units Dil. Amount Result Rec. Param F C Result Units Dil. Amount Result Rec. Limit Chloride 98.1 mg/Kg 1 100 <3.85 98 85 - 115	DRO		1	213	mg/K	<u>g 1</u>	250	<15.7	85	47.5 -	144.1		20
LCSLCSDSpikeLCSLCSDRec.SurrogateResultUnitsDil.AmountRec.Rec.Limitn-Tricosane106106mg/Kg110010610670 - 130Laboratory Control Spike (LCS-1)Date Analyzed:2011-04-27Analyzed By:ARQC Batch:80725Date Analyzed:2011-04-25Prepared By:ARPrep Batch:68435QC Preparation:2011-04-25Prepared By:ARParamFCResultUnitsDil.AmountResultRec.Chloride98.1mg/Kg1100<3.85	Percent recovery is based on the	spike	resi	ılt. RPD) is base	d on the	spike and	spike du	plicate	result.			
SurrogateResultResultUnitsDil.AmountRec.Rec.Limitn-Tricosane106106106mg/Kg110010610670 - 130Laboratory Control Spike (LCS-1)QC Batch:80725Date Analyzed:2011-04-27Analyzed By:ARPrep Batch:68435QC Preparation:2011-04-25Prepared By:ARLCSSpikeMatrixRec.ParamFCResultUnitsDil.AmountResultRec.LimitChloride98.1mg/Kg1100<3.85		\mathbf{L}	\mathbf{CS}	LCS	SD			Spike	e .	LCS	LCSD		Rec.
n-Tricosane106106mg/Kg110010610670 - 130Laboratory Control Spike (LCS-1)QC Batch: 80725 Date Analyzed: $2011-04-27$ Analyzed By:ARPrep Batch: 68435 QC Preparation: $2011-04-25$ Prepared By:ARLCSSpikeMatrixRec.ParamFCResultUnitsDil.AmountResultRec.LimitChloride98.1mg/Kg1100<3.85	Surrogate	Re	sult	Res	ult	Units	Dil.	Amou	nt	Rec.	Rec.		Limit
Laboratory Control Spike (LCS-1) QC Batch: 80725 Date Analyzed: 2011-04-27 Analyzed By: AR Prep Batch: 68435 QC Preparation: 2011-04-25 Prepared By: AR Prep Batch: 68435 ECS Spike Matrix Rec. Param F C Result Units Dil. Amount Result Rec. Limit Chloride 98.1 mg/Kg 1 100 <3.85	n-Tricosane	1	06	10	6	mg/Kg	1	100		106	106	7	0 - 130
ParamFCResultUnitsDil.AmountResultRec.LimitChloride98.1mg/Kg1100<3.85	Laboratory Control Spike (L QC Batch: 80725 Prep Batch: 68435	∕CS- 1	ι)	Date QC	e Analyz Prepara LCS	ed: 2 tion: 2	011-04-27 011-04-25	Spi	ke	Matrix	Analyz Prepar	ed By ed By:	AR AR Rec.
Chloride 98.1 mg/Kg 1 100 <3.85 98 85 - 115	Param		\mathbf{F}	С	Result	Uni	ts Dil.	Amo	unt	Result	Rec	•	Limit
	Chloride				98.1	mg/l	Kg 1	10	0	<3.85	98	8	5 - 115

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	\mathbf{Result}	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride			102	mg/Kg	1	100	<3.85	102	85 - 115	4	20

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

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch:	80730 68516		L Ç	Date Analyz QC Prepara	zed: 20 tion: 20)11-04-27)11-04-27			Analyzed By Prepared By	y: ME r: ME
Param		F	С	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit

Param	\mathbf{F}	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	2.06	mg/Kg	1	2.00	< 0.0118	103	81.9 - 108
Toluene		1	2.07	mg/Kg	1	2.00	< 0.00600	104	81.9 - 107
Ethylbenzene		1	2.07	mg/Kg	1	2.00	< 0.00850	104	78.4 - 107
Xylene		1	6.23	mg/Kg	1	6.00	< 0.00613	104	79.1 - 107

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	F	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	2.12	mg/Kg	1	2.00	< 0.0118	106	81.9 - 108	3	20
Toluene		1	2.13	mg/Kg	1	2.00	< 0.00600	106	81.9 - 107	3	20
Ethylbenzene		1	2.14	mg/Kg	1	2.00	< 0.00850	107	78.4 - 107	3	20
Xylene		1	6.43	mg/Kg	1	6.00	< 0.00613	107	79.1 - 107	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	2.05	1.84	mg/Kg	1	2.00	102	92	70.2 - 114
4-Bromofluorobenzene (4-BFB)	1	2.11	1.93	mg/Kg	1	2.00	106	96	69.8 - 121

Laboratory Control Spike (LCS-1)

QC Batch:	80731		D	ate Analy	zed: 2011	-04-27			Analyze	ed By: ME
Prep Batch:	68516		۲.	C Prepara	tion: 2011	-04-27			Prepare	d By: ME
				LCS			Spike	Matrix		Rec.
Param		\mathbf{F}	С	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO			1	13.5	mg/Kg	1	20.0	< 0.753	68	60.9 - 95.4

Report Date: April 29, 2011 114-6400888				Wor C	k Order OG/Wł	: 11042203 uite Star			1	Page Nu	mber: Eddy (20 of 29 Co., NM
Param	F	С	LCSE Resul) t Uni	its Di	Spike I. Amoun	Mat t Res	rix ult Re	R ec. Li	tec.	RPD	RPD Limit
GRO		1	14.8	mg/	ng 1	20.0	<0.	100 1	4 00.9	- 95.4	9	
Percent recovery is based on the	spik	e res	ult. RP	D is bas	sed on th	he spike and	d spike	duplicat	e result.			
Surrogate			I Re	CS esult	LCSD Result	Units	Dil.	Spike Amoun	t Rec.	LCSI Rec	D . :	Rec. Limit
Trifluorotoluene (TFT)			ı 1	90	1.77	mg/Kg	1	2.00	95	88	61	.9 - 142
4-Bromofluorobenzene (4-BFB)			1 1	83	1.73	mg/Kg	1	2.00	92	86	68	.2 - 132
Laboratory Control Spike (L	CS-	1)										
OC Batch: 80739			Da	ate Anal	lvzed:	2011-04-27	7			Ana	lvzed B	v: kg
Prep Batch: 68529			Q	C Prepa	ration:	2011-04-27	7			Prep	ared B	y: kg
Param DRO		F	<u>C</u>	LCS Result 222	Unit mg/H	s Dil. (g 1	Spi Amc 25	ke ount	Matrix Result <15.7	Rec. 89	1 <u>L</u> 47.5	Rec. imit - 144.1
Percent recovery is based on the	snike	- rogi	ult RP	D is has	ed on th	e snike and	t snike	duplicat	o regult			
recent recovery is based on the	spine	5 165	uib. Iti	DISUAS	seu on u	ie spike and	1 spike	uupneai	e resurt.			
Param	F	С	LCSD Result	: Unit	ts Dil	Spike . Amount	Matr Resu	rix ılt Rec	R c. Li	.ec. mit	RPD	RPD Limit
DRO		1	246	mg/I	Kg 1	250	<15	.7 98	47.5 -	- 144.1	10	20
Percent recovery is based on the	spike	e resi	ult. RP	D is bas	sed on th	ne spike and	d spike	duplicat	e result.	- 001	~	~
Sumerate	L D	CS		USD	TInita	D:1	Sp A	oike	LCS	LCSI	J	Kec.
n Triaccono	1		1	Sult	Units	D11.		ount	115	120		Limit 70 120
Matrix Spike (MS-1) Spike QC Batch: 80636 Prep Batch: 68447	d Sa	mple	e: 26449 Da QC	6 te Analy Prepar	yzed: ration:	2011-04-25 2011-04-25				Analy Prepa	zed By red By	: ME ME
				MS			Spil	ke	Matrix			Rec.
Param		F	C	Result	Unit	s Dil.	Amo	unt	Result	Rec	•	Limit
Benzene			1	1.67	mg/K	g 1	2.0	0	< 0.0118	84	80	.5 - 112
Toluene			1	2.12	mg/K	g 1	2.0	0 •	< 0.00600	106	82	.4 - 113
Etnylbenzene			1	2.31	mg/K	g l	2.0	U <	<0.00850	116	83	.9 - 114
			1	1.01	mg/K	<u>.g 1</u>	0.0	<u> </u>	0.00013	117	<u>ŏ</u> 4	+ - 114

Report Date: April 29, 2011 114-6400888				Worl C	k Order: OG/Whi	11042203 ite Star			Pa	age Nun F	nber: : Eddy (21 of 29 Co., NM
			MSD			Spike	Matri	x	R	ec.		RPD
Param	\mathbf{F}	С	Result	Unit	s Dil.	Amount	Resul	t Rec.	Li	mit	RPD	Limit
Benzene		1	1.50	mg/K	Kg 1	2.00	< 0.01	18 75	80.5	- 112	11	20
Toluene		1	1.93	mg/K	(g 1	2.00	< 0.006	00 96	82.4	- 113	9	20
Ethylbenzene		1	2.11	mg/K	Kg 1	2.00	< 0.008	50 106	83.9	- 114	9	20
Xylene		1	6.40	mg/K	(g 1	6.00	< 0.006	13 107	84 -	114	9	20
Percent recovery is based on the	e spik	e res	ult. RP	D is bas	ed on th	e spike and	spike d	uplicate re	esult.			
			ľ	MS	MSD			Spike	MS	MSD		Rec.
Surrogate			Re	esult	Result	Units	Dil.	Amount	Rec.	Rec.	J	Limit
Trifluorotoluene (TFT)			1 2	2.40	2.08	mg/Kg	1	2	120	104	41	.3 - 117
4-Bromofluorobenzene (4-BFB)			1 2	2.64	2.31	mg/Kg	1	2	132	116	35	.5 - 129
QC Batch: 80637 Prep Batch: 68447		n	Dat QC	te Analy Prepar MS	rzed: 2 ation: 2	2011-04-25 2011-04-25	Spil	ke M	atrix	Analyze Prepare	ed By ed By:	ME ME Rec.
Param		F	<u> </u>	Result	Unit	S Dil.	Amo	unt Ro	esuit	Rec.		Jimit
GRO			1	15.0	mg/r	xg 1	20.	0 <(J.753	75	61.	8 - 114
Percent recovery is based on the	e spik	e res	ult. RP	D is bas	ed on the	e spike and	spike du	iplicate re	sult.			
			MSD			Spike	Matri	ix	Re	c.		RPD
Param	\mathbf{F}	С	Result	t Uni [.]	ts Dil.	Amount	Resu	lt Rec.	Lin	nit J	RPD	Limit
GRO		1	17.0	mg/l	Kg 1	20.0	<0.75	53 85	61.8 -	114	12	20
Percent recovery is based on the	spik	e res	ult. RP	D is bas	ed on the	e spike and	spike du	iplicate re	sult.			
				MS	MSD			Spike	MS	MSI	D	Rec.
Surrogate			R	esult	Result	Units	Dil.	Amount	Rec.	Rec	: .	Limit
Trifluorotoluene (TFT)			1	2.16	2.32	mg/Kg	1	2	108	116	3 5	0 - 162
4-Bromofluorobenzene (4-BFB)			1 2	2.22	2.37	mg/Kg	1	2	111	118	35	0 - 162
Matrix Spike (MS-1) Spik QC Batch: 80646 Prep Batch: 68456	ed Sa	mpl	e: 26447 Da QC	9 te Anal; C Prepar	yzed:	2011-04-25 2011-04-25				Analy: Prepa	zed By red By	y: kg y: kg
-		_	~	MS	.		Spike	e Mat	rix	_	F	lec.
Param	<u> </u>	F	C 1	Result	Units	Dil.	Amou	nt Res	uit	Rec.	Li	imit
DRO			1	208	mg/K	g 1	250	<1	5.7	83	11.7	- 152.3

Report Date: April 29, 2011 114-6400888				Work CO	Order: 1 G/White	1042203 Star			Pa	ge Nur F	nber: Eddy (22 of 29 Co., NM
Percent recovery is based on t	the spike	e resi	ult. RPD	is based	l on the :	spike and s	spike dupl	icate r	esult.			
			MSD			Spike	Matrix		Rec			RPD
Param	\mathbf{F}	С	Result	Units	Dil.	Amount	Result	Rec.	Limi	it	RPD	Limit
DRO		1	236	mg/Kg	1	250	<15.7	94	11.7 - 1	52.3	13	20
Percent recovery is based on t	the spike	e resu	ılt. RPD	is based	l on the s	spike and s	spike dupl	icate r	esult.			
]	MS	MS	D			Spike		MS	MSD		Rec.
Surrogate	\mathbf{R}	esult	Res	ult	Units	Dil.	Amoun	t	Rec.	Rec.		Limit
n-Tricosane	1	102	11	0	mg/Kg	1	100		102	110		70 - 130
QC Batch: 80725 Prep Batch: 68435	·	1	Date QC 1	Analyz Preparat	ed: 20 ion: 20	11-04-27 11-04-25				Analyz Prepar	ed By ed By	: AR : AR
				MS			Spike	9	Matrix			Rec.
Param		\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amou	nt	Result	Rec		Limit
Chloride		_		11900	mg/K	g 100	10000)	2450	94	5	80 - 120
Percent recovery is based on t	the spike	e resu	ılt. RPD	is based	l on the s	spike and s	spike dupl	icate r	esult.			
			MSD			Spike	Matrix		\mathbf{Re}	c.		RPD
Param	\mathbf{F}	С	Result	Units	s Dil.	Amount	: Result	Rec	c. Lin	nit 1	RPD	Limit
Chloride			12300	mg/K	g 100	10000	2450	98	80 -	120	3	20
Percent recovery is based on t	he spike	e resu	ılt. RPD	is based	on the s	pike and s	spike dupl	icate r	esult.			

Matrix Spike (MS-1) Spiked Sample: 264497

QC Batch: Prep Batch:	80730 68516	Date Analyzed: QC Preparation:	2011-04-27 2011-04-27			Analyzed By: Prepared By:	ME ME
		MS		Spike	Matrix	R	ec.

Param	\mathbf{F}	С	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	2.18	mg/Kg	1	2.00	< 0.0118	109	80.5 - 112
Toluene		1	2.20	mg/Kg	1	2.00	0.166	102	82.4 - 113
Ethylbenzene		1	2.26	mg/Kg	1	2.00	0.1608	105	83.9 - 114
Xylene		1	6.78	mg/Kg	1	6.00	0.4904	105	84 - 114

114-6400888	rt Date: April 29, 2011 Work Order: 11042203 400888 COG/White Star											23 of 29 Co., NM
matrix spikes continued												
			MSD			Spike	Matrix		R	ec.		RPD
Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	Liı	mit	RPD	Limit
			MSD			Spike	Matrix		R	ec.		RPD
Param	\mathbf{F}	С	Result	Units	Dil.	Amount	Result	Rec.	Lir	mit	RPD	Limit
Benzene		1	2.10	mg/Kg	1	2.00	< 0.0118	105	80.5	- 112	4	20
Toluene		1	2.14	mg/Kg	1	2.00	0.166	99	82.4	- 113	3	20
Ethylbenzene		1	2.22	mg/Kg	1	2.00	0.1608	103	83.9	- 114	2	20
Xylene		1	6.70	mg/Kg	1	6.00	0.4904	103	84 -	114	1	20
Percent recovery is based on the	spike	resi	ılt. RPI) is based	on the	spike and	spike dup	licate re	esult.			
			N	IS M	SD		S	pike	MS	MSI)	Rec.
Surrogate			Re	sult Re	\mathbf{sult}	Units	Dil. Ar	nount	Rec.	Rec	.]	Limit
Trifluorotoluene (TFT)			1 2.	25 2.	43	mg/Kg	1	2	112	122	41	3 - 117
			•	07 0	10	malka	1	2	119	194	25	5 - 129
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike	d Sa	mple	<u>1</u> 2. :: 264383	<u>25 2.</u>	48	ing/ rrg	1		112	124		
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 80731 Prep Batch: 68516	d Sa	mple	1 2. 264383 Date QC	25 2. e Analyzec Preparatic	48 d: 20 on: 20	011-04-27 011-04-27	1	2		Analy: Prepar	zed By red By:	ME ME
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 80731 Prep Batch: 68516	d Sa	mple	_12. :: 264383 Date QC	25 2. e Analyzec Preparatio MS	48 d: 20 on: 20	011-04-27 011-04-27	Spike	M	atrix	Analy: Prepar	zed By red By:	ME ME Rec.
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 80731 Prep Batch: 68516 Param	d Sa	mple	1 2. 264383 Date QC	25 2. e Analyzec Preparatic MS Result	48 d: 20 on: 20 Units	011-04-27 011-04-27 011-04-27 5 Dil.	Spike	M. t Ro	atrix esult	Analy: Prepar Rec.	zed By red By:	ME ME Rec.
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 80731 Prep Batch: 68516 Param GRO	d Sa	mple	1 2. 264383 Date QC	25 2. e Analyzec Preparatic MS Result 15.6	48 d: 2(on: 2(Units mg/K	D11-04-27 D11-04-27 D11-04-27	Spike Amoun 20.0	M. t Ra <0	atrix esult	Analy: Prepar Rec. 78	zed By red By:	ME ME Rec. Limit 8 - 114
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 80731 Prep Batch: 68516 Param GRO Percent recovery is based on the s	d Sa	mple F : resu	1 2. 264383 QC C 1 1 1 1 1 1 1 1 1	25 2. Analyzed Preparatio MS Result 15.6 D is based	48 d: 20 on: 20 Units mg/K on the	011-04-27 011-04-27 s Dil. g 1 spike and	Spike Amoun 20.0 spike dup	M. t Ra <0	atrix esult).753 sult.	Analy: Prepar Rec. 78	zed By red By: 61	ME ME Rec.
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 80731 Prep Batch: 68516 Param GRO Percent recovery is based on the s	d Sa	mple F • rest	1 2. 264383 Date QC <u>C</u> 1 1 MSD	25 2. e Analyzed Preparatio MS Result 15.6 0 is based	d: 20 on: 20 Units mg/K on the	011-04-27 011-04-27 g 1 spike and Spike	Spike Amoun 20.0 spike dup Matrix	Mi t Ra <0 licate re	atrix esult).753 esult. Re	Analy: Prepar Rec. 78	zed By red By:	ME ME Limit 8 - 114
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 80731 Prep Batch: 68516 Param GRO Percent recovery is based on the s Param	d Sa spike F	mple F rest	1 2. 264383 Date QC 1 1 1 MSD Result	25 2. Analyzec Preparatio MS Result 15.6) is based Units	d: 20 on: 20 Units mg/K on the Dil.	D11-04-27 D11-04-27 g 1 spike and Spike Amount	Spike Amoun 20.0 spike dup Matrix Result	Mi t Ra <(I licate re Rec.	atrix esult).753 esult. Re Lin	Analy: Prepar Rec. 78	zed By red By: 61 RPD	ME ME Rec. Limit 8 - 114 RPD Limit
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 80731 Prep Batch: 68516 Param GRO Param GRO	d Sa spike F	mple F 	1 2. 264383 QC 1 1 1 MSD Result 15.4	25 2. 25	d: 20 on: 20 <u>Units</u> <u>mg/K</u> on the <u>Dil.</u> 1	011-04-27 011-04-27 <u>g 1</u> spike and Spike <u>Amount</u> 20.0	Spike Amoun 20.0 spike dup Matrix Result <0.753	M. t Ra <(licate re <u>Rec.</u> 77	atrix esult).753 sult. Re Lin 61.8 -	Analy: Prepar Rec. 78 ec. nit - 114	zed By red By: 61. RPD 1	ME ME Limit RPD Limit 20
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 80731 Prep Batch: 68516 Param GRO Percent recovery is based on the s Param GRO Percent recovery is based on the s	d Sa spike	F F C 1 resu	1 2. 1 2. 264383 Date QC 1 1 1 1 MSD Result 15.4 11. RPD	25 2. 26 Analyzed Preparation MS Result 15.6 0 is based Units mg/Kg 0 is based	$\frac{48}{20}$ $\frac{1}{20}$ $\frac{1}{20}$ $\frac{1}{20}$	011-04-27 011-04-27 g 1 spike and Spike Amount 20.0 spike and	Spike Amoun 20.0 spike dup Matrix Result <0.753 spike dup	Mit t Ro c(licate re Rec. 77 licate re	atrix esult).753 esult. Re Lin 61.8 - esult.	Analy: Prepar Rec. 78 ec. nit - 114	zed By red By: 61 RPD 1	ME ME Limit 8 - 114 RPD Limit 20
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 80731 Prep Batch: 68516 Param GRO Percent recovery is based on the s Param GRO Percent recovery is based on the s	d Sa spike	F Presu Presu	1 2. 264383 QC C 1 1 1 MSD Result 15.4 Ilt. RPL	25 2. 25	d: 20 on: 20 Units mg/K on the Dil. 1 on the (SD	011-04-27 011-04-27 g 1 spike and Spike Amount 20.0 spike and	Spike Amoun 20.0 spike dup Matrix Result <0.753 spike dup	M. t Ra <(licate re <u>Rec.</u> 77 licate re Spike	atrix esult).753 sult. Re Lin 61.8 - sult. MS	Analy: Prepar Rec. 78 ec. nit - 114	zed By red By: 61. RPD 1	ME ME Simit 8 - 114 RPD Limit 20 Rec.
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 80731 Prep Batch: 68516 Param GRO Percent recovery is based on the s Param GRO Percent recovery is based on the s Surrogate	d Sa spike F	F F C resu	1 2. 264383 QC C 1 1 1 1 MSD Result 15.4 1 1 N Re	25 2. 25	d: 20 on: 20 <u>Units</u> <u>mg/K</u> on the <u>Dil.</u> <u>1</u> on the (SD esult	011-04-27 011-04-27 s Dil. g 1 spike and Spike Amount 20.0 spike and Units	Spike Amoun 20.0 spike dup Matrix Result <0.753 spike dup Dil. A	M. t Ro licate re <u>Rec.</u> 77 licate re Spike mount	atrix esult 0.753 sult. Re Lin 61.8 - sult. MS Rec.	Analy: Prepar Rec. 78 ec. nit - 114 MS Re	zed By red By: 61. RPD 1 SD c.	ME ME ME Simit 8 - 114 RPD Limit 20 Rec. Limit
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 80731 Prep Batch: 68516 Param GRO Percent recovery is based on the s Param GRO Percent recovery is based on the s Surrogate Drifluorotoluene (TFT)	d Sa spike F	F resu resu	1 2. 264383 QC C 1 1 1 1 1 MSD Result 15.4 1 1 1 N Result 1 2	25 2. 25	d: 20 on: 20 <u>Units</u> <u>mg/K</u> on the <u>Dil.</u> <u>1</u> on the (SD ssult .14	011-04-27 011-04-27 3 Dil. g 1 spike and Spike Amount 20.0 spike and Units mg/Kg	Spike Amoun 20.0 spike dup Matrix Result <0.753 spike dup Dil. A 1	M. t Ra 	atrix esult 0.753 sult. Re Lin 61.8 - sult. MS Rec. 118	Analy: Prepar Rec. 78 ec. nit - 114 MS Rec. 10	zed By red By: 61 RPD 1 SD c. 77 5	ME ME ME 20 Rec. Limit 20 Rec. Limit 0 - 162

QC Batch:	80739	Date Analyzed:	2011-04-27	Analyzed By:	kg
Prep Batch:	68529	QC Preparation:	2011-04-27	Prepared By:	kg

Matrix Spike (MS-1) Spiked Sample: 264455

Report Date: April 29, 2011 114-6400888		Work Order: 11042203 COG/White Star						Page Number: 24 of 29 Eddy Co., NM					
Param			F	СІ	MS Result	Units	Dil.	Spike Amount	M R	atrix esult	Rec.		Rec. Limit
DRO				1	233	mg/Kg	1	250	<	15.7	93	11.	7 - 152.3
Percent recovery is based on	the s	pike	e rest	ılt. RPI) is base	d on the	spike and	spike dup	licate	result.			
				MSD			Spike	Matrix		F	Rec.		RPD
Param		\mathbf{F}	С	Result	Units	Dil.	Amount	Result	Rec.	\mathbf{L}	imit	RPD	Limit
DRO			1	224	mg/Kg	g 1	250	<15.7	90	11.7	- 152.3	4	20
Percent recovery is based on	the sp	pike	e rest	ılt. RPI) is base	d on the	spike and	spike dup	licate	result.			
]	MS	М	SD			Spike		MS	MSI)	Rec.
Surrogate		Re	esult	Re	sult	Units	Dil.	Amour	nt	Rec.	Rec		Limit
n-Tricosane	1	1	03	1	06	mg/Kg	1	100		103	106		70 - 130

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Calibration Standards

Standard (CCV-2)

QC Batch:	80636			Date Ana	Analyzed By: ME					
					CCVs	CCVs	CCVs	Percent		
					True	Found	Percent	Recovery	Date	
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
Benzene			1	mg/Kg	0.100	0.0806	81	80 - 120	2011-04-25	
Toluene			1	mg/Kg	0.100	0.100	100	80 - 120	2011-04-25	
Ethylbenzer	ıe		1	mg/Kg	0.100	0.105	105	80 - 120	2011-04-25	
Xylene	_		1	mg/Kg	0.300	0.318	106	80 - 120	2011-04-25	

Standard (CCV-3)

QC Batch:	80636			Date Ana	lyzed: 201	Analyzed By: ME			
					CCVs	CCVs	CCVs	Percent	
					True	Found	Percent	Recovery	Date
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene			1	mg/Kg	0.100	0.0853	85	80 - 120	2011-04-25
Toluene			1	mg/Kg	0.100	0.105	105	80 - 120	2011-04-25
Ethylbenzer	le		1	mg/Kg	0.100	0.109	109	80 - 120	2011-04-25
Xylene			1	mg/Kg	0.300	0.327	109	80 - 120	2011-04-25

Standard (CCV-2)

QC Batch:	80637			Date	Analyzed:	2011-04-25		Analyzed By: ME		
					\mathbf{CCVs}	CCVs	CCVs	Percent		
					True	Found	Percent	Recovery	Date	
Param		Flag	\mathbf{Cert}	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
GRO			1	mg/Kg	1.00	0.898	90	80 - 120	2011-04-25	

Standard (CCV-3)

QC Batch: 80637

Date Analyzed: 2011-04-25

Analyzed By: ME

Report Date: 114-6400888	April 29, 201	1		Work Ord COG/V	Page Number: 26 of 29 Eddy Co., NM			
Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.08	108	80 - 120	2011-04-25
Standard (C	CV-1)							
QC Batch: 80	0646		Date	Analyzed:	2011-04-25		Anal	yzed By: kg
Param	Flag	Cert	Units	CCVs True Conc	CCVs Found Conc	CCVs Percent Becovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	212	85	80 - 120	2011-04-25
Standard (C	CV-2)							
QC Batch: 80	0646		Date	Analyzed:	2011-04-25		Anal	yzed By: kg
Param	Flag	Cort	Unite	CCVs True Conc	CCVs Found Conc	CCVs Percent Becovery	Percent Recovery Limits	Date Analyzed
DRO	Ting	1	mg/Kg	250	230	92	80 - 120	2011-04-25
Standard (IC	CV-1)							
QC Batch: 80)725		Date	Analyzed:	2011-04-27		Analy	zed By: AR
				ICVs True	ICVs Found	ICVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
<u>Unioride</u>			mg/Kg	100	100	100	85 - 115	2011-04-27

Standard (CCV-1)

QC Batch: 80725

Date Analyzed: 2011-04-27

Analyzed By: AR

Report Date: A 114-6400888	April 29, 2011			Work Order: COG/Wh	Page Number: 27 of 29 Eddy Co., NM			
				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	99.6	100	85 - 115	2011-04-27

Standard (CCV-1)

QC Batch:	80730			Date Ana	Analyzed By: ME					
					CCVs	CCVs	CCVs	Percent		
					True	Found	Percent	Recovery	Date	
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
Benzene			ı	mg/Kg	0.100	0.107	107	80 - 120	2011-04-27	
Toluene			I	mg/Kg	0.100	0.108	108	80 - 120	2011-04-27	
Ethylbenzer	ie		1	mg/Kg	0.100	0.108	108	80 - 120	2011-04-27	
Xylene			1	mg/Kg	0.300	0.328	109	80 - 120	2011-04-27	

Standard (CCV-2)

QC Batch:	80730			Date Ana	lyzed: 201	1-04-27	Analyzed By: ME		
					CCVs	CCVs	CCVs	Percent	
					True	Found	Percent	Recovery	Date
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene			1	mg/Kg	0.100	0.103	103	80 - 120	2011-04-27
Toluene			1	mg/Kg	0.100	0.103	103	80 - 120	2011-04-27
Ethylbenzer	le		1	mg/Kg	0.100	0.102	102	80 - 120	2011-04-27
Xylene			1	mg/Kg	0.300	0.308	103	80 - 120	2011-04-27

Standard (CCV-1)

QC Batch:	80731			Date .	Analyzed:	2011-04-27		Analy	zed By: ME
					CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO			1	mg/Kg	1.00	0.935	94	80 - 120	2011-04-27

Report Date: 114-6400888	April 29, 2011	<u> </u>		Page Number: 28 of 29 Eddy Co., NM									
Standard (C	CV-2)												
QC Batch: 8	0731		Date	Analyzed:	2011-04-27		Analy	zed By: ME					
				CCVs	CCVs Found	CCVs Baracent	Percent	Data					
Param	Flag	Cert	Units	Conc	Conc	Recovery	Limits	Analyzed					
GRO		1	mg/Kg	1.00	1.01	101	80 - 120	2011-04-27					
Standard (C	CV-2)												
QC Batch: 8	0739		Date	Analyzed:	2011-04-27		Anal	yzed By: kg					
Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed					
DRO		1	mg/Kg	250	294	118	80 - 120	2011-04-27					
Standard (C	CV-3)												
QC Batch: 8	0739		Date	Analyzed:	2011-04-27		Anal	yzed By: kg					
				CCVs	CCVs	CCVs	Percent						
_		~		True	Found	Percent	Recovery	Date					
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed					
DRO		1	mg/Kg	250	274	110	80 - 120	2011-04-27					

Work Order: 11042203 COG/White Star Page Number: 29 of 29 Eddy Co., NM

Appendix

Laboratory Certifications

	Certifying	Certification	Laboratory
С	Authority	Number	Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-10-TX	Midland

Standard Flags

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

Attachments

The scanned attachments will follow this page.

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

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